Post-disaster Wellbeing of Women: a Case Study of the Gorkha Earthquake in Dolakha, Nepal

SHRESTHA, CHANDIKA

Post-disaster Wellbeing of Women: a Case Study of the Gorkha Earthquake in Dolakha, Nepal

Chandika Shrestha

2023

Abstract

In 2015, Nepal experienced a devastating earthquake, resulting in significant loss of life and widespread homelessness. The country is particularly vulnerable to climate-related risks due to its topography and geographical location. However, the impact of such hazards varies among individuals and communities. Notably, there are clear inequalities in vulnerabilities before the event, the effects experienced during the event, and the recovery processes that follow. While gender inequalities and gender-blind policy design have long been studied in the field of development, research in disaster studies has also shown that women are disproportionately affected, with higher mortality rates compared to men. Moreover, post-event interventions often neglect gender dynamics, resulting in new forms of inequality in crisis experiences and opportunities for recovery.

In rural Nepal, where male out-migration for employment is prevalent, women bear the responsibility of managing households. Consequently, these households are overrepresented among the poorest in poverty studies. Following a disaster, women not only face physical challenges but also psychological impacts. The process of rebuilding lives and managing emotional turmoil adds to their burden, significantly affecting their mental wellbeing. Therefore, it is crucial to investigate strategies to enhance women's wellbeing and effectively respond to future hazards.

While not all women survivors experience psychological problems, many demonstrate remarkable resilience in adverse circumstances. Unfortunately, existing post-disaster research predominantly focuses on identifying vulnerabilities, rather than exploring capacities and capabilities for resilience. To address this gap, this study takes a threefold approach to complement and expand current gender-related disaster research. Firstly, it examines pre-earthquake vulnerabilities that shape the disaster experience and wellbeing. Secondly, it investigates the differentiated experiences of disaster and recovery processes for women. Lastly, it pays particular attention to the determinants of wellbeing amidst adversity.

This study stands out as one of the few to adopt a positive perspective on wellbeing when analysing post-disaster mental health. Using a mixed-methods approach,

qualitative interviews were conducted two years after the earthquake to understand the local context of wellbeing and its determinants. Three years after the event, a survey was conducted, employing a stratified multi-stage proportionate purposive sample, gathering household data from 675 households. A novel statistical technique was employed to examine factors contributing to post-disaster wellbeing, utilising stepwise linear regression models with 95% confidence intervals.

The main findings emphasise that promoting post-disaster wellbeing among women requires addressing everyday inequalities, rather than relying solely on disaster-specific interventions. This study reveals the significant impact of pre-disaster structural and social inequalities on wellbeing after a disaster. Multiple factors interact to influence women's post-disaster wellbeing, including urban residence, ethnicity (Janajati), nuclear family structure, self-employment, and receiving remittances as the main source of income. Additionally, pre-earthquake factors such as having no chronic health issues, no traumatic life events and minimal stress before the earthquake also contribute to post-disaster wellbeing.

During the disaster itself, access to social capital plays a crucial role in post-disaster wellbeing. Women who received assistance from the community or felt comfortable seeking help during and after the disaster displayed better wellbeing outcomes. Conversely, limited social access within caste groups had a negative association with wellbeing. The study also highlights that satisfaction with the reconstruction efforts, in addition to the act of reconstruction itself, is a significant determinant of women's wellbeing. Finally, the study concludes by discussing avenues for further research and important policy implications.

Keywords:

Mental Health and Wellbeing; Subjective Wellbeing; resilience; Gorkha Earthquake; Disaster; Women; Nepal.

Post-disaster Wellbeing of Women: a case study of the Gorkha earthquake in Dolakha, Nepal.

Chandika Shrestha

A thesis submitted for the degree of Doctor of Philosophy

Department of Geography

Durham University

2023

To my father Lal Kaji Shrestha, Mom Tulsi Shrestha

&

husband Ramjee Bhandari

Table of Contents

List of Tables

List of Figures

List of Abbreviations and Acronyms

Abbreviations	Definition
CBS	Central Bureau of Statistics
CGI	Corrugated Galvanised Iron
CPSW	Community psychosocial worker
DDC	District Development Committee
DRR	Disaster Risk Reduction
FCHV	Female Community Health Volunteer
FGD	Focus Group Discussion
GDP	Gross Domestic Product
HDI	Human Development Index
HFA	Hyogo Framework for Action
HH	Household
HIV	Human Immunodeficiency Virus
HQ	Headquarter
ICIMOD	International Centre for Integrated Mountain Development
IHRR	Institute of Hazard, Risk and Resilience
KII	Key Informant Interview
M	Municipality
MAUP	Modifiable Areal Unit Problem
MCAR	Missing Completely at Random
MCQ	Multiple Choice Question
MHPSS	Mental Health and Psychosocial Support
MIWA	Mental Wellbeing Impact Assessment
NGO	Non-Governmental Organisation
NPC	National Planning Commission
NPR	Nepalese Rupee
NRA	National Reconstruction Authority
ONS	Office for National Statistics
PA	Participation Agreement
PAR	Pressure and Release
PTSD	Post-traumatic Stress Disorder
PHQ	Patient Health Questionnaire

RA	Research Assistant
RCC	Reinforced Cement Concrete
RM	Rural Municipality
SD	Standard Deviation
SDG	Sustainable Development Goals
SE	Standard Error
SFDRR	Sendai Framework for Disaster Risk Reduction
SPSS	Statistical Package for the Social Sciences
SWB	Subjective Wellbeing
TPO	Transcultural Psychosocial Organisation
UMN	United Mission to Nepal
UN	United Nations
UNICEF	United Nation International Children's Emergency Fund
UN-IDSR	United Nation International Strategy for Disaster Reduction
VDC	Village Development Committee
VIF	Variance Inflation Factor
WDO	Women Development Office
WeD	Wellbeing in Developing Countries
WHO	World Health Organisation

Declarations

The material contained in this thesis has previously not been submitted by anyone for a degree in this or any other institution. It is the sole work of the author. In all cases, where it is relevant, material from the work of others has been acknowledged.

Copyright

Acknowledgements

As I conclude my journey as a PhD student, I express my heartfelt appreciation to the numerous individuals and institutions who have supported me throughout this study. I am deeply grateful to the Christopher Moyes Memorial Foundation and Mrs Jan Moyes for generously providing three years of funding, which made this study possible. I extend my sincere gratitude to my esteemed supervisors, Professor Sarah Atkinson, Dr Niall Cunningham, Dr Katie Oven, Professor Sarah Curtis (during the first year), Dr Christine Dunn, and Dr Mark Booth. Their unwavering support, excellent guidance, and encouragement have been instrumental in sustaining me during this challenging and lengthy endeavour.

I am immensely thankful to all the participants who dedicated their valuable time and contributed their responses to this study. My appreciation for the Department and its remarkable individuals knows no bounds. I am grateful to Louise Bracken, Kathy Wood, and Julie Dobson for their invaluable administrative assistance. I would like to acknowledge the support and belief of my parents and in-laws, whose encouragement has been unwavering. I also extend my gratitude to my daughter, Ava, whose presence has brought immense joy to my journey.

A special acknowledgement goes to my husband, Ramjee Bhandari, for his guidance in statistical analysis and unwavering love and support throughout this journey. I am thankful to my friend, Aysushman Bhagat, for assisting me in reviewing my chapters. My heartfelt gratitude goes to Shamina Akter Shanu, Sahidhur Rahaman, Samprada Pradhan, Swastik Shrestha, and Gopi Basyal, who have become my family in Durham. Lastly, I express my appreciation to the research assistants Isha, Pramila, Anjali, Maina, Ramesh, Saraswati, Ram, Arjun, and Puskar for their contributions to the survey and interviews, and to Ravindra Bhandari for assisting with data entry.

I offer my sincere thanks to every person mentioned above. Your support and assistance have been invaluable to the successful completion of this study.

Thank you all.

Chapter 1 Introduction

Figure 1: En route to my field station in 2011

In 2011, I was employed as a hygiene and sanitation promotion officer in Kalikot, one of the remotest parts of my home country of Nepal. As a girl born and brought up in the capital city, it was my first exposure to the demands of rural life. I walked 14 hours from the nearest vehicle access point to reach my field station, which was also the only market for many other surrounding villages, including my programme villages. Much of the walking route along the bank of the Karnali River was regularly prone to landslides and became inaccessible during the rainy season (see Figure 1). The local population managed the seasonal disruption by going to the market to get enough stock of rock salt for the season for themselves and their cattle before the monsoon started. People nonetheless mostly depend on food supplied by the World Food Programme, given the insufficient local production and poor economic status.

Figure 2: Women husking paddy using a traditional mortar and pestle in Kalikot

In most households, men were absent, primarily for employment or studies, and women were left behind to run the households (see Figure 2). Due to the lack of electricity and a phone network, they were not in touch with their partners for months. Drinking water supply and basic sanitation facilities at home were almost non-existent. Women manage labour-intensive domestic and agricultural roles in the absence of male household members. Despite all these challenges women faced in their everyday lives, I was surprised to see women, in general, living a happy life.

I was in the UK when the Gorkha-Dolakha earthquake struck Nepal in 2015 and caused extensive devastation. The event triggered my interest in understanding how women who are already living challenging lives in a harsh environment in rural Nepal would react and cope with the additional challenges added to their lives by the earthquake. I aimed to steer my research ideas using theories and principles sitting at the intersection of public health geography and development geography.

1.1 Background

It is difficult to overstate the human and economic devastation caused by the Gorkha-Dolakha earthquake in 2015, which killed as many as 9,000 people and flattened over 5 million homes (Government of Nepal, 2016; Logistics Cluster, 2016). Disaster does not pose an equal threat to everyone, and not all people are affected to the same extent as social position makes some people more vulnerable than others and influences their ability to anticipate, cope, resist and recover from the impact of hazard (Wisner et al., 2004). In developing countries, the vulnerability of women, particularly young married and de facto household head women, is likely to be magnified in a disaster because they are one of the most asset-poor groups and lack access to and control over resources, although there is little empirical evidence available to support this assertion (Smith and Troni, 2004; Chant, 2003; Bradshaw and Fordham, 2013). The impacts of the Gorkha-Dolakha earthquake particularly affected women, marginalised ethnic groups, and rural parts of the country, which illustrated the differential impact on socially vulnerable groups (Shakya, 2016). However, despite facing adversities, women have been able to resume their life successfully and contribute to disaster recovery and reconstruction (Rigg, Lawt, et al., 2005 ; Rutter, 2013; Liu and Mishna, 2012). Gender and disaster literature often overlook the distinctive capabilities of women and their crucial knowledge and skills in addressing

unique situations during the management of an emergency and their contribution to helping communities prepare for and respond to a disaster, as well as to build resilience (Cupples, 2007; Bradshaw and Fordham, 2013; Austin Lord, May 2016).

Disaster events have large impacts on not only the immediate but also the longer-term expressions of mental health and wellbeing of affected populations (F. H. Norris et al., 2002). Hazard events such as earthquakes can exacerbate a wide range of both mental illness and physical disorders which have social and economic impacts (Wang et al., 2000; Norris et al., 2002c). Most of the post-disaster studies have focused on short-term traumatic stress disorders and mental illness in affected communities (F. H. Norris et al., 2002). Like the occurrence of aftershocks for many months after the earthquake, longer-term mental health problems are often more prevalent than short-term psychiatric morbidity post-disaster (Bland et al., 1996; Chen et al., 2007). Longer-term disaster impacts on mental health can make post-disaster recovery a challenge (O'Brien et al., 2005).

Mental health and wellbeing are fundamental elements of resilient individual capabilities and key to positive adaptation to adverse circumstances enabling people to reach their full potential (Friedli, 2009). A higher level of subjective wellbeing during the time of adversity, irrespective of prior wellbeing, is associated with an optimistic outlook which can help an individual become confident and persistent in coping with diverse life challenges in the face of adversity (Carver et al., 2010). The focus of mental illness treatment is on an individual level, whereas promoting mental health and wellbeing has the potential to shift the focus to the population level and beyond only treating illness (Herrman, 2012). Mental health promotion leverages the post-event recovery process and good functioning of the community to create healthier, resilient, and sustainable communities (Ibid). Therefore, it is important to expand knowledge on the effective approaches to mental health and wellbeing in the context of disaster – a topic that has received little attention (Harris-Roxas et al., 2012). Although studies on mental health and wellbeing have suggested probable determinants, most of those factors are disrupted by the disaster and the interactions between disaster events, their aftermath and recovery – leading to complex individual health and wellbeing outcomes that remain largely under-researched (Walker-Springett et al. (2017).

In Nepal the concept of mental health is culturally very different from other countries, and most importantly from those parts of the world that tend to generate relevant research, interpretation and models. In Nepal, mental health is understood as synonymous with the absence of mental illness. Mental illness is highly stigmatised in Nepal and those receiving a diagnosis of mental illness are often labelled as 'crazy' or 'mad' and seen as incurable, which has a major negative impact on the social and economic life of the individual and their family. The mind–body distinction that is used widely in discussing and understanding mental health is expressed in its own particular way in Nepal. Given the stigmatisation attached to mental illness in Nepal, positive connotations of the heart's association with emotion are used to describe mental problems instead of the heart–mind discourse. The study of mental health has also undergone some shifts towards a more positive understanding following the experiences of large events such as the Bhutanese refugee crisis and civil conflict. These studies were, however, focused more on victim groups of those events such as child soldiers or refugees rather than the general population (Kohrt et al., 2010).

The frequency of hazard events and their associated mental health impacts has been increasing in recent decades due to global environmental change. This study intends to contribute to a research gap in studying mental health from a positive perspective about the wellbeing of women in the longer-term post-earthquake aftermath. The research can inform preparedness actions to help women face those hazardous events in advance to reduce vulnerabilities and build a sustainable community. The approach will not only promote individual resilience as part of disaster preparedness but also inform actions towards effective recovery. The wellbeing approach focuses on maintaining the population mental health and wellbeing in relation both to specific settings and the wider environment and in terms of support by both local-level and regional policy. Improved mental health and wellbeing resilience will also help achieve economic savings (Campion & Nurse, 2007a), which will enable developing countries such as Nepal – which is also one of the most hazard-prone countries – to channel their limited resources to best effect through preparedness activities to deal with future adversities.

This thesis is based on the Gorkha-Dolakha earthquake, 2015. The study was conducted in Dolakha district two years post-earthquake. The district is of particular importance because it was an epicentre for the biggest sequence of aftershocks of the

Gorkha earthquake of 12 May. It was one of the worst-hit districts, has high male migration, and a high number of households headed by women. This study takes a mixed-methods approach in which qualitative scoping research informed subsequent quantitative data collection with survivor women and key agency informants in post-earthquake Dolakha.

1.2 Research aim and objectives

The research questions and design were built on insights from health geography and development geography. The research aims to better understand the resilience of women in terms of mental health and wellbeing following a specific disaster event – the Gorkha earthquake in Nepal – and to examine localised determinants that help women maintain health and wellbeing following a disaster event. This study is focused on women because male migration for employment is a common demographic trend in rural parts of Nepal. In places like Dolakha, where the number of households headed by women is high, women are the ones who have to face the consequences of the disaster, address the adverse circumstances and progress the processes of recovery and reconstruction. In all of these activities, their wellbeing is crucial.

Disaster studies have considered women as vulnerable to disaster and its impact due to socially constructed gender norms and unequal power relations (Bradshaw, 2004; Neumayer & Plümper, 2007). At the same time, women are also considered to respond better in dealing with disasters, albeit in a context of limited control or status. In this study, I attempt to remove the blanket categorisation of all women in a single group as both vulnerable and resilient. Hence, the study explores variations in women's experiences and responses to disaster with a particular focus on those women who emerge as having better mental health and wellbeing in the aftermath of disaster. In doing so, this study seeks to address the following objectives:

1 To explore the everyday lives of women before the 2015 Gorkha earthquake and the implications for mental health and wellbeing.
2 To document the challenges faced by women and their response strategies in the aftermath of the 2015 Gorkha earthquake.
3 To identify the factors shaping women's differentiated experiences of the processes of recovery and reconstruction that have influenced women's wellbeing in the aftermath of the earthquake.

1.3 Structure of the Thesis

The thesis consists of seven chapters. After this introductory chapter, **Chapter Two** provides contextual information on various Nepali contexts relevant to this study. It begins by outlining the geographical, administrative, social, and economic aspects of Nepal. Subsequently, the chapter provides a concise overview of Dolakha, the study district, encompassing its socio-economic history and the repercussions of the civil war in the region. The chapter then delves into an exploration of the prevailing social hierarchy represented by the caste system in Nepal. It elucidates how the caste system is deeply ingrained in Nepalese society, perpetuating disparities within communities and influencing the varying impact of the Gorkha earthquake on different ethnic groups. The subsequent section highlights the status of women in Nepal and their systematic discrimination despite their significant contributions to managing households. This section examines the low social standing of women, which is closely tied to the predominant patriarchal culture. Furthermore, the chapter discusses the positive transformations resulting from various social and political developments. Finally, it delves into the Gorkha-Dolakha earthquake and its ramifications for the affected communities.

Chapter Three delves into the relevant literature about the study's themes: mental health and wellbeing, gender, disaster, vulnerability, and resilience. Initially, the chapter examines the fundamental theoretical concepts of mental health and wellbeing, their diverse interpretations across academic disciplines, and their significance in disaster recovery. Subsequently, multiple determinants of mental health and wellbeing are presented through various models, with emphasis on the model utilised throughout the study. Furthermore, key variables commonly studied in Nepal, namely caste/ethnicity, religion, and household structure, are identified as significant in supporting this research project. A concise overview of mental health status and the perception of mental illness in Nepal follows. Additionally, the section emphasizes the definition and impact of disasters on mental health and wellbeing, as well as the rationale behind considering wellbeing in disaster recovery. The final section explores the concepts of vulnerability and intersectionality, highlighting the augmented disaster-related vulnerability experienced by women when intersecting with other characteristics.

Chapter Four outlines the chosen methodological approach, the research aims and objectives, and rationale behind the selected methods. The mixed-methods approach employed is specifically an exploratory sequential mixed-methods framework, with the reasons for combining methods and a discussion of the epistemological considerations supporting the various methods. The argument is made that a critical realist framework best facilitates the integration of methods. Subsequently, the qualitative and quantitative methods used are described, focusing on the employed tools, sampling procedure, study site selection, and data analysis. Ethical considerations are discussed, concluding with a brief section on the evolving nature of the study concept during the research process.

Chapter Five presents descriptive findings derived from the cross-sectional survey complemented by narratives from qualitative interviews. The chapter encompasses characteristics of the study population, study area, experiences of the Gorkha earthquake and its impact, recovery, and post-earthquake reconstruction. Geographical inequalities between rural and urban study areas, leading to limited access to markets and facilities in remote regions, are outlined. These disparities contributed to inequities in relief aid access and subsequently influenced post-earthquake recovery and reconstruction. The chapter highlights socio-demographic distinctions, such as age, ethnicity, and family structure, between women in urban and rural areas. Extensive damage to private and public properties is evident, with nearly all private houses experiencing partial or complete damage. The chapter further explores the coping mechanisms employed by women during different post-earthquake phases and the challenges they encountered regarding delayed reconstruction. A descriptive disparity in the average wellbeing scores of women is presented, with notably lower scores among rural women compared to urban women.

Chapter Six presents the key findings of the study, derived from regression analysis and triangulated with qualitative data. The chapter summarises significant factors that substantially contribute to mental health and wellbeing, as demonstrated through both simple and multiple linear regression analyses. The multiple linear regression model illustrates the intricate interplay of multiple factors and their combined influence on women's wellbeing. Noteworthy contributors to post-disaster wellbeing include the geographical location of women, socio-cultural factors such as ethnicity and family system, economic status, self-assessed quality of life pre and post-

earthquake, absence of traumatic events history, and post-earthquake recovery experiences, including social support accessibility and satisfaction with reconstruction.

Finally, **Chapter Seven** presents the key findings of the study and extracts key themes that emerged as contributors to post-disaster wellbeing from the qualitative and quantitive findings. The central argument of this chapter emphasises that disasters do not act as social levellers, as their impact varies according to socio-economic backgrounds, including gender, ethnicity, and other social parameters. The role of material and social inequalities is prominently observed. Urban localities exhibit positive contributions to women's wellbeing, given the contrasting living conditions compared to non-urban areas. Ethnicity, linked to cultural practices, exhibits gendered implications for women's wellbeing. Despite being a marginalised group, the Janajati ethnic group exhibits better wellbeing compared to higher-caste groups. This is attributed to greater gender equality within Janajati households and increased control over resources. Additionally, the Janajati experienced improved economic status post-earthquake and during early reconstruction, unlike more privileged high-class groups. These observations strongly contribute to Janajati post-disaster wellbeing. Empowerment of women at the individual and household levels significantly impacts post-disaster wellbeing, with women in nuclear family structures experiencing comparatively better wellbeing than those in extended family structures. Similarly, women engaged in professions outside of domestic work exhibit enhanced wellbeing.

A comprehensive comparison and contrast of the findings with existing literature is provided, situating the study's contribution to the body of evidence regarding the determinants of mental health and wellbeing post-disaster. The chapter concludes by offering key recommendations for policymakers based on the study's findings and identifying areas for future research.

Chapter 2 Contextual Background of Nepal, Status of Women and the Gorkha Earthquake

2.1 Introduction

This chapter provides a general introduction to the study area, people, and their dominant socio-economic characteristics, and to the Gorkha earthquake and its aftershocks on which this study is based. Section 2.2 briefly introduces Nepal before I move on to Dolakha district. The brief description of Nepal and its administrative divisions will help explain the wider context of Nepal. I then provide a brief introduction of the distrct and municipalities where the study is conducted. The topographical, administrative, socio-economic and political history of Dolakha sets the district context for the empirical findings of the study. In section 2.4, I present the socio-political transformation and its impact on women in Nepal. The overview of Nepal, Dolakha and the socio-economic and gender characteristics of Nepal provides a context for the pronounced inequalities that the urban/rural divide in Nepal highlights and which is a central theme in assessing the differential impacts of the disaster on women. The final section introduces the Gorkha-Dolakha earthquake and its impact, reconstruction and concept of mental health and illness in Nepal.

2.2 A brief introduction to Nepal

Nepal is a small landlocked country in South Asia, bordering China in the north and India to the south, east and west, and is home to an estimated 26.5 million people (CBS, 2011). Nepal is horizontally divided by three distinct topographical belts based on altitude: Mountain, Hill and Terai (flat land) (see Figure 3 for Nepal's topographical structure). Nepal is one of the low-income countries (25.4 percent of the population living below the poverty line) with a low Human Development Index (HDI) value of 0.43 which ranks it at 138 out of 184 countries (Government of Nepal, 2014). The Nepalese economy is predominantly based on agriculture, with 80.66 percent of the population living in rural areas (DFID, 2017) and 81 percent of the population dependent on agriculture for their livelihood due to the paucity of local income-generation opportunities in rural Nepal (Banskota, 2006). Livelihoods are supplemented by overseas remittances which constitute up to 30 percent of the Gross

Domestic Product (GDP) (Ratha et al., 2015). Although the evidence suggests that poverty has been falling in Nepal over the last two decades, progress is not even

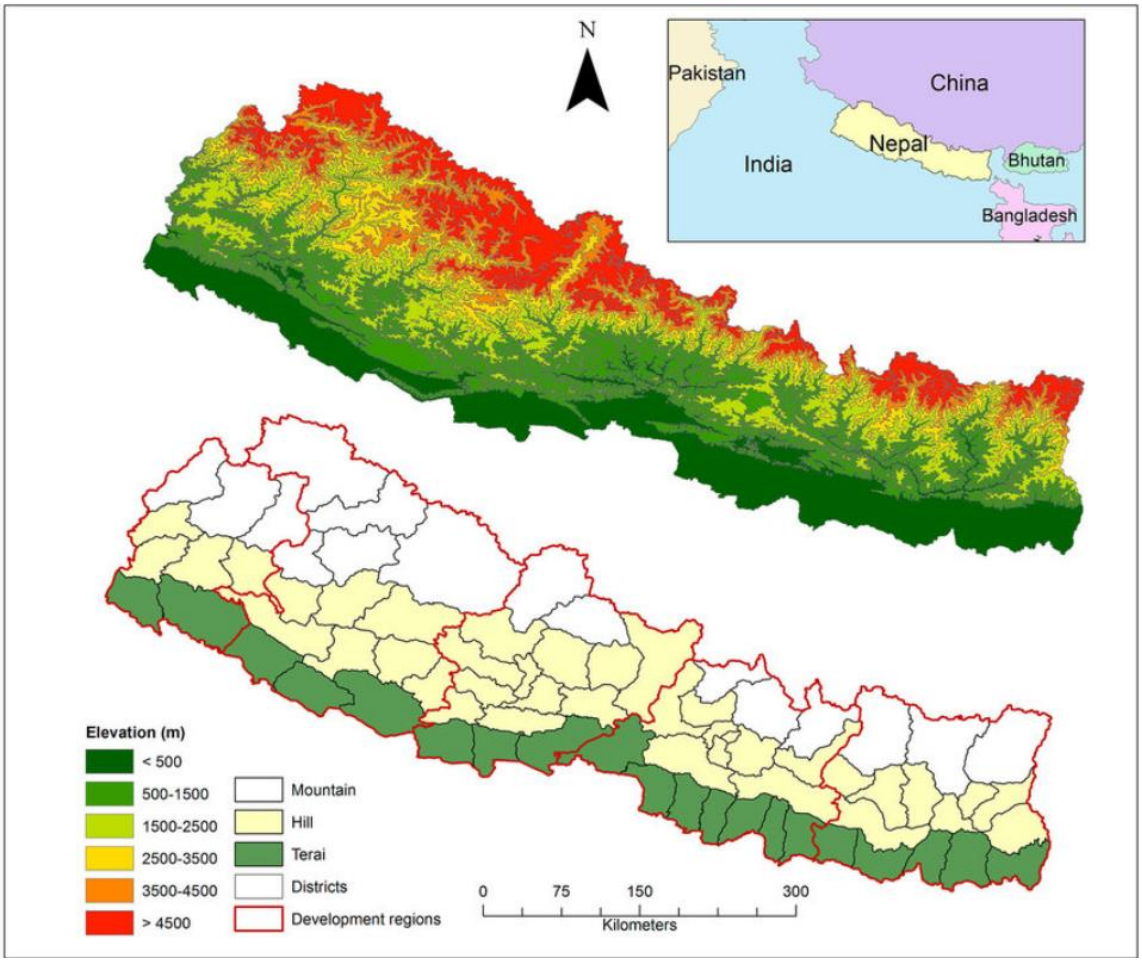


Figure 3: Topographical map of Nepal

throughout the country (DFID, 2017). The poverty rate in Nepal varies markedly by geography at 34.62 percent in rural areas compared with 9.6 percent in urban locations (CBS, 2011; DFID, 2017). Similarly, the poverty rate varies according to topographical belt at 32.6 percent in Hills and 34.5 percent in Mountains compared with 27.6 percent in Terai (DFID, 2017). In terms of caste/ethnicity, the poverty rate is as high as 58 percent among Dalits compared with 18 percent of high-caste Chhetri/Brahmin (see section 2.5 for details on the caste system in Nepal) (DFID, 2017). In Nepal, the absolute poverty line based on per capita expenditure required to meet basic needs is NRs 7,696 per capita per year (approximately US$66 per year or US$0.2 per day on 27 May 2021), which is far lower than the international poverty line set at US$1.25 per day (Ghani, 2010). However, the disparity is not only in terms of HDI and poverty but also in social identity based on caste, ethnicity, religion,

location and gender which to a great extent determines access to, and control over, economic, political and cultural resources (Pradhan & Shrestha, 2005). The overall literacy rate of Nepal is 65.9 percent, with a male literacy rate of 75.1 percent compared with a female literacy rate of 57.4 percent (CBS, 2011).

Nepal has an extreme topography, climate, socio-cultural and ethnic diversity between places (World Bank Group, 2018). Nepal's topography limits domestic connectivity, and this contributes to social exclusion through urban/rural differences in access to different services, markets and information (Bennett, 2005) and exposed to many hazards such as floods, landslides, droughts and earthquakes. The location of Nepal on the boundary of the Indian and Eurasian tectonic plates makes Nepal the 11th most earthquake-prone country in the world (World Bank Group, 2018).

Newly federalised Nepal is divided into seven provinces (see Figure 4). Each province is further divided into districts, and Nepal has 77 districts in total. Each district is further divided into municipalities '*Nagarpalikas*' and rural municipalities '*Gaupalikas*', as the local unit is the lower tier for local governance. Finally, each municipality is again divided into wards which are the smallest administrative units.

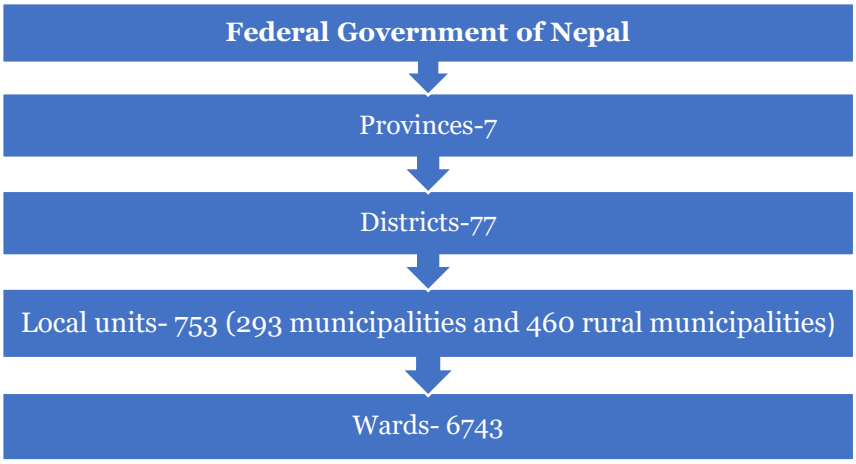


Figure 4: Flow diagram of administrative divisions of Nepal

In Nepal, an urban municipality refers to a city/town settlement defined by minimum criteria of population and infrastructure, even if many of the existing municipalities lack the required minimum infrastructural facilities to fulfil urban characteristics (Pradhan & Sharma, 2016). Rural municipalities are village settlements. The basic difference between the town and village settlements (see section 5.2 for details) is key

to understanding the socio-economic contexts affecting social vulnerability and the impact of the 2015 Gorkha earthquake.

2.3 Overview of Dolakha district

Dolakha is one of the remote Himalayan districts situated to the north-east of Kathmandu, just 133 km away. The district covers an area of 2,191 km² of which nearly 70 percent comprises slope and only 10 percent is flat land, making most of the area hard to access (District Development Committee Office, 2015a). The district has a geomorphological vulnerability in terms of the risk of soil erosion and landslides (Sudmeier-Rieux et al., 2013). Dolakha is one of the 13 districts in Bagmati Province. In Dolakha district, there are two municipalities and seven rural municipalities.

The district had a population of 0.18 million in 2011 (CBS, 2011). According to the population census of 2011, 19.4 percent of the district's population resided in urban municipalities and the other 80.6 percent were in rural areas. The section below describes the urban and rural context of the study area used in the thesis to explore factors influencing wellbeing. Of a total of 45,688 households in the district, 7,587 households have at least one family member absent, mainly due to out-migration for employment (District Development Committee Office, 2015a). The female-headed household rate for this district is 34 percent, higher than the national average of 26 percent (CBS, 2011). The ethnic group presence in the district population is Chhetri (33.41%); Brahmin (9.38%); Tamang (16.78%); Newar (9.4%); Thami (9%); Jirel/Sherpa/Magar/Gurung/Sunuwar (8.8%); Dalits (8.7%); other ethnic groups (4.8%) (District Development Committee Office, 2015a). The picture regarding caste and ethnicity is described in section 2.5.

Access to infrastructure plays a crucial role in fostering socio-economic development in a given region. However, in the hilly and mountainous terrain of Nepal, the presence of challenging geographical features and scattered settlements has resulted in limited infrastructure accessibility. This limitation has also impeded post-disaster rescue and recovery efforts. Among various infrastructure components, a well-functioning road network holds significant importance as it unlocks opportunities to enhance local livelihoods.

The connection between Kathmandu and Dolakha relies on the Araniko Highway, which extends up to Khadichour. From there, the Lamosangu–Jiri road passes through the district capital, Charikot. However, once the road diverges from the Araniko Highway and starts ascending towards Jiri, its quality progressively deteriorates. The metalled road surface occasionally remains visible, but most of it has many potholes and covered in mud (refer to Figure 5). During the rainy season, only four-wheel-drive vehicles can navigate through this challenging terrain. Consequently, covering a mere distance of 53 km takes more than three hours due to the poor road conditions.

Figure 5: The Lamosangu–Jiri Road from Kathmandu to Dolakha

2.3.1 Socio-economic history of Dolakha

Dolakha is said to have a long history, but unfortunately, the details are sketchy (Genetti, 2007). It has been presumed that Dolakaha was originally ruled by the Kirats. Kirats were the aborigines of the north-eastern Himalayas and nature worshippers by religion. The Rai, Limbu and Sunuwars, which fall under the Janajati ethnic group (see

Table 1 in section 2.5), were followers of the Kirat religion. The development of Dolakha occurred in the early 7th century after the establishment of trade links

between Nepal and China (Genetti, 2007, 2009). There were three trade routes in Dolakha linking Kathmandu to Lhasa, the capital of Tibet, as part of the trans-Himalayan trade (Ryavec, 2015). During this time, Dolakha is believed to have provided a route of secure shelters for travellers and traders. With the development of the trade hub in Dolakha, the Newar castes, who are traditionally administrators and tradesmen, became administrators to a largely non-Newar area and by the early 14th century Dolakaha was well established as a Newar settlement (Genetti, 2009). In the 16th century, the prosperity of Dolakha in terms of both economy and culture was at its height due to the trade relations with Tibet, and the area was a well-known business hub for the Nepal–China trade. Later, in the 18th century, apart from the predominant Newari population, it also had a large settlement of Khasa (a Nepali-speaking group) (Genetti, 2007). However, an economic and political downturn affected Dolakha such that by 1846 it had lost much of its influence and was never able to regain its previous standing. New centres for the Himalayan trade routes became established in other places like Kalimpong. Today, only the municipality town of Charikot, a small modern city with famous temples and monuments, reflects the rich historical past while the rest of the area is mainly remote (Genetti, 2007). So the district was economically stronger in the past than in the present.

Charikot's economy shifted from that of a business centre to one dependent on agriculture and remittances sent from seasonal employment in other cities of Nepal, in India and, more recently, in the Middle East. There was a steady migration from Nepal to India for almost 300 years up to the mid-1980s due to the open Nepal–India border (Government of Nepal, 2013/2014). Since then, new destinations have emerged in the Middle East with globalisation and the boom in the oil market from the 1970s. According to CBS (2011), Dolakha district is not a major contributor to external, international migration. However, other anecdotal reports claim that the official rates are under-reported and that there is a higher rate of migration than the national average.

2.3.2 History of the civil war

Nepal endured a decade-long conflict in 1996–2006 between the Nepal Communist Party (Maoist) and the Nepali state forces (Yadav, 2016). The conflict claimed more than 16,000 lives; nearly 200,000 people were displaced, while many more were

subjected to torture, intimidation, extortion and abduction, with Nepal recording the highest number of forced 'disappearances' in the world in 2003 (Global IDP project, 2004; Joshi & Pyakurel, 2015; Singh et al., 2005). The armed conflict was fuelled broadly by growing discontent with inequitable government development programmes (i.e. the absence of land reform and equal property rights for the marginalised ethnic groups, Dalits or 'untouchables', and women), a widening rural–urban divide, the failure of the government to improve the living standard of the rural areas, widespread corruption in high places, widespread social and economic disparities, marginalisation of indigenous and Dalit people, gender and caste discrimination and the continued dominance of a high-caste Hindu male elite across the country. The inequalities resulting from these social structures and social exclusion offered a fertile breeding ground for Maoists (Hutt, 2020b; Pant & Standing, 2011; Singh, 2004; Singh et al., 2005).

Dolakha was a major hub in the Central Region for the Maoist political group that led the anti-government movement (Shneiderman & Turin, 2004). Unlike other districts in which one ethnic group usually predominates, Dolakha is composed of a heterogeneous mixture of many ethnic groups: Chhetri, Tamang, Newar, Thami, Sherpa, Jirel and Magar. In most parts of the country, the Chhetri/Brahmin is the predominant ethnic group whereas in Dolakha the ethnic composition of Chhetri-Brahmin and other different minorities and low-caste ethnic groups is nearly equivalent, with half of the district population composed of Chhetri/Brahmin and half other different groups. This balanced demographic composition, with no group predominating, is said to have increased support for the Maoist movement in the district, especially in the Thami and Tamang areas (Shneiderman & Turin, 2004). These groups lack a strong cultural and political identity which is fuelled by the exploitation they have suffered for a long time by the higher-caste Chhetri/Brahmin groups (see section 2.5 for details on the caste hierarchy).

From most of the villages finding themselves caught in the middle of civil conflict, one of the most important consequences was forced male migration (Adhikari, 2012). During that time men in rural Nepal were commonly forced to join the Maoist army as they implemented a 'one citizen, one military' policy forcing people from every household to join the Maoist Army (Pettigrew, 2013). The Maoists selectively abducted civilians, mostly men, teachers, health workers, and school children for

'political indoctrination' and to build up their army (Amnesty International, 2004). And when men became part of the Maoist army, they were likely to be killed in clashes with the Nepali army. Therefore, men felt threatened by the actions of both sides – the Maoists and the state – as well as the lack of economic opportunities. A large number of men were forced to migrate from the most conflict-affected areas to cities in Nepal, India and the Middle East (ICIMOD, 2015; Singh, 2004).

In this human-generated disaster, many women and children were negatively impacted as they were left behind to cope with a critical situation. Armed conflict has thus had a hidden, dramatic and disproportionate impact on women. Women have particularly faced the brunt of the war as they were widowed as a consequence of the civil war, often faced harassment from government and rebel forces, and were themselves also unlawfully killed, faced torture and were sexually exploited. Among the Maoist rebels, half of the fighters were women and women were trafficked and abducted to be soldiers (Basnet et al., 2018; ICIMOD, 2015; Pettigrew & Shneiderman, 2004; Rai, 2016; Tol et al., 2010). As a consequence, women also faced major challenges to their health and wellbeing (Fazel et al., 2005) in terms of the risk of poor mental health due to traumatic experiences. Nepal witnessed a gradual increase in mental illness and suicide from the beginning of the conflict (Luitel et al., 2012). In addition, poverty fuelled by conflict along with their traditional role as caregivers means that the impact of war's destruction weighed particularly heavily on women (Amnesty International, 2002). Despite these adverse impacts of the civil war on women, there were opportunities that the conflict created for women which will be described below.

The 11-year-long conflict and political uncertainty tore apart the limited infrastructure, shattered social harmony and further exacerbated rural poverty. This rural-focused event disrupted all aspects of life there. The Maoist motto 'destruction before construction' (Singh, 2004) added misery through the destruction of the few scarce rural-based services and worsened the socio-economic status of people even further, and rural people lived in permanent fear of reprisal from both sides: Nepal army and the Maoist rebels.

2.4 Socio-political transformation and its impact on women

In the past three decades, Nepal has undergone radical political, social and cultural transformation (Hutt, 2020b; Pettigrew, 2013). The major political changes include the establishment of a multi-party parliamentary system through the 'People's Movement' in 1990, the decade-long civil conflict(1996–2006), the royal massacre in 2001, the abolition of the monarchy in 2008, and the change from a Hindu monarchical kingdom to a secular federal democratic republic through democratic elections (Pradhan & Valentin, 2019). These political changes were accompanied by social changes. These included the doubling of the literacy rate from 33 percent in 1990 to 66 percent in 2011, and growth in engagement with broadcast and online media, which has helped to raise the status of women in Nepal both directly and indirectly (Pettigrew, 2013).

The ten-year conflict also brought aspects of empowerment to women, changing their role in the family and community, as women became active outside the home (Pant & Standing, 2011; Pettigrew, 2013). Despite the social challenges women were facing, the conflict brought about a radical transformation in women's lives as traditional housewives and helped break existing cultural stereotypes of a gendered labour division (Yadav, 2016). The Maoist movement challenged many social norms including the notion of women as weak, emotional and needing protection (Acharya; Ketola, 2020; Pettigrew, 2013; Yadav, 2016). A large number of women from diverse backgrounds in terms of ethnicity, victims of different expressions of violence, widowed and so forth, engaged both directly and indirectly in the conflict. Some women were directly involved in the war as combatants, while others became social mobilisers (Pettigrew, 2013). Most of those who joined as combatants were unmarried. The powerful nature of the military role attracted many women, while others joined because of their family circumstances in relation to the 'one citizen one military' policy, such that when a household did not have a male to join, women had to join on their behalf. And a few women joined the Maoist rebels due to frustration over the state's unequal treatment or because they had family members killed by the government army during the war and were attracted by the prospect of revenge and rebellion (Pettigrew, 2013). Yadav (2016), in her book on "*Social Transformation in Post-conflict Nepal*," mentions that the successful performance of women as Maoist

combatants has changed people's past perceptions of women not being able to fulfil such traditional male roles successfully.

When men fled the communities that were impacted by conflict, the women were forced to take up new roles as temporary heads of household in the absence of their male partners, and this has been a common demographic trend in rural villages (Kaspar, 2005). It provided a space for women's empowerment, however, as women engaged in independent decision-making for the household daily in small issues like buying everyday necessities, managing the cattle, attending social meetings on behalf of the household or paying electricity bills. Carrying out these activities on their own helped women to discover their hidden strengths, skills and self-confidence. However, for big decisions, for example about schooling or the marriage of a child, they were still dependent on men (Yadav, 2016). Today, households are increasingly using remittances from migration as an important household livelihood strategy and Nepal ranks fifth globally in terms of the share of remittances in the national GDP (World Bank, 2013). The study among women left behind by male out-migration in rural Nepal suggests that the engagement of women in rural societies has broadened and deepened after male out-migration. It could lead to either the empowerment or disempowerment of women depending upon the nature of migration and the amount of remittances received by the households (Maharjan et al., 2012). When the remittances received are larger, it may reduce the physical work burden of women, increase their decision-making capacity and thus empower the women left behind. In contrast, low remittances result in the added burden of physical workload in the absence of men.

The Maoist revolution introduced many cultural changes in society to reduce gender discrimination, as the Maoists were committed to women's issues (Yadav, 2016). They enforced the elimination of caste-based discrimination by promoting the practice of inter-caste love marriage and encouraged the practice of a second marriage for widows who were otherwise socially discriminated against as widows. The increased participation of women in the Maoist campaign increased the engagement of women in politics and encouraged them to speak up. The 2017 local elections in Nepal operationalised a gender quota system successfully and achieved 40 percent of female representatives at the local level (Limbu, 2018). In this way, some of those women who started to participate in local politics were able to become Constitutional

Assembly members and parliamentarians as representatives of the Maoist Party post-conflict (Yadav, 2016).

The experiences of women in a war zone are not all the same; their experiences of both conflict and its aftermath are highly varied. Although women got space to spread their wings beyond the household chores and experienced different forms of empowerment, Rai (2016) explains that this did not last long and women were unable to sustain the new identity they embraced, for example as combatants, after the cease-fire. After the peace process, the government decided to integrate the Maoist army into the regular state army based on their qualifications, but the number of spaces was limited. The combatant women who did not get the chance to integrate into the state army not only lost their roles, but many who had dropped out from studying when they joined the war now had minimal opportunities for employment (Rai, 2016). Similarly, many of the socio-cultural policies and practices introduced during the war were short-lived and lost their effectiveness after the peace process. For example, many inter-caste marriages that took place during the time of the insurgency ended by breaking up in peacetime (Rai, 2016).

2.5 Social hierarchy: The caste system of Nepal

Nepal is well known for its ethnic mosaic as it has considerable ethno-linguistic diversity. Over 125 ethnic/caste groups, 123 languages, and over 60 indigenous and complex Hindu caste groups have been listed (CBS, 2004; Mulmi & Shneiderman, 2017b). The caste system was originally introduced as a system of categorising people according to what was originally their key labour categories within the predominantly Hindu system, typically identified by family names associated with each category (DeYoung & Penta, 2017). All existing castes have been broadly framed within four Varnas (types) based on concepts of ritual purity and pollution of the Hindu system (Bennett, 2005) which determines the exclusionary social order.

As there are many caste groups in the study areas, in this study the main seven caste groups presented in

Table 1 have been taken as reference as most of the research in Nepal follows these groups to simplify the classification of castes for analysis. The main caste composition of this study is Brahmin and Chhetri grouped as one; Newar; Janajati – composed of Tamang, Thami, Sherpas, Magar, Gurung and Sunuwar (hill Janajatis/Indigenous group) – a middle-ranking group; and Dalit, the lowest-ranking group in the caste-based system who usually face systemic deprivation and discrimination in everyday life.

Table 1: Main caste and ethnic groups in Nepal from Census 2001. (Source: Bennett et al., 2008, p. 2)

	Main Caste/Ethnic Groups (7)	Caste/Ethnic Groups with Regional Divisions (11) and Social Groups (103) from 2001 Census	
Caste Groups	*1. Brahaman/Chhetri*	1.1	**Hill Brahman** Hill Brahman
		1.2	**Hill Chhetri** Chhetri, Thakuri, Sanyasi
		1.3	**Tarai/Madhesi Brahman/Chhetri** Madhesi Brahman, Nurang, Rajput, Kayastha
	2. Tarai/Madhesi Other Castes	2.1	**Tarai/Madhesi Other Castes** Kewat, Mallah, Lohar, Nuniya, Kahar, Lodha, Rajbhar, Bing, Mali Kamar, Dhuniya, Yadav, Teli, Koiri, Kurmi, Sonar, Baniya, Kalwar, Thakur/Hazam, Kanu, Sudhi, Kumhar, Haluwai , Badhai, Barai, Bhediyar/ Gaderi
	3. Dalits	3.1	**Hill Dalit** Kami, Damai/Dholi, Sarki, Badi, Gaine, Unidentified Dalits
		3.2	**Tarai/Madhesi Dalit** Chamar/Harijan, Musahar, Dushad/Paswan, Tatma, Khatwe, Dhobi, Baantar, Chidimar, Dom, Halkhor
Adivasi/Janajatis	*4. Newar*	4	**Newar** Newar
	5. Janajati	5.1	**Hill/Mountain Janajati** Tamang, Kumal, Sunuwar, Majhi, Danuwar, Thami/Thangmi, Darai, Bhote, Baramu/Bramhu, Pahari, Kusunda, Raji, Raute, Chepang/Praja, Hayu, Magar, Chyantal, Rai, Sherpa, Bhujel/Gharti, Yakha, Thakali, Limbu, Lepcha, Bhote, Byansi, Jirel, Hyalmo, Walung, Gurung, Dura
		5.2.	**Tarai Janajati** Tharu, Jhangad, Dhanuk, Rajbanshi, Gangai, Santhal/Satar, Dhimal, Tajpuriya, Meche, Koche, Kisan, Munda, Kusbadiya/Patharkata, Unidentified Adibasi/Janajati
Other	*6. Muslim*	6	**Muslim** Madhesi Muslim, Churoute (Hill Muslim)
	7. Other	7	**Other** Marwari, Bangali, Jain, Punjabi/Sikh, Unidentified Others

Occupying the highest rank are the Brahmin and the Chhetri, classified as 'wearers of the sacred thread' signifying their purity and status (see Figure 6). In this system, the Brahmins, or priests by occupation, are at the top based on their occupational purity. Just beneath them come the Kshatriya/Chhetri, known as the warriors/king group. Then follows the pure but middle ranking Janajati group which include Newar and other indigenous Janajati group. Newars are merchants by profession, for example, Newar traders and businessmen and the Janajati or indigenous group: the occupational group of peasants and labourers i.e. Tamang, Gurung, Magar, Sunuwar and Sherpa in this study. Indigenous people from the middle-ranking groups produce and consume homemade beer and so they are called 'liquor-drinkers'. High-caste groups are not allowed to take alcohol as they consider alcohol to be polluting (Bennett et al., 2008).

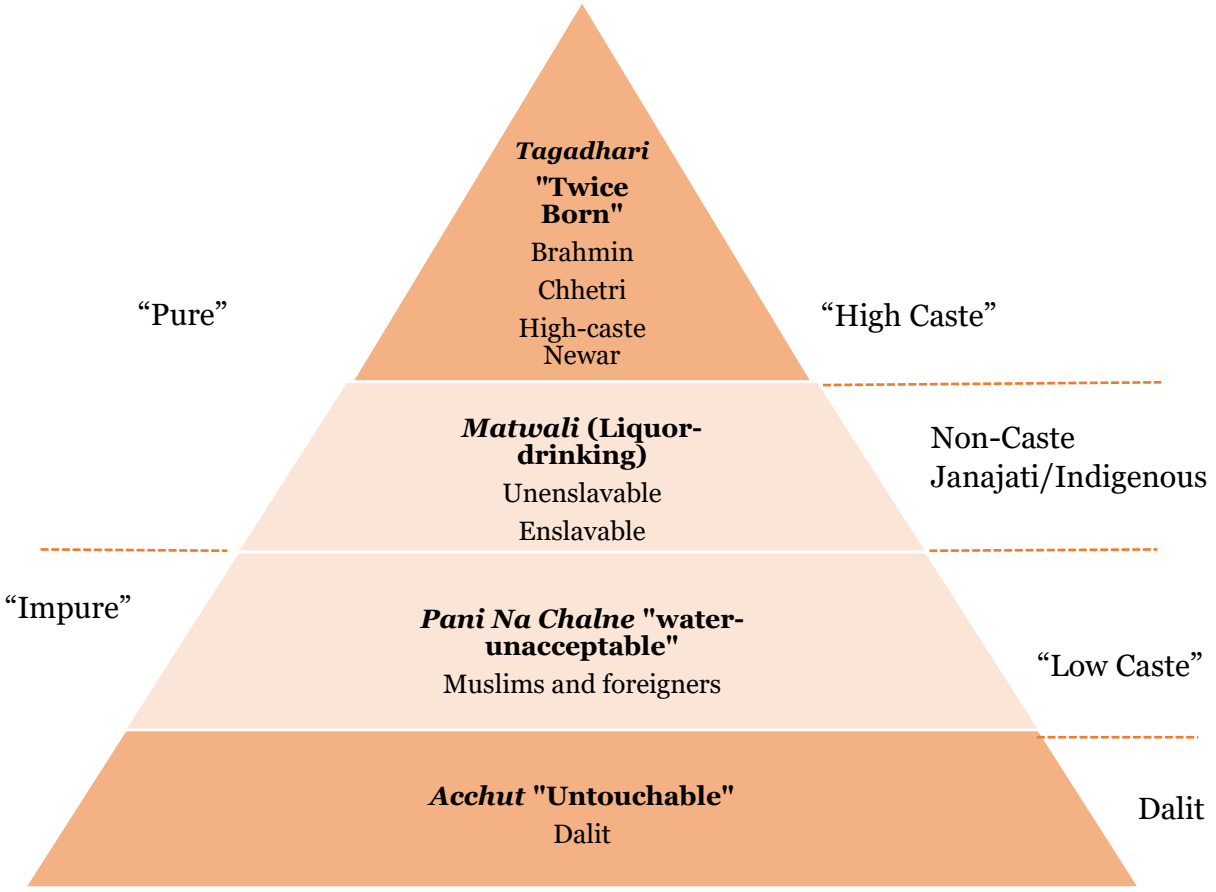


Figure 6: The caste-based social hierarchy of Nepal, created by civil law. Source: Bennet et al., 2006, p. 8

(Note: The area showing the different groups in the triangle does not represent population size. Dark areas represent the Hindu caste groups.)

In addition to and positioned below these four main groups, there are service groups at the bottom of the hierarchy which are considered technically 'outside' of the caste system and considered 'untouchable' and 'impure'; this group now call themselves Dalits (Gurung, 2002). They are called untouchable in the sense that other groups do not accept even water offered or touched by them in everyday life, making them the most marginalised lower-caste group in the caste-based social structure (Bennett et al., 2008). This Dalit group includes cobblers, tailors, blacksmiths and cleaners, etc. The top and bottom ranking two groups (see Figure 6) are considered as Hindus of Indo-Aryan origin and speak the modern Nepali language (Bennett, 2005).

Nepal's population is 81.3 percent Hindu, 9.0 percent Buddhist, 4.4 percent Muslim, 3.0 percent Kirats, and 1.4 percent Christian, with a few other religions present (CBS, 2011). The major ethnic groups in Nepal are Chhetri, Brahmins, Magar, Tharu, Tamang and Newar (CBS, 2004). In Nepal, since the Rana Era (1846–1951), the

Nepali caste system has been reinforced by the state. The broad framework of caste hierarchy was laid out in detail as a code for inter-caste behaviour with specific punishments for its infringement in the 1854 National Legal Code (Muluki Ain) (Bennett et al., 2008). Caste-based discrimination was outlawed in 1963 and is technically illegal in Nepal, but it still exists in practice causing disparities in access to resources that continue to affect communities in the country (Cameron, 1998; Gellner, 2007; Subedi, 2010). A structured hierarchy based on the ethnic and caste system still dominates 'modern' Nepali society, largely in diluted form (Lawoti, 2010).

The caste system, which is deeply rooted in Nepali society is a primary determinant of identity and social status, class and hierarchy (Bennett et al., 2008) and has been a major force for driving disparities between the ethnic groups. Moreover, ethnic/caste stratification is an essential cross-cutting dimension to be taken into account in considering how to respond more effectively to the legitimate needs and demands of Nepal's diverse population. Social discrimination against Dalit and Janajati people is widespread. The government's failure to ensure equal access to political representation, public services, and opportunities in the civil service and army has been a long-standing grievance of the lower-caste groups in the past. However, efforts are now being made to introduce more inclusive policies.

The caste-based disparities are reflected in all indicators including health care, ranking on the Human Development Index, and women empowerment as presented in the caste-based analysis Nepal Demographic Health Survey. The higher castes: Brahmin, Chhetri and Newars, all have indicators well above the national average, while the bottom class castes, indigenous and Dalits are well below the national average. The gap widens further with the rural–urban divide (Bennett et al., 2008).

The Gorkha earthquake has had differential impacts by caste. In particular, the Tamang people, who have historically been distanced from the state on account of centuries of structural violence, have received disproportionate support from the state that has disempowered them from the local means of emergency recovery post-earthquake (Campbell, 2018). While the Gorkha-Dolakha earthquake affected all castes, classes and religious groups in Nepal, it is claimed that Tamang people were disproportionately hit as they traditionally live in greater numbers in the worst-

affected districts of northern Nepal (Holmberg & March, 2015). Thus, the earthquake has been described as having a 'Tamang epicentre' (Magar, 2015).

2.6 Social and economic status of women in Nepal

This sub-section considers the status of women in Nepal with emphasis on the inequalities they face in their everyday life, gendered socio-cultural practices, access to the economy and the way policies are gender-biased against women in Nepal.

2.6.1 Patriarchy in the society

In Nepal, women have long experienced a high level of gender inequality, acute poverty, social exclusion and marginalisation, and these effects are greatly compounded among certain ethnic minorities or disadvantaged lower-caste groups (Köhler et al., 2009). In the patriarchal-dominated Nepali society, deeply rooted traditional practices play a significant role in deepening gender disparity, preventing women from getting equal opportunities at all levels and constraining their participation in politics and economic activities (Dechenla Sherpa, 2007). The traditional and discriminatory practices women face in Nepal still include the dowry system, early marriage, a preference for sons, family violence, polygamy, stigmatisation of widows, segregation during menstruation (*Chaupadi*) and caste-allocated roles for women as professional sex workers (Badi) (Care Nepal, 2015). Higher importance is given to male offspring in such societies due to religious and traditional beliefs, such as that if a son performs after-death rituals for his dead parents, this will open their gateway to heaven (Lawoti, 2010). This shows that the status of women is socially and economically weaker, manifesting gendered marginalisation due to poverty, lack of access to the property, low earning opportunities, fewer skills and a lack of decision-making power (Ariyabandu & Foenseka, 2006; ICIMOD, 2015). Patriarchy puts women in a subordinate position within households and society, but often women themselves are the promoters of patriarchy because women take their lower status for granted – as well as lack the awareness or confidence to speak up against it (Dechenla Sherpa, 2007).

A woman's life is strongly influenced by her father and husband as reflected in the practice of patriarchal descent, inheritance of family system and property and patrilocal marriage (Acharya et al., 1999). In Nepal, marriage is arranged primarily by

parents and often involves material or financial transfers along with a daughter in the form of a dowry (Bajracharya & Amin, 2012). The traditional practice of arranged marriage and patrilocal marriage isolates women from their own social support networks as they are forced to leave their birthplace, and abruptly become part of an unknown family along with the norm that restricts frequent visits to their natal home. Women then have to start life in a new place and build networks all over again (Lawoti, 2010). The traditional arrangement by parents leaves little or no opportunity for the bride and groom to get to know each other before marriage and women are compelled to start their life with completely unknown families (Gartaula et al., 2012). While forced marriages of women, marriage at a young age, and a large age gap between husband and wife are common in Nepal, divorce is highly stigmatised so there is often significant social and familial pressure to remain married even in an abusive or unhappy relationship (Pradhan et al., 2011). Typically, after marriage women perform domestic tasks in their spousal home, but their work is rarely granted any economic value – making women economically dependent on their husbands (Lamichhane et al., 2011; Pradhan et al., 2011). Women are often systematically controlled by men and are considered men's property; as a result, women of reproductive age in Nepal have very high suicide rates due to the demands placed on wives/daughters-in-law and the potential for domestic violence (Pradhan et al., 2011).

Furthermore, parents traditionally give priority to sons and invest more in their food and education as girls are married away and will not be with them to look after them in their old age. This limits women's chances to acquire the necessary skills and capacities to compete with men (Lawoti, 2010). Patriarchy (an informal institution) has disadvantaged women, but its impact varies across class, caste, ethnic and religious groups. Further, major religious (Hindu, Muslim) traditions treat women as objects of purity and constrain their free public movement, supposedly to 'protect' their purity (Lawoti, 2010). The hold of patriarchy is very strong on 'high' caste Hindu women, but weaker among indigenous groups and the 'lower' caste Dalit because these groups have less attachment to the concept of purity of women (Bennett et al., 2006). A menstrual period is treated as an impure time for women, especially in so-called 'high' caste groups and they have to spend that time in isolation to avoid defiling others, which constrains women's independence at least for that period of time, limits their role in the public sphere and may undermine their dignity (Lawoti, 2010).

2.6.2 Women's role in the economy

Nepal's economy is dominated by small-scale subsistence farming in which households possess limited cultivable land, making the life of agriculture-dependent families extremely difficult (Maharjan et al., 2012). Engagement of economically active women in agriculture or unpaid labour and in the low-wage informal sectors is as high as 73 percent (Seth, 2004) but the landownership of females is as low as 5 percent (Shakya, 2008). Nepalese women bear a much higher workload in comparison to the global average (Jacqueline et al., 2014). Similar to other low-income countries, women in low-income households of Nepal carry a triple burden of work: the reproductive role of household maintenance and care for childbearing and rearing; the productive role often as secondary income earner, usually in agriculture in rural areas and/or in informal sector enterprises undertaken from the home or in the neighbourhood in urban areas; and the community building and managing role through volunteering (Moser, 1989). Despite women being overburdened with these demands, in the economic, political and professional spheres, their contribution to the income and economy of the family is substantial but their contribution goes largely unnoticed and is taken for granted (Acharya et al., 1999). The low gender empowerment index (0.191) is evidence of the invisibility of women and their contribution to society (Pradhan & Shrestha, 2005). The gender empowerment index is a measure to help track gender empowerment over time that calculates the ratio of female to male HDI values (UNDP, 2015).

Figure 7: Women doing their daily chores

Regardless of women's multiple contributions to the household's subsistence and reproductive activities, women suffer from traditional practices and taboos that

disempower them, and often they do not participate in decision-making for their families and have no access to cash. However, the gender norms women experience differs to some extent across cultures and places in Nepal. Caste and gender generally intersect to influence an individual's degree of influence in the community, or their social power (Nightingale, 2002).

2.6.3 Systemic inequalities

Women are severely underrepresented in the socio-political realm and in national leadership roles. The cabinet and the Supreme Court had no female justices during the 1990s, and neither Parliament nor the central committees of the major political parties have ever had more than 6 and 10 percent respectively of women members (Lawoti, 2010). Women's representation in public service has been around 7 percent overall, with less than one percent of women working at the higher-class officer level and above (Bennett et al., 2006). However, following the reservation policy adopted by the Nepal Government in 2007 to mainstream those marginalised in terms of caste/ethnicity and gender in the civil service of Nepal, women's entry increased from 8 percent to 24 percent in ten years (although the number of women in senior-level posts has not significantly increased) (Wagle, 2019).

The 2015 Constitution prohibits discrimination on the basis of gender (Mulmi & Shneiderman, 2017b). The constitutional changes have, however, been criticised for being less progressive than campaigners had hoped in terms of gender rights. The Civil Code of Nepal (the Muluki Ain) reflects the patriarchal norms that discriminate against women and still limit the inheritance rights of unmarried daughters (Oxfam, 2016). Thus, women are much less likely than men to inherit land and property, although the constitution of Nepal has established equal property rights for spouses (Oxfam, 2016). As a result, males continue to have more control over resources as the ownership of most of the valuable properties, such as land and houses, is often held in the name of male family members due to formal and informal norms. This means women are financially dependent on the males. Steps have been taken by the Government of Nepal through policies to involve women in more formal decision-making roles by introducing a quota/reservation system in all government services, and for seats in election and boards of management committees, but it is insufficient on its own to ensure the effective participation of women.

The limitations on progress in addressing gender discrimination are particularly evident in relation to citizenship. Citizenship is a basic human right but women's citizenship rights have been gender-biased in Nepal as the constitution says that citizenship is awarded on blood rights, which traditionally means that fathers pass citizenship to their sons and daughters, rather than them acquiring it in their own right (Laczo, 2003). For men, the process of citizenship is relatively straightforward, but not for women, as they must be supported by either their father or husband to apply for citizenship, deepening women's dependence on familial males (Laczo, 2003). Hence, women have unequal claims to citizenship resulting in a lack of access to many basic human rights (Pant & Standing, 2011). Lack of access to citizenship limits every aspect of life, such as freedom of movement, opening a bank account, owning property, etc. Lack of citizenship is even considered as the cause of women and child trafficking from Nepal as poor families are not registered by their parents, and thus it makes the job of trafficker easy as there is little trace of their existence (Laczo, 2003).

In 2006, the Nepali government's gender-discriminatory citizenship law was amended to make it feasible for women to pass citizenship to their children; as explained above, acquiring citizenship was only possible via the father until then (Grossman-Thompson & Dennis, 2017). The new Constitution of 2015 introduced an amendment to change the citizenship provision by descent to make it more liberal to 'father or mother' (Mulmi & Shneiderman, 2017a, 2017b). The 2015 Constitution states that anyone 'whose father or mother is a citizen of Nepal at the birth of such person' is eligible to apply for Nepali citizenship. Despite this technical change, in practice, it is still almost impossible for a mother to pass citizenship independently to her child as there are many 'ifs' and 'buts' attached to a woman's right to pass on citizenship through the maternal line alone (Grossman-Thompson & Dennis, 2017; Gurung, 2019). For example, the amendment made to provide equal rights to women to confer citizenship to their children is qualified by the special condition of 'if the father is unidentified' – which denies the mother's independent existence and has been a source of humiliation for many women (Dhamala, 2019).

Although a child can apply for citizenship in the mother's name, the state authorities often refuse to accept citizenship applications submitted only by mothers, as they require proof of the father's identity. If unable to provide proof of the father's identity,

the mother needs to 'provide an explanation', again exhibiting the persistence of patriarchal gender discriminatory laws that treat women like second-class citizens (Gurung, 2019). Similarly, foreign women married to Nepali men can apply for citizenship only after seven years of marriage (Pradhan, 2020). The discriminatory laws exacerbate suffering for women and their families, including the risk of statelessness, lack of access to public education, health care and other services, child marriage, increased risk of gender-based violence, unemployment, poverty and social alienation and the associated psychological damage (Grossman-Thompson & Dennis, 2017). Many women are unaware of the importance of citizenship and its links to empowerment and independence or its association with independent identity, the freedom to make choices, and the ability to access education and improved employment opportunities (Laczo, 2003). Nonetheless, for citizenship rights to translate into these potential benefits, constitutional changes need to be accompanied by changes in the wider society. These include, for example, the deep-rooted patrimonial social system, inheritance rules, and the traditional gender-based division of labour all of which severely restrict women's access to education, skills development, employment opportunities outside the home, right to citizenship, and decision-making processes (Pradhan & Shrestha, 2005; Richardson, 2000).

2.7 Gorkha earthquake and aftershocks

A peace treaty was signed between the Maoist rebels and the government in 2006, after which people gradually worked to restore their pre-conflict life and livelihoods. In 2015, however, the country experienced the devastating Gorkha earthquake, which hit the district of Dolakha very badly, causing extensive infrastructural damage and agricultural loss (livestock, crops), and increasing the vulnerability of the population. For people who were already devastated by the civil war, this earthquake compounded the socio-economic misery of rural Nepal. The Gorkha earthquake was one of the biggest disasters in the modern history of Nepal. The catastrophic earthquake of magnitude 7.8 Mw struck on 25 April and was followed by many big aftershocks, including one on 12 May 2015 with its epicentre in Dolakha. These quakes, together with the hundreds of associated aftershocks throughout the year, claimed over 9,000 lives, leftover 22,000 people injured, displaced approximately 2.8 million people and destroyed or damaged over 5 million houses, with associated economic losses of

approximately US$7 billion to the country (Government of Nepal, 2016; Logistics Cluster, 2016). In Dolakha, the aftershock on 12 May of 7.3 Mw caused more devastation than the Gorkha earthquake itself, as its epicentre was Dolakha district. According to the Nepal Emergency Operation Centre (NEOC), 95 percent of the 57,000 households in Dolakha suffered complete damage from the earthquake. However, according to the district profile in 2015, 87 percent of houses were classified as fully or partially damaged, and 177 people lost their lives (District Development Committee Office, 2015a), although the damage recorded in rural areas was almost 100 percent.

A major earthquake in Nepal had been expected but it was presumed that the impact of an earthquake of this scale would be worst in urban areas (Bracken et al., 2018; Robinson et al., 2018). Therefore, preparatory measures have been taken by national and international non-governmental communities (I/NGOs) focused on the Kathmandu valley (Dixit et al., 2012). This assumption turned out to be completely wrong as the impact of the Gorkha earthquake was worst across rural parts of the country including Dolakha (Robinson et al., 2018). The Gorkha earthquake has exposed Nepal's urban–rural disparities, which are quite considerable in almost all sectors, including access to infrastructure, services, poverty, per capita income, life expectancy at birth, and other health indicators (Acharya, 2008; Chhetry, 2001). Further gender and social disparities as an impact of the earthquake are illustrated by the fact that 55 percent of fatalities were women, and 41 percent of all households belonging to Dalit and Indigenous communities were damaged (Shakya, 2016). Of the total number of households damaged, about 26 percent were headed by females (Ibid).

In Dolakha, the first quake on 25 April was felt quite strongly. Nevertheless, the quake left the majority of houses intact without substantial damage; only a few people lost their homes in the first event. The aftershock on 26 April caused extensive damage to houses already shaken and increased the number of collapsed houses. By then, most of the houses were no longer liveable, having either partial damage or substantial cracks. Given that only a few had collapsed, most people pulled out their belongings and started camping outside in the open air. People lived outside for a week or more, and the situation was stable as there were not any further large aftershocks. Therefore, people gradually started to move their belongings back into the partially damaged

houses. It was then that another large aftershock on 12 May hit the district directly, flattening entire villages and killing many people in Dolakha (see FGD S02).

> *The earthquake on the 25th of April shook every brick of our house, the other one on the 26th damaged them partially, but most of them were still standing. However, the aftershock on the 12th of May hitting Dolakha itself completely flattened our entire villages, turning all our houses into rubble. But we are fortunate enough to survive as we were living outside since the 1st earthquake on 25th April, otherwise…*
> *(FGD participant, S02)*

Nonetheless, as most people were still living outside in the camp most of them were fortunate to survive and casualties were relatively low in the district. The earthquake not only caused household-level destruction but also interrupted almost all essential services and facilities for some time. Rural road networks were almost out of function due to obstructions caused by rockfalls and landslides from the hills. Communication networks like phone, radio, TV and the internet were down for almost a month due to damage to the electricity network. The Gorkha earthquake was followed by a large number of aftershocks. 553 earthquakes of local magnitude greater than 4.0 Mw were reported within the first 45 days (Adhikari et al., 2015) including a series of events with large moment-magnitudes between 6.7 and 7.3 Mw (see Table 2). As many as 45,000 aftershocks of above 1.9 Mw magnitude were reported in the 4 years after the Gorkha earthquake sequence, with Dolakha and Sindhupalchowk districts being the epicentre for the majority of them.

Table 2: Initial Gorkha earthquake and aftershocks with event date, magnitude, origin time and location

S.No	Event date (dd-mm-yr)	Mw	Origin time	Latitude (N)	Longitude (E)
1	25-04-2015	7.8	06:11:24	28.23	84.77
2	25-04-2015	6.7	06:45:19	28.22	84.9
3	25-04-2015	5.1	17:42:51	28.35	85.91
4	25-04-2015	5.1	23:16:15	27.90	85.00
5	26-04-2015	6.9	07:09:09	27.74	86.06
6	26-04-2015	5.0	16:26:07	27.81	85.88
7	12-05-2015	7.3	07:05:18	27.83	86.19
8	12-05-2015	5.5	07:17:19	27.86	86.32
9	12-05-2015	6.3	07:36:51	27.67	86.32
10	16-05-2015	5.5	11:34:09	27.63	86.32

(Source: The Catalogue of the Department of Mines and Geology (DMG), Nepal: http://www.seismonepal.gov.np/)

2.8 Post-earthquake reconstruction

As the loss of private households was so extensive, the government of Nepal instituted a reconstruction programme with the aim of helping victims and ensuring rapid reconstruction. The government promised a grant of NPR 300,000 (approximately US$2,700) to each household whose house had suffered total damage, to be available in three tranches (Sharma et al., 2018a). The payments were allocated progressively, depending on the progress of the building and compliance with the building code. This programme first identified cash grant beneficiaries based on formal damage assessments by external assessment teams led by an engineer to be undertaken within a month post-earthquake, but they were delayed in most places due to logistical and security challenges (The Asia Foundation, 2016). There were many complaints about the assessments conducted by those external teams. To address those complaints, the government conducted an entirely new round of assessments in 2016, a year after the earthquake struck (Ibid).

The instalment plan of the government for the housing grant was defined by criteria of progress. The first instalment was NPR 50,000 (US$450). The second instalment, NPR 150,000 (US$1,350), was promised on completion up to the plinth level. The final instalment of NPR 100,000 (US$900) was to be released upon completion of the entire structure (Le Billon et al., 2020). The government was able to release the first tranche of the reconstruction grant (NPR 50,000) 15 months after the earthquake into a bank account opened specifically for the purpose (The Asia Foundation, 2016). The first instalment was released to most of the affected households upon signing an agreement, but this ran into the challenge that many cases were unable to claim it due to a lack of official documentation. Data published in 2018 suggested that more than 400,000 households had entered into the agreement, but only 12 percent completed reconstruction and received the entire amount (Sharma et al., 2018a).

Although Nepal did set up a reconstruction authority as a new body with powers to act regarding post-disaster reconstruction, the National Reconstruction Authority (NRA) itself took a long time, 18 months, to develop and disseminate a building code compliance catalogue on rural housing. This was promoted in the name of 'building

back better' (Sharma et al., 2018b). By the time the guidance was made available, however, many beneficiaries had spent the first instalment they received on meeting their basic needs and other priorities of their families.

The main reason behind the failure of disaster recovery in Nepal was political instability. The country was also facing frequent changes of government, and a lack of political accountability due to the absence of locally elected government as local elections had not been held for 16 years. When local elections were finally held on 14 May and 14 June 2017, two years after the earthquake, they side-lined the reconstruction process. In addition, Nepal was embroiled in a debate over the new Constitution when the earthquake hit. In the aftermath of the earthquake, the government focused on the need for political and social unity as national sovereignty was threatened. As a result, the major political parties drafted and promoted the new Constitution in just over three months (Hutt, 2020a). This process left the impression that the Hill population celebrated the new Constitution whereas the minority population in the southern belt considered it to be regressive and not inclusive of their demands (Ibid).

2.9 Status of mental health in Nepal

Mental health and wellbeing in Nepal have been neglected in the past as mental health tended to focus on ill health rather than as a positive aspect of health. In Nepal, medical intervention was largely directed to cases of psychosis, which led to historical discrimination against people with health problems and become a major reason for social exclusion (Ackland, 2002). Sufferers of psychosis were commonly confined in jails for many years. In response to that situation, the United Mission to Nepal (UMN) started mental health interventions in Nepal in the 1980s (Ackland, 2002; Cohen et al., 2007). UMN started a community intervention in managing mental illness by opening a rehabilitation centre which was initially limited to a few severely ill women prisoners who had not committed any crime. It was later expanded to include men (Ackland, 2002). In the 1990s, mental health organisations emerged in response to the civil conflict and Bhutanese refugee crisis (Jordans et al., 2003; Sharma & Van Ommeren, 1998), with the majority of studies in mental health in Nepal examining the impacts of these two events (Tol et al., 2010). A National Mental Health Policy for Nepal was drafted and endorsed by the government in 1997 with the commitment to

providing basic mental health to the entire population by integrating mental health care into the existing health care system (Regmi et al., 2004). However, after more than two decades, mental health is yet to be fully incorporated into the health care system, with mental health services limited to a few hospitals, located in the larger cities and poorly accessible to most of the population (Luitel et al., 2015). By the time of the 2015 Gorkha earthquake, the state-led mental health governance had been in crisis for a long time (Seale-Feldman, 2020).

Given Nepal's high level of vulnerability to hazards including floods, landslides, epidemics and earthquakes, and the decade-long armed civil conflict, it is perhaps surprising that the Ministry of Health and Population had no focal point for (emergency) mental health and psychosocial support at the time of the 2015 earthquake (Inter-Agency Standing Committee (IASC), 2015). Indeed, the availability of specialised mental health services and human resources is extremely limited in general (Luitel et al., 2015). Government investment in mental health in Nepal remains very small at less than one percent (0.7%) of the total health budget (Inter-Agency Standing Committee (IASC), 2015; World Health Organisation, 2011). The specialist mental health services are limited to a few district hospitals (7 hospitals out of 77 districts), and the only government-run mental hospital in the capital city for specialist mental health care has a capacity of just 50 inpatient beds and employs three psychiatrists and a few medical officers. There are a few other university hospitals/medical colleges (Luitel et al., 2015). The ratio of mental health providers to the population in Nepal is 0.18 psychiatrists (with reference to a median rate of 0.05 in low-income countries to 8.59 in high-income countries), 0.25 nurses (0.42 in low-income countries to 29.15 in high-income countries), and 0.04 psychologists (0.02 in low-income countries to 3.79 in high-income countries) per 100,000 people (World Health Organisation, 2011). NGOs play a major role in delivering mental health services at the community level and provide general counselling services for issues of mental health, which is now viewed as more of a psychosocial problem than in the past (Upadhaya et al., 2014). Counselling services are provided by trained para-professional counsellors but are usually limited to victim groups such as ex-child soldiers, people impacted by civil conflict, domestic and gender-based violence survivors, survivors of human trafficking, and refugees (Luitel et al., 2015; Upadhaya et al., 2014). Although there is no systematic data available regarding treatment by

traditional or religious healers, they are known to be the primary contact point for people in rural areas for the cure of mental illness as they believe mental illness is the result of bad fortune and evil spirits (L. E. Chase et al., 2018; Pradhan et al., 2013; Regmi et al., 2004).

The Gorkha earthquake focused attention on mental health governance (Seale-Feldman, 2020). The quake was followed by the rapid and large-scale influx of humanitarian programmes and investment by government and non-governmental stakeholders in mental health interventions and counselling aimed at alleviating the trauma of earthquake survivors in affected communities (Seale-Feldman, 2020; Seale-Feldman & Upadhaya, 2015). Since the late 1980s humanitarian responses to disasters have generally incorporated mental and psychological support (Fassin & Rechtman, 2009) but have been criticised for being culturally inappropriate in many instances (Greene et al., 2017). After the Gorkha earthquake, mental health intervention programmes included providing psychological first aid immediately following the earthquake, psychosocial counselling, and radio programmes to raise mental health awareness, hotlines, and counsellor training (Seale-Feldman & Upadhaya, 2015). Many health-related NGOs, supported by external grants, enrolled survivors into mental health programmes post-earthquake. NGOs were mainly involved in providing psychosocial support to the earthquake survivors (Liana E. Chase et al., 2018), basic emotional support, psychosocial counselling through community practitioners with basic counselling skills, identification, and referral of cases as needed. They trained government health workers as community psychosocial workers (CPSWs) through short courses of one to two weeks in the identification and referral of cases to counsellors. Liana E. Chase et al. (2018) in their post-earthquake mental health response study in Nepal reported that people found the counselling service by a community counsellor appropriate and did not link it with stigma, unlike consulting external psychiatrists. The earthquake, and associated response and recovery activities, successfully increased awareness of the importance of mental health, contributed to decreasing the stigma attached to mental ill-health and offered hope for treatment (Liana E. Chase et al., 2018; Seale-Feldman & Upadhaya, 2015).

Nepal follows other countries where mental health systems were built in times of emergency as reported by the World Health Organisation (2013) 'Building Back Better: Sustainable Mental Health Care after Emergencies'), including the West Bank

and Gaza, Sri Lanka, Iraq, and Indonesia (Aceh). As with these places, mental health services in an emergency became a political issue as the flow of aid offered an opportunity for Nepal to accelerate progress towards building a national mental health system post-earthquake (Liana E. Chase et al., 2018). Key achievements in Nepal have included: a review of mental health information relevant to mental health and psychosocial support (MHPSS) (Inter-Agency Standing Committee (IASC), 2015); training primary health care service providers in affected districts in counselling; the specification of mental health focal points in both government and the World Health Organisation Country Office; the addition of new psychotropic drugs to the government's free drugs list; the development of a community mental health care package and training curricula for different cadres of health worker; the revision of mental health plans, policy, and financing mechanisms (Liana E. Chase et al., 2018).

2.10 Concept and understanding of mental illness in Nepal

Mental illness has been highly stigmatised in Nepal (Kohrt & Hruschka, 2010). People perceive mental illness as related to becoming crazy or 'lunatic', as being possessed by a spiritual or supernatural force or losing control of oneself (Regmi et al., 2004). Mental illness, often labelled in these ways, is considered a sign of weakness and causes the individual in distress to lose respect. Mental illness can be grounds for a man to divorce his wife, may impact economic productivity, and can carry the risk of the ill person being ostracised by community members and bringing social discrimination to the entire family (Regmi et al., 2004).

To understand the social stigma against mental illness in Nepal, it is important to understand the discourse on the mind–body divide which is characteristic of the dominant medical models in psychology (Kohrt & Harper, 2008). In the Western medical system, a dichotomy between mind and body is implicit in categorising and understanding mental illness. In contrast, a mind–body holism is a prominent understanding in non-Western systems such as that in South Asia (Ibid). Nepal, however, is an exception in revealing a prominent division of mind and body in understanding mental illness. The mind–body division is rooted in everyday Nepali language rather than the language employed solely by healers (Kohrt & Harper, 2008). Ethnographic research conducted for over two decades among the Nepali-

speaking population identified five elements that are central to understanding conceptions of mental health and psychological wellbeing and subsequent stigma in Nepal; brain-mind (*dimaag*), heart-mind (*man*), social status (*ijjat*), the physical body (*jiu*), and spirit of self (*saato*) (Kohrt & Harper, 2008; Kohrt & Hruschka, 2010). The *dimaag*, 'brain-mind' or 'social mind' represents the ability for logical thought and decision-making as well as to socialise and act according to social norms (Kohrt & Harper, 2008). Extreme problems with or the dysfunction of dimaag is labelled as the state of being *paagal* or *baulaahaa* meaning crazy, mad, or psychotic in medical terms (Ibid). Thus, in terms of healing, problems with the brain-mind are often perceived as incurable, and hence are highly stigmatised and are commonly not talked about. Kohrt and Harper (2008) suggest that man (heart-mind) is not specifically associated with illness or health. M*an* in everyday discourse refers to desires, likes and wants, and these idioms are related to feelings, emotional states, and mental health. The heart-mind is the locus of memory and emotions. When heart-mind activity increases, for example when someone is too emotional, they present clinically with physical and psychological complaints thus there is no social stigma attached to function or dysfunction of *man*. Therefore, the heart-mind concept enables a new approach that can deflect the stigma of mental illness, and in this form it is taken as something that is generally socially acceptable to discuss and therefore acceptable to seek treatment for (Kohrt & Hruschka, 2010). Traumatic intrusive memories related to disasters are described as emotional scars, worries, and anxiety of the heart-mind (Inter-Agency Standing Committee (IASC), 2015).

Different healers in Nepal emphasise different domains in explaining the suffering of their clients; traditional healers focus on the interrelationship between spirit and body, while a psychiatrist engages mental illness predominantly as a problem only of the brain (see Figure. 8). A physician may interpret the same complaints through a focus on the body alone, while a psychosocial worker looks at the interrelationship between the heart and society. With the range of religious and traditional healers available in Nepal, people usually rely on them to address mental health issues and only turn to physicians and psychiatrists as a last resort. A referral by a physician to see a psychiatrist brings a tremendous burden of stigma on the patient and family, as indicated above. However, post-Gorkha earthquake, people are much more comfortable receiving psychosocial counselling as the social stigma attached to it has

decreased with an increase in familiarity with the concepts, the rise in mental health awareness, and the increased availability of service for counselling as described earlier in this section (Liana E. Chase et al., 2018).

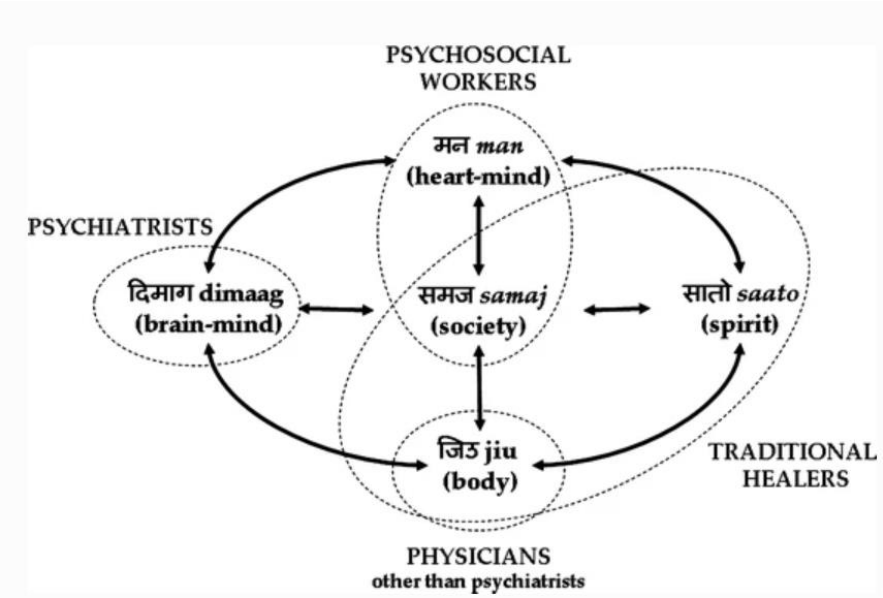


*Figure 8: The framing of suffering by different healers in Nepal through mind–body relation. Source: (*Kohrt & Harper, 2008, p. 475*)p. 475*

According to Kohrt and Harper (2008) mind–body divisions and the stigma attached to them also influence people's decisions about which healers they seek help from. In Nepal, though the study of mental health has taken a leap forward since the Bhutanese refugee crisis and civil conflict, these studies were more focused on victim groups of those events e.g., child soldiers, and refugees, rather than on the general population (Kohrt et al., 2010). There are a few studies on wellbeing in Nepal, but the tool they used was the measurement of PTSD and depression; for example, Kohrt's study (Kohrt et al., 2010). But as a health geographer, I am more interested in studying subjective wellbeing for the reasons summarised above than in studying mental illnesses like PTSD and depression. In addition, other disaster studies focus extensively on mental illness post-disaster. Therefore, this study emphasises the subjective wellbeing or heart–mind in cultural terms rather than brain-mind issues as it is a less stigmatised, more positive way to look at a sensitive issue and is proven to be easily accepted post-earthquake (L. E. Chase et al., 2018).

2.11 Summary

This chapter provided a brief introduction to Nepal and the profound social, political, economic and cultural challenges that existed before the earthquake. The main concerns the country was facing included poverty, rurality, conflict and gender discrimination, among others. The topography of Nepal contributes to geographical and social inequalities as it limits domestic connectivity to infrastructure and services in certain places. The socio-economic and political history of Dolakha highlights the reasons why the district was one of the most vulnerable in the country. Civil war wrecked communities socially and economically. Thousands of people were unlawfully killed, men were forced to flee rural communities, and women faced torture, sexual exploitation and trafficking. Conflict-affected communities had to cope with major challenges to health and wellbeing. A decade-long conflict tore apart the limited infrastructure in rural areas, destroying social harmony and exacerbating rural poverty. But it did induce some positive social changes. The conflict created opportunities for women when men were away. Women started to become active in roles outside the home and make independent decisions on minor issues in the household. This provided space for women's empowerment. In many families, an increase in remittances from male migration helped to reduce poverty and improve livelihoods. The country has undergone a social-political and cultural transformation in the past few decades. The changes include the promulgation of the new constitution, an operationalised gender quota system to increase the reach of female representatives at all levels, and improved women empowerment. However, shifting cultural constructions of gender, for example, takes time.

The social dimension in the form of the caste/ethnicity hierarchy is a cross-cutting issue for people in everyday life in Nepal and remains dominant in the study communities. Although caste-based discrimination is illegal, it still exists in practice. Lower-caste groups suffer all kinds of discrimination. High levels of gender inequality, acute poverty, social exclusion, and marginalisation, and their effects, are greatly compounded among lower-caste groups. The status of women in Nepal is low and there is systematic bias against them. Women suffer from the dominant patriarchial practice existing in everyday life despite their heavy contribution to running the household. Women's right to citizenship is one of the major examples of systemic bias women are facing.

The Gorkha earthquake stuck when communities were gradually recovering from a decade-long civil conflict. Hundreds of large aftershocks continued for more than a year, inflicting further damage. In Dolakha, the aftershock on 12 May caused more devastation than the Gorkha earthquake itself. The political instability, lack of local government, continuous aftershocks, and various technical challenges, made it difficult for the government to mobilise the reconstruction programme on time.

A large-scale disaster has adverse impacts on survivors' mental health. Mental health is not a priority subject in Nepal as the country is still dealing with a high communicable disease burden. On top of that, certain expressions of mental illness are not accepted and are highly stigmatised. In practice, in Nepal to deflect the stigma of mental illness, the mind–body division is framed through everyday Nepali language rather than the language employed solely by healers. Instead of mind–body, the term heart-mind is used, which culturally reflects the locus of memory and emotions generally – making it socially acceptable to discuss and more acceptable to seek help. There is a common tendency in post-disaster mental health studies to focus on PTSD, but I believe it is important to consider what enables mental health and resilience as well, so this study looks at subjective wellbeing. The next chapter presents the wider literature review on the study subject.

Chapter 3 Review of the Literature

3.1 Introduction

This thesis focuses on the subjective wellbeing of women survivors of the 2015 earthquake. This chapter focuses on examining comprehensive review of the existing research literature is conducted to explore the topics of mental health and wellbeing, disasters, the gendered dimension of disasters, intersectionality, social vulnerabilities, and resilience. The aim of this literature review is to gain a broader understanding of post-disaster wellbeing and to inform the conceptual framework of the study.

The chapter begins by exploring into the general concept of mental health and wellbeing, followed by an exploration of various conceptual frameworks commonly employed in the field (section 3.2). The intention is to comprehend the broader scope of disaster mental health, including its determinants. While the primary focus is on mental health, it is important to note that this thesis is grounded in the concept of wellbeing. Wellbeing serves as a lens through which mental health is studied as a positive resource, moving away from the prevailing deficit-oriented approach that emphasizes mental illness. Once insights on wellbeing are developed, conceptual frameworks frequently used to frame individual wellbeing are reviewed. Within this context, a rationale is provided for utilising subjective wellbeing as a tool to measure wellbeing, both in general and specifically in the context of Nepal.

Subsequently, the literature on disasters is reviewed, establishing connections to wellbeing, disaster vulnerability, and intersectionality, particularly regarding gender and caste issues that hold prominence within the Nepalese community (sections 3.3 and 3.4). This section aims to offer a more nuanced understanding of the rationale behind considering wellbeing during the post-disaster recovery period, with a particular emphasis on the gendered perspective.

3.2 Mental health and wellbeing: Approaches and concepts

This study focuses on mental health and wellbeing as its central areas of investigation. Although the definitions of these terms are subject to debate, this section provides

some overarching conceptualizations that inform the research. Firstly, I present a comprehensive perspective on mental health and wellbeing (section 3.2.1), tracing its historical emergence, highlighting the advantages of studying mental health in relation to wellbeing, and elucidating the interconnectedness between wellbeing and resilience. Subsequently, I examine various conceptual models employed in the literature to comprehend the factors influencing individual wellbeing (section 3.2.2). I discuss the relevance of these models to my research and introduce the specific model that serves as the fundamental framework guiding this study. Finally, I conduct a comprehensive review of the status of mental health and mental illness within the Nepalese context, concluding this section.

3.2.1 Conceptualising mental health and wellbeing

Mental health is an integral component of overall health (World Health Organisation, 2001). The phrase 'no health without mental health' was first put forth by the World Health Organisation to highlight the intimate link between mental and physical health, and it is regularly referenced and endorsed by various health organisations worldwide (World Health Organisation, 2004, p1). Mental health must be promoted and emphasised as critical to the discussion when considering ways to improve the health of the nation (Michael T. Compton & Ruth S. Shim, 2015). Mental health is fundamental to one's individual ability as a human to think, emote, interact, enjoy life, maintain good physical health and quality of life, and can also influence socioeconomic outcomes across the life course (Barry, 2008; World Health Organisation, 2001). Mental health is fundamental to the human, social and economic development of the nation, and hence should be considered an essential part of public policy (World Health Organisation, 2005).

'Mental health' is a broad term that means more than the absence of a clinical mental disorder or a positive subjective state. It is also concerned with the processes of how people's lives go well and how people do well in terms of social functioning and the ability to better deal with adversity and painful emotions (Huppert, 2009; World Health Organisation, 2001). The positive perspective of mental health is defined by the WHO as "a state of wellbeing in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" (World Health

Organisation, 2001 pg.1). Hence, mental health and wellbeing is concerned more with people's strengths than their weaknesses and are associated with positive mental wellbeing (Boardman et al., 2010). Mental health and mental illness are not the opposite ends of a continuum but are two different dimensions (Antaramian et al., 2010; Keyes, 2005; Westerhof & Keyes, 2010). Indeed, in the absence of mental disorders, individuals may have varying degrees of positive mental health (Barry & Freidl, 2008). The mental health of an individual is reflected by their evaluation of subjective wellbeing in terms of their affective states, and their psychological and social functioning (C. L. M. Keyes, 2002).

For a long time, the focus on mental health research and practice was conventionally overshadowed by a focus on mental illness, i.e. the identification and treatment of mental illnesses such as depression and anxiety, based on the deficit model which is widely used in social science and health and tends to focus on identifying problems and needs based on identified problems (Morgan & Ziglio, 2007), disregarding what works for the wellbeing of the population as it was assumed that wellbeing will prevail with the absence of illness (Huppert & So, 2013; Vaillant, 2012). The bio-medical model in mental health considers mental illness as a disease with a physical cause which is diagnosed based on certain symptoms like other physical illnesses; e.g., depression is caused by a chemical imbalance in the brain (Mechanic, 1999). There has been a sustained critique of the bio-medical model. It is criticised as an individual patient-based approach that focuses on the individual experience of mental illness in ways that construct an implicit dichotomy of 'us and them' (Carr et al., 2004) through how clinical labels position those living with a mental health problem as being other to the rest of 'normal' society. This, in turn, is associated with stigma towards mental health, the solution focused on individual-level treatment even though the experience of mental health problems is the outcome of complex social issues (Morrow et al., 2013). In contrast to this individual illness approach, a focus on wellbeing gives greater attention to mental health at a population or community level which has more societal applicability and relevance in disaster contexts (Michael T. Compton & Ruth S. Shim, 2015).

Mental and physical health have bi-directional relationships – poor mental health leads to poor physical health outcomes and vice versa (World Health Organisation, 2001). Many chronic illnesses, such as diabetes or cancer, are likely to be associated

with higher rates of depression, while patients with depression have a higher risk of some chronic physical illnesses. The social and economic cost of mental illness is extremely high in comparison to other health conditions (Friedli & Parsonage, 2007). The WHO definition of health calls for greater action in promoting positive mental health and the associated concepts of wellbeing and resilience in pursuing the most beneficial outcomes for people (Friedli & Parsonage, 2007; Herrman, 2012; Keyes, 2007). Therefore, the promotion of mental wellbeing in the general population is important. The following section deals with wellbeing. Despite the focus of this thesis on mental health and resilience, wellbeing is used as a concept to capture and convey the focus of the thesis on positive mental health – not just an absence of mental ill-health.

The concept of wellbeing has a long history that can be traced back to Aristotle and the Buddha and has changed over time (Gough & McGregor, 2007). Back then, the concept of wellbeing was linked more to 'welfare' than to happiness and prosperity (Williams 1983 cited in (Gough & McGregor, 2007). In the post-war development era, the dominant conception of wellbeing was an economic one, used as a proxy for 'quality of life' to measure social progress through the economic indicator (Stiglitz et al., 2009). Concerns emerged about the inadequacy of focusing solely on income as an indicator to gauge general societal progress, as it does not capture many essential factors considered important for a good life, including relationships, health and happiness. This led researchers to call for broader measures of wellbeing (Diener, 2009; Diener & Seligman, 2004; Dolan et al., 2011; Helliwell, 2006; Pilgrim, 2020; Seligman et al., 2011; Stiglitz et al., 2009), the idea of development goes beyond the material or economic aspects to human development in terms of human capacities and functioning, as identified by Amartya Sen near the end of the last century (Gough & McGregor, 2007). Further, Nussbaum (2001) embraced other non-economic aspects of life such as emotions, affiliation, health and autonomy as prerequisites of wellbeing. As a result, in recent decades, data related to individual wellbeing, quality of life, and happiness have been collected and included in indicator sets to monitor social life (Diener & Ryan, 2009; Land et al., 2011). Hence, over time, the global concept of measuring development according to narrow objective/economic measures then evolved to arrive at the human development index, and broadened to include the notion of achieving human wellbeing (Gough & McGregor, 2007).

Wellbeing has become a powerful policy concept in recent decades (Campion & Nurse, 2007a). Within this development towards new measures of wellbeing, researchers stressed the importance of mental health measures being recognised and included in any key policy outcomes (Bok, 2010; Layard & Clark, 2014) and have paved the way for a focus on wellbeing policy in the context of mental health (Slade et al., 2017). The 2011 United Nations General Assembly adopted resolution 65/309 : 'Happiness: towards a holistic approach to development' where happiness was established as a measure to evaluate people's wellbeing following the agreement that happiness is a fundamental human goal and that nations should be encouraged to create an enabling environment for people's wellbeing as a development goal in itself (Seligman et al., 2011; Stiglitz et al., 2009). This placed greater attention on wellbeing as it is a cross-cutting issue of development politically linked to concerns including addressing broad socio-economic progress, sustainable environments for living, and individual happiness, and informs government policy goals (Schwanen & Atkinson, 2015). Several countries, including Bhutan, the UK, France and Japan, now have indicators of happiness or other wellbeing measures as an element in their national surveys (United Nations General Assembly, 2013), reflecting a shift in emphasis to what counts for people's wellbeing rather than only economic trends (United Nations General Assembly, 2013; (Stiglitz et al., 2009).

Despite the established use of the concept of wellbeing, philosophers and social scientists have a concern with defining wellbeing (Diener, 2009) as people perceive the concept of wellbeing in diverse ways (White, 2010). Wellbeing has remained the domain of academics including economists, psychologists, sociologists, geographers and political scientists (Gasper, 2004). In geographical research, studying wellbeing is given much importance due to the integrative nature that offers dialogue among the economic, social, cultural, health, political and other arenas of geography (Schwanen & Atkinson, 2015). Despite the diversity of contexts in which wellbeing appears, the actual meaning of the term has still not been precisely defined. Wellbeing is often conflated with contentment (happiness, satisfaction), quality of life, mental health, and sometimes even health as a whole (Pilgrim, 2020). Different concepts have been used broadly such as welfare, happiness, quality of life, life satisfaction, and standard of living to describe the wellbeing construct (Veenhoven, 2011). Wellbeing also dominates in the literature concerned with psychological health as it is claimed to

capture a psychological state at a point in time (Mguni et al., 2012a; Walker-Springett et al., 2017).

Although happiness and satisfaction with life are not equivalent to mental health and wellbeing, they are strongly related to mental health and inversely related to its perturbations, particularly depression (Campion & Nurse, 2007b). Various words relating to the psychosocial sphere such as 'happiness', 'fulfilment', 'mental toughness', and 'resilience' are connoted when the word 'wellbeing' is used (Mguni et al., 2012a; Pilgrim, 2020).

West and Scott-Samuel (2010) define mental wellbeing as a range of negative and positive experiences that people live and interact with rather than a set of objective elements or external circumstances; they reflect that this primarily describes 'wellness' rather than 'illness'. The five-year project on Wellbeing in Developing Countries (WeD) defines wellbeing as 'a state of being with others, where human needs are met, where one can act meaningfully to pursue one's goals, and where one enjoys a satisfactory quality of life'. This combines both the objective and subjective concepts of wellbeing (WeD, 2007 :1). This suggests that wellbeing is an umbrella concept, consisting of 'objective wellbeing' and 'subjective wellbeing' (Gough & McGregor, 2007).

The WeD project contextualised understanding of wellbeing in developing nations and differences in understanding. It is reflected by the notion of 'doing good – feeling well', where feeling well indicates the importance of health to wellbeing and doing good represents 'living a good life' instead of 'the good life' – which is more of a collective dimension to subjective wellbeing (WeD, 2007 :1). The study presented an example of a locally grounded conception of 'ideal society': for a Bangladeshi villager, the ideal society was one where a person could live happily with rice to eat and clothes to wear, and was treated with respect by others. The example reveals the grounding of wellbeing to social and cultural values of place, and 'happiness' is the common term used in Bangladesh to express wellbeing in everyday speech. This also demonstrates the socio-cultural production of wellbeing and emphasises the significance of social relationships. Hence, wellbeing is not justified only by material possessions or the state of being 'poor' or 'not poor', or social relationships alone. This illustrates the importance of moral values, and a sense of one's relationship to others rather than

simply focusing on individual preferences in a developing nation. Alongside poverty and deprivation in developing countries, people are still able to achieve wellbeing – showing that wellbeing is not completely defined by their poverty (Gough & McGregor, 2007).

Despite variations in the understanding of wellbeing in different contexts and disciplines, there are certain key qualities of wellbeing which are consistent (White, 2010). Firstly, wellbeing is a positive concept which focuses on 'strength', rather than conventional approaches which focus on negatives such as poverty, social exclusion, and social dysfunction. It primarily emphasises 'wellness' rather than 'illness' in terms of health (West & Scott-Samuel, 2010). Wellbeing as a concept constitutes a broader category for understanding the healthiness of people, taking into account subjective notions of happiness, as well as physical and psychological components of health (Walker-Springett et al., 2017). Concentrating on the positive aspects of people's lives has the benefit of focusing attention on increasing the chances of being healthy, through building the ability to deal with problems, establishing a wider range of relationships through which people may be more likely to seek help, using suitable emotional responses, and enabling people to be happier and more independent (Ibid). Hence, studying wellbeing can improve the quality of human life by focusing on and supporting the positive aspects and experiences of our lives. The second facet of wellbeing is its holistic outlook, trying to connect the mind with the body (White, 2010). Huppert and So (2013) argue that mental wellbeing is not biological, genetic or ecological and even a person living with an incurable disease still can enjoy a happy life. Thus, mental wellbeing is more about living an emotionally healthy life, coping with negative stress, and living a fulfiling life (Cooke & Coggins, 2005).

The evidence clearly suggests that a high level of wellbeing is beneficial for an individual and society, as it is associated with a range of positive outcomes, including good physical health, effective learning, productivity, good interpersonal relationships, better coping, resilience in the face of adversity, social behaviour and life expectancy (Campion & Nurse, 2007b; Dolan et al., 2011; Huppert, 2009). Similarly, wellbeing in the face of adversity holds the potential to make an adverse scenario manageable (Shmotkin & Shrira, 2013) by reducing the chance of limiting an individual's daily activities and the sense of helplessness and by setting clear life goals, supporting high resilience, and supporting high intimacy (Keyes, 2005).

Mental health and wellbeing is a fundamental element of resilient individual capabilities and a key to positive adaptation to adverse circumstances such that people reach their full potential (Friedli, 2009). However, wellbeing is considered both a determinant (a resource that facilitates resilient responses) and the outcome of resilience which enables people to successfully adapt to stressful circumstances (Maybery & Reupert, 2009). Similarly, studies have found that wellbeing and resilience are positively connected and highly correlated (high wellbeing and high resilience, or, conversely, low wellbeing alongside low resilience), with resilience being a strong predictor of wellbeing (Christopher & Kulig, 2000; Mguni et al., 2012b; Nygren et al., 2005; Tomás et al., 2012). The wellbeing literature strongly connects to notions of resilience at both individual and societal levels (Joseph & McGregor, 2020).

Resilience is not a new concept in disaster mental health research as trauma experts have long acknowledged that it may co-exist with emotional scars post-disaster (Neria et al., 2009). In a similar way to the concept of 'wellbeing', the concept of 'resilience' in research does not have a fixed definition. The term is variously used to describe post-traumatic growth, hope and recovery, and as the absence of symptoms of mental illness such as PTSD and as the ability to bounce back (Ibid). This study follows Bonanno (2004) and operationalises resilience as the ability to maintain a relatively healthy level of psychosocial functioning, as this definition overlaps and complements the concept of wellbeing. As such, current wellbeing is used to consider the resilient nature of an individual.

There are two modes of wellbeing; the hedonic and eudaimonic perspectives of wellbeing are relatively distinct, yet overlapping and complementary (Forgeard et al., 2011; C. L. Keyes, 2002; Kumar et al., 2006). The hedonic or affective approach, with the prime concern of happiness, defines wellbeing in terms of pleasure attainment and pain avoidance; and the second approach, eudaimonic, is concerned with the meaning of life and self-realisation, and defines wellbeing in terms of a person's ability to functioning well in multiple domains of life (Keyes & Annas, 2009; Ryan & Deci, 2001). Kahneman (1999) in their book *Wellbeing: The Foundations of Hedonic Psychology*, defined hedonic wellbeing as the pleasant and unpleasant or pleasure versus painful experiences of life. Using happiness or hedonic pleasure to equate with wellbeing has a long history, which dates back to the fourth century when a Greek

philosopher, Aristippus, promoted the goal in life of experiencing the maximum amount of pleasure, a goal which has been posited by many other philosophers (Ibid). Increasingly scholars have gadually reinvented the older Aristotelian standpoint on wellbeing (Ryan & Deci, 2001; Taillefer et al., 2003), wherein wellbeing involves positive human functionality and happiness. Although Aristotle is known for advocating the eudaimonic perspective of wellbeing, he recognised both eudaimonic and hedonic perspectives as do other contemporary researchers such as the positive psychologist, Seligman, who emphasised pleasure, engagement and meaning (Huppert & So, 2013; Seligman, 2002). Aristotle used the term 'happiness' in a eudaimonic view to describe a well-lived life that would include satisfaction, purpose in life, autonomy, self-acceptance, connectedness, and the psychological sense of vitality (Boniwell, 2008, p. 40). Other hedonist theorists considered 'pleasure' and 'avoidance of pain', and some consider life satisfaction or the subjective evaluation of life as the key to wellbeing (Ibid).

From these considerations, it is clear that the meaning of wellbeing is ambiguous and broad in its scope. More recently, growing attention has focused on one part of this scope of meaning. The definition of wellbeing may be narrowed down to an evaluation of a person's situation and reduced to their specific feelings on their situation, or what has come to be called 'subjective wellbeing.' Subjective wellbeing is an individual judgement of either longer-term overall life satisfaction or immediate experience of the positive and negative effect or both of these (Lucas, 2018). Subjective wellbeing, in general, is concerned with the positive experience of life in terms of both the presence of positive emotions and the absence of negative emotions, incorporating an affective dimension of day-to-day joys or positive emotion, the avoidance of sorrows or negative emotion and an evaluative view on life in general, or life satisfaction (Diener, 2009; Huppert & So, 2013).

3.2.2 Determinants of mental health and wellbeing

Health and wellbeing follows a social gradient: people in a better social and economic position are likely to have better health (Marmot et al., 2010). Ill-health is not simply explained by germs and genes independently but is determined by social and environmental factors that surround us such as our home, communities, and access to other resources having independent or combined effects on those biological factors

(Roux, 2007). These social factors inextricably linked with biological processes result in good or bad health outcomes.

Two broad approaches are used in the analysis of the concept of wellbeing: positivist and interpretive approaches (Walker-Springett et al., 2017). The positivist construct, which is conventionally used by mainstream psychology and economics, approaches people as an object to investigate variability and seeks to use levels of wellbeing as a marker of national progress (White, 2010; White, 2015). In contrast, the later construct, the interpretive approach used in social science, positions people as subjects and aims to understand the experience of wellbeing in their own terms as far as possible (White, 2015). A relational wellbeing approach, which is an emergent construct grounded in the interpretive approach, will be used for understanding different wellbeing frameworks. Wellbeing in a relational approach goes beyond the individual and emphasises material and social conditions. In this approach, wellbeing emerges through the relation of people to the wider physical environment and social interaction, which is socially and culturally constructed, and rooted in particular times and places (Atkinson et al., 2020). In this respect, wellbeing is actively constituted through the interplay of personal, social, economic, cultural, political and environmental factors (Schwanen & Atkinson, 2015). Hence, wellbeing is viewed as a multidimensional and complex construct (Diener, 2009; Ryan & Deci, 2001) having physical, psychological, economic and social dimensions (Gasper, 2004). In post-earthquake communities in Nepal, where everybody is going through similar pain, wellbeing will be investigated through relationality, treating wellbeing as something that is actively established through dynamic interplay of individual experience with the environment on their own terms. A few frameworks that use a similar approach to understand wellbeing will be discussed below.

The increasing recognition of the significant influence of social and economic circumstances that affect mental health and wellbeing is reflected in a growing body of literature (Allen et al., 2014; Silva et al., 2016; World Health Organisation, 2014). The social model of mental health and wellbeing offers a broader interdisciplinary framework alternative to the dominant medical model and enables a more holistic approach to mental health (Carr et al., 2004). The social model links social circumstances so that, rather than focusing on ‘mental illness’, it accepts that mental health is the result of more generalised factors, including predisposing factors of

biology or physiology and wider social status (Carr et al., 2004). Unlike the biological determinants of health and disease (e.g., genetics), addressing the social determinants of mental health, taking action to promote mental health and reducing the risk of mental illnesses is substantially shaped by policy (Compton & Shim, 2015). For example, a youth's quality and extent of education certainly have long-term health implications and improving educational quality, reducing high school dropout and enhancing access to higher education for all are objectives that necessitate a policy and political approach. Although the social determinants of mental health are not distinct from those of physical health as such (Michael T. Compton & Ruth S. Shim, 2015), there are several comprehensive models for mental health and wellbeing.

This thesis recognises that mental health is a complex issue and takes a broad approach to understand mental health and wellbeing as described by a relational approach which goes beyond individual factors of survivor women following the Gorkha earthquake. Frameworks that use a similar approach in conceptualising wellbeing are discussed below. I will briefly discuss different wellbeing models even though they are not specifically related to disaster events, and discuss in detail the one which will frame my study tools.

There are several mental health and wellbeing models that take the relational approach to wellbeing and which explore the dynamic interplay of multiple factors to determine wellbeing. Miller and Rose (2008) presents a relational model of individual wellbeing in which wellbeing is treated as a relative effect that depends on comparisons we make with what we see around us, such as comparison with a neighbour, a reference group and our positition in a social hierarchy. This model places greater emphasis on local social factors and less on wider environmental factors.

The model of health determinants produced by the (World Health Organisation, 2010) is based on the theories of the social production of an individual's health in which social position generates health inequalities because individuals experience differences in exposure and vulnerability to health-compromising conditions. Although the framework deals with socio-economic, behavioural and psychosocial factors, it places greater emphasis on the role of wider social and political factors such

as governance, social and economic policies which are not the major focus of this study.

The model proposed by Friedli in 2009 for the Mental Wellbeing Impact Assessment (MIWA) collabourative (see Figure 9) considers promoting inclusion, enhancing control, increasing resilience, and facilitating participation as core protective factors that significantly influence mental health and wellbeing. In this model, these four factors are determined by three other layers of determinants: individual factors such as class, ethnicity, gender and physical health; community factors such as social network, support from family and neighbourhood; and wider socio-economic determinants such as education, financial security, housing, safe environment and access to transportation. This holistic model highlights that the four core protective factors are pathways through which wider socio-economic determinants can influence the outcome. The model, like many other health models, reflects a complex interaction between popualation factors, social factors and other wider circumstances to determine the mental health and wellbeing of people. The socio-economic background determines their access to buffers and supports, as well as determining certain advantages or disadvantages which start even before birth and tend to accumulate throughout life (World Health Organisation, 2014).

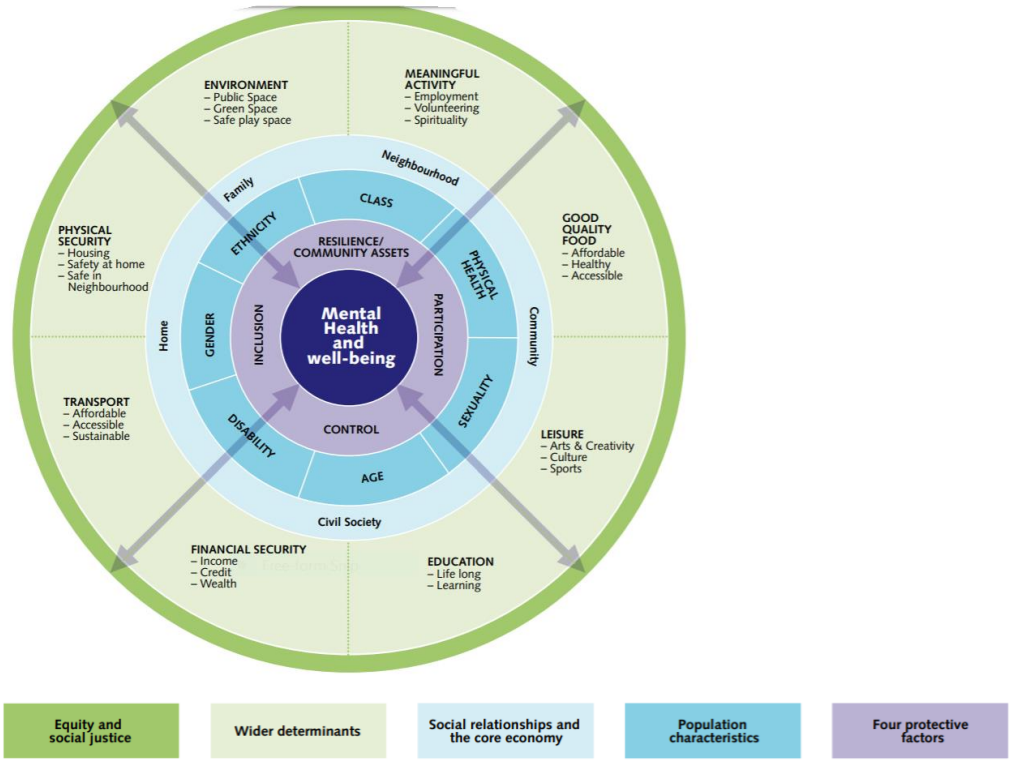


Figure 9: Model of wellbeing. Source: (Friedli et al., 2010), p.14

This model covers the range of aspects from wider factors linked to equality and social justice, through social relationships down to the individual level. This model is much more explicit than others in terms of factors it has included within each layer, which I found very helpful in guiding my research tool. In addition, this model also includes gender, ethnicity, household factors and cultural factors, which are important considerations in the context of Nepal. I considered the three layers : wider determinants, social relationships and population characterstics in this model as a guide factors to develop my questionnaire. This is the only model which specifically highlights cultural factors in the model, and culture seems to be an important determinant in the developing country context, as discussed in the previous section on the WeD project. Friedli's model includes age, which also draws attention to the time and life course approach where wellbeing is embedded with life trajectory rather than just understood as a snapshot. The life course approach recognises that disadvantage is not a result of a circumstances at a single time-point but of an accumulation of inequalities from conception through childhood and adolescence into adulthood (Graham & Power, 2004). The life course approach is particularly relevant for studying disasters in which there is a definite sense of life-before and life-after, and it is crucial to understand response and recovery in the context of people's lives before the disaster. The model is also quite simple and easy to understand; the layers included here are similar to the socio-ecological framework which Kohrt et al. (2010) had already adapted to study the psychosocial wellbeing of child soldiers in Nepal. Therefore, this model seems to be appropriate to my study and I adapt it further throughout this study whenever required. This model, however, was not developed specifically for developing countries so some factors within it may not be relevant in the Nepalese context. Also, this model is not designed for the disaster context, so there might be doubt about the relevancy of its use in my study. But due to the unavailability of a Nepal-based wellbeing model developed for the disaster context, I consider this model as a guiding model to my study. I briefly review below a few of those factors which have been included in studies in Nepal that are most prominent in the Nepalese context.

Important variables in the Nepalese context

Individual characteristics, such as demographic factors including age, education, income, sex, marital status and caste are commonly included in population-based

social studies (Adhikari et al., 2014; Kohrt et al., 2010). Many of the individual factors are considered as potentially both risk and protective factors for mental health and wellbeing. Ironically, a woman's power struggle can depend on many factors such as her age, marital status, and ethnicity in Nepal (Amatya et al., 2018). Studies suggest that being married, employed, and in the higher income group is likely to lead to a higher level of wellbeing (Kohrt et al., 2010). Similarly, the caste/ethnicity system which is predominant in Nepalese society determines class, power and access to resources, and has an association with mental health. The low caste displays higher psychological morbidity as poverty, lack of social support, and stressful life events act as a mediator (Kohrt (2009); (Kohrt et al., 2009). However, in traditional Hindu society women are subordinate to men, such that those women who silently listen to the men in the family are considered 'good women'. The consequences of these cultural roles and the lack of freedom of expression among high-caste women makes them more likely than the lower-caste women to suffer with mental morbidity through their experience of a lack of autonomy, and increased exposure to intimate partner violence (Thapa et al., 2021).

Wider environmental and structural issues along with patriarchal culture in Nepalese societies restrict women from acting autonomously (Pettigrew, 2013). Social factors include formal and informal social structures that make up the immediate environment for an individual's family roles, such as social status, gender, ethnicity, religion, and values. The structure of the household or family system in which women live greatly influences women's position (Gartaula et al., 2012; Sijapati et al., 2015). In an extended family setting where a married couple live with in-laws and their other children, women, on the one hand, will have more support but, on the other, greater restrictions imposed by the in-laws over their everyday lives (Sijapati et al., 2015). The cultural gender norm of women in household food distribution and a caring role toward dependent children and other household members means they experienced more pressure in the aftermath of disaster due to the demands of managing limited food and new roles in recovery and reconstruction (Enarson & Morrow, 1998). Similarly, the role of women in women-headed households has important implications for preparedness, evacuation and other key disaster decisions and women-headed households have been found to be at higher risk of disaster impact (Enarson & Morrow, 1998).

3.2.3 Measuring wellbeing

Research on wellbeing is focused on two basic methodologies of measurement. One methodology uses quantifiable social or economic indicators which are known as objective measures using tools such as the UN's Human Development Index (HDI) and GDP. The other one, which typically looks at the self-reported level of affect (happiness, pleasure) and judgement of satisfaction, is termed subjective wellbeing (Ryan & Deci, 2001). Many measures are in use to evaluate the pleasure/pain continuum in human experience, but hedonic researchers have used assessment of subjective wellbeing (SWB) most often (Diener, 2002). However, Costanza et al. (2007) agreed that the distinction between the two measures is somewhat illusionary as objective measures are considered as proxies for the experience of 'subjective' decision-making and vice-versa.

Subjective wellbeing broadly includes three different components: the presence of positive mood, the absence of negative mood, and life satisfaction. Stiglitz et al. (2009) suggest that all three aspects of subjective wellbeing should be measured separately and understood on their own to derive a more comprehensive measure of people's quality of life and to allow a better understanding of its determinants (including people's objective conditions), even though the three aspects are often substantially correlated. Thus, SWB is a general area of scientific research rather than a single specific construct (Diener, 2009). Hence, it is recommended that the researcher should not rely on a single measure such as global measures of happiness which are often used to measure wellbeing, because they cannot be neatly mapped onto the components of SWB. This means that all major components of SWB should be assessed separately (Ibid).

The notion of subjective wellbeing places individuals as the best judge of their own life condition as a whole or of its various domains, such as family, work and financial conditions (Ibid) and thus that they can provide important information about objective factors shaping the subjective dimension (United Nations General Assembly, 2013). This allows an individual to evaluate and summarise the full range of elements that people value (e.g., their sense of purpose, the fulfilment of their goals, and how they are perceived by others) (Ibid). The other emotional aspects of wellbeing, including pain, worry and anger, or pleasure, pride and respect, are

reported in real time, and so are less likely to be affected by memory biases or social pressure related to what is deemed to be 'good' in society (Ibid). A higher level of subjective wellbeing during the time of adversity irrespective of wellbeing before is relatable to a higher level of optimism of the individual which gives them confidence and persistence in coping with diverse challenges in the face of adversity (Carver et al., 2010). This study considers that subjective wellbeing can represent the overall wellbeing of a person and can be used as measure of overall life satisfaction and current emotion. The term 'wellbeing' is used interchangeably with good mental health, subjective wellbeing, happiness, satisfaction, and resilience throughout the study. Following this, in the next section, I discuss the vulnerability context.

3.3 The vulnerability context

In this section, I start by conceptualising vulnerability. I discuss different vulnerability models used to understand disaster vulnerability. I then move the debate towards the concept of intersectionality in determining vulnerability, then discuss wider gendered vulnerability in the time of disaster. I then present the gendered vulnerability of women in Nepal, emphasising the scenario of disaster.

3.3.1 Conceptualising vulnerability

Disaster impacts differ between individuals, households, social groups and communities. Although disasters pose a risk to all segments of society, it is often the most marginalised who experience disproportionate impacts in the wake of disaster and challenges to recovery (Boyce, 2000; Wisner et al., 2012). The vulnerability literature sheds light on why the impact of any disaster event is likely to be worse for the most marginalised groups (Bankoff & Frerks, 2013; O'Brien et al., 2007; O'Brien et al., 2008; O'Brien et al., 2009; Schröter et al., 2005; Wisner et al., 2004). The vulnerability discourse was introduced as a response to the purely hazard-orientated approach to disaster risk. 'Vulnerability' conveys a multitude of meaning, as the concept is used in different ways in diverse fields of study across the natural and social sciences (Oven et al., 2019). The definition of vulnerability given by Wisner et al. (2004) p. 11) is the likelihood of injury, death, loss and disruption of livelihood with exposure to hazard. Vulnerability consists of a set of factors such as individual conditions (age, ethnicity, health, housing structure, etc.), groups, systems, or places that increase susceptibility to the impact of hazards (Cutter, 2008). The different ways

of understanding vulnerability are described below in models presented by experts. The first model, that of Birkmann, describes a range of concepts that are used to understand vulnerability, followed by two other disaster-specific vulnerability models.

Birkmann and Wisner (2006) show a range of concepts that are used to understand vulnerability (see Figure 10). The concept of vulnerability here ranges from that due to narrow internal risk factors, widening up to vulnerability as a result of multidimensional factors. The innermost sphere views vulnerability as an intrinsic characteristic of a system or due to the susceptible characteristics of exposed elements of the system. The definition of vulnerability by Wisner et al. (2004, p. 11) is the likelihood of injury, death, loss and disruption of livelihood, which is presented in the second circle in Birkmann and Wisner's diagram (2006). In the third circle, the concept of vulnerability is widened to the susceptibility to be harmed from exposure to a hazard event due to the inability to cope with change (Adger, 2006). Therefore, vulnerability is dualistic in nature through the combination of damage potential on one hand and coping capacity in the other (Wisner et al., 2004). Moreover, the definition is further widened by viewing vulnerability as a result of multiple structures encompassing interactions between susceptibility, coping capacity, exposure and adaptive capacity (Turner et al., 2003). Finally, in the widest form in the fifth circle, vulnerability implies a multidimensional concept which includes physical, economic, social, environmental and institutional aspects that increase susceptibility to hazard events (Twigg & Bhatt, 1998):

> *"Vulnerability is too complicated to be captured by models and frameworks. There are so many dimensions to it: economic, social, demographic, political and psychological. There are so many factors making people vulnerable: not just a range of immediate causes but if one analyses the subject fully – a host of root causes too."*

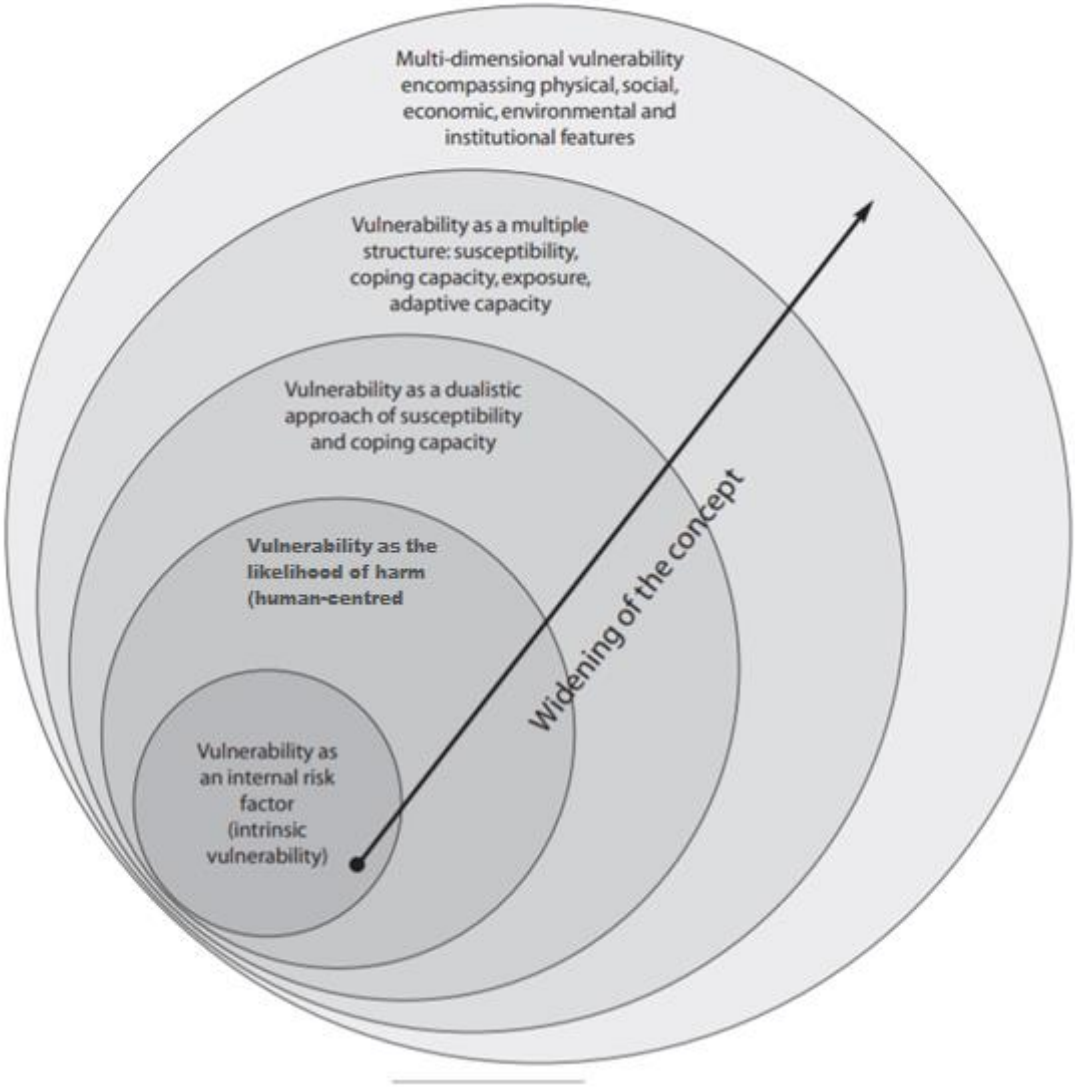


Figure 10: Key spheres of the concept of vulnerability (Birkmann, 2006, p.11)

Vulnerability is a result of complex interactions among social, natural and engineered systems, and hence an integrative approach is required to define it (Cutter, 2008). Cutter (2008) has identified three distinct themes of vulnerability within the field of disaster studies specifically: vulnerability as hazard exposure (pre-existing human condition); vulnerability as a social response (social construction); and vulnerability of places. The focus of vulnerability as hazard exposure is on the distribution of hazardous conditions (Nepal is prone to earthquakes), human occupancy of a hazardous area (unplanned densely populated cities of Nepal), and degree of loss associated with earthquake in this case. In the second theme, vulnerability as a social response, which highlights the social construction of vulnerability, the focus is on response, coping, and recovery from a hazardous event (Kumpulainen, 2006). The final theme, vulnerability of places, focuses on a combination of hazard exposure and

social response within a specific geographical area (Cutter et al., 2003). Thus, vulnerability is influenced by the complex array of social, economic, political and environmental factors operating at different levels (National Research Council, 2006) and it is therefore complex to understand what makes people vulnerable to disasters (Hilhorst and Bankoff, 2004).

There are multiple vulnerability frameworks that specifically emphasise contextual factors that can influence exposure and the capacity to respond to change (Ionescu et al., 2009; Turner et al., 2003; Wisner et al., 2004). Wisner et al. (2004) in the Pressure and Release (PAR) model, analyse how disasters occur when hazards affect vulnerable people. This framework (Fig 11) shows the progression of vulnerability in association with root causes, dynamic pressure built by root causes and unsafe conditions that cause hazard to turn into a disaster. The model shows that root causes shape a series of dynamic pressures which then give rise to unsafe conditions which turn a hazard into a disaster.

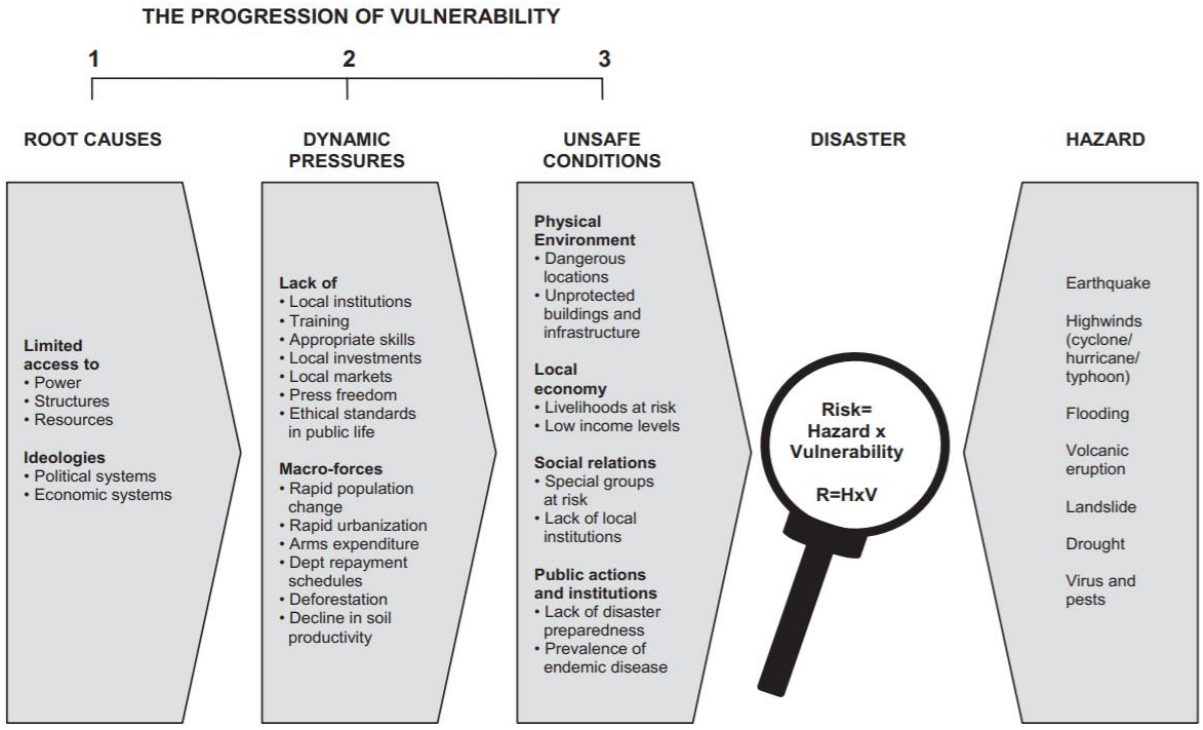


Figure 11: The Pressure and Release (PAR) Model (Wisner, 2004)

Here, root causes indicate the wider set of well-established systems such as economic, demographic and political processes in a society that could give rise to vulnerability,

e.g., national centralised policies in Nepal. Dynamic pressures are the processes/activities that transform the root causes into vulnerability, e.g. centralised development in Nepal before 2015 acted as a force to drive high immigration to the capital from other parts of the country for all sorts of opportunities, resulting in a high density of population in the capital. In further progression, dynamic pressures create unsafe conditions at the community/household level in the form of fragile living conditions, and undue pressure on available resources. Examples of such pressures include high levels of rural–urban migration, and an unregulated building boom which has resulted in unsafe buildings which are vulnerable to earthquake. All three factors interact with each other in a complex way to increase disaster vulnerabilities. Hence, vulnerability reduction is recognised as an important strategy for reducing disaster, minimising the impacts and improve the capacity to deal with disasters (O'Brien et al., 2008).

3.3.2 Disaster vulnerability: Intersectionality

Disaster impacts are shaped by the overarching social structures of caste, class, race and ethnicity, age, physical ability, gender, resource management and political economy, which place some population groups at greater risk of disasters than others (Enarson & Morrow, 1998; Wisner et al., 2004). Therefore, the people who have the least access to resources and power to make decisions are often the most affected in such disasters (Ibid). Thus, disaster cannot be considered as a social leveller in that its impact can be felt differently according to socio-economic factors such as class, as well as gender and other social parameters (Enarson & Fordham, 2001). Disaster vulnerability overlaps considerably with vulnerability in everyday living (Blaikie et al., 2014). Disaster often aggravates the vulnerabilities of those groups who are already vulnerable in everyday life: ethnic minorities, people with disabilities, the elderly, and women (Oxfam, 2016). But there can be people that benefit, and not only those already in a position to exploit the situation. Rigg, Lawt, et al. (2005) discussed in their paper that post-tsunami changes vulnerability of people due to opportunities created by disaster and those who manage to take an advantage of the situation. For example, two Muslim sisters lost their pancake shop in the tsunami. They opened a new one in a larger, permanent, and prime location with a rent of less than one third of their premises before the tsunami.

Many disastrous events have unfolded that indicate that women are the group most at risk from the impact of disaster and its aftermath (Oxfam, 2005). The effects and impact of disasters, and the response to disaster differ substantially for men and women (Enarson & Chakrabarti, 2009). Generally, data indicate that women constitute a disproportionately higher percentage of disaster fatalities than men after a large-scale disaster (Bradshaw & Fordham, 2013; Neumayer & Plümper, 2007). Further, in the post-event period, survivor women are at higher risk of experiencing a threat to personal security, unmet reproductive needs and violence, and are more likely to be affected psychologically because of material conditions like poor shelters and lack of sanitation access, distance to fetch drinking water and poor lighting (Bradshaw & Fordham, 2013; Hamilton & Halvorson, 2007). A systematic review of longitudinal disaster studies by Rodriguez-Llanes et al. (2013) showed the gender differences in how people respond to potentially traumatic events and concluded that gender is a consistent indicator of poor resilience to disaster.

Many studies demonstrate that most disaster researchers simply introduce sex as a binary variable in post-disaster studies, but ignore or incompletely analyse the gendered difference in the experience of disasters (Fothergill, 1996; Morrow & Enarson, 1994; Wisner et al., 2004). While women are one of the most vulnerable groups, there is a tendency to homogenise all women and consider them all as vulnerable (Cupples, 2007). It is important to take into account the different characteristics of women when determining vulnerability (Bradshaw & Fordham, 2013). Similarly, Cupples (2007) in her Hurricane Mitch and gender study illustrates that gender is a crucial part of improving disaster response, relief and research. But there is a tendency to oversimplify how gender shapes the response to disaster; for example, by placing all women in a single category which overlooks the differential impact of disaster vulnerabilities among different groups of women.

In developing countries, married women of reproductive age and who are the de facto heads of household are considered among the ‘asset-poor’ due to difficulties in reconciling income generation with childcare, domestic work, disproportionate access to resources and cultural constraints on socio-economic mobility. Their plight can be magnified when a disaster strikes (Chant, 2003; Smith & Troni, 2004). Those women particularly vulnerable during a disaster are commonly identified in research as the older married women, the elderly, widows, single mothers and female heads of

households rather than the younger married women with men present (Bradshaw & Fordham, 2013; Chant, 2004). In the context of disaster events in Nepal, single women, women-headed households, women living with disabilities, pregnant women, adolescent girls, senior citizens, children and ethnic minorities are among the most vulnerable groups (Government of Nepal, 2017).

Gender – a socially constructed norm, associated with being male or female in a given society – often entails an asymmetry of power relations between genders. Gender is a pervasive division affecting all societies, and a characteristic that decides access to resources (Enarson & Morrow, 1998) and reflects people's roles, rank in society, economic contribution, and treatment in society. Gender intersects further with other social identities, such as caste, age, ethnicity, location and socio-economic class, as well as religion, exacerbating the disparities in status and marginalisation (Le Masson et al., 2015; Nightingale, 2002; Nirvana, February 2014). Intersectionality focuses on mutually constitutive multiple social forces or identities in forms of social oppression such as relationality, social context, power relations, inequalities and social justice rather than on single axes through which power and disadvantage are expressed (Crenshaw, 2017; Hopkins, 2017). The prevalent gendered vulnerability in society does not derive from a single factor, but arises from a complex interplay of multiple factors which embed historically accustomed underlying biological, sexual and socio-cultural norms, operational in daily life at the individual, family, community and institutional level and their dynamic inter-relationships, not just simply because of biological cause (sex) (Enarson, 1998; Enarson & Chakrabarti, 2009). For example, elderly widowed women are vulnerable due to their reliance on family members for protection (Bradshaw & Fordham, 2013). Women's vulnerability and power struggles can depend on the intersection of gender with other characteristics such as age, marital status, social structure (like class, ethnicity, caste system), economic, religious and cultural constructs which marginalise women and make them 'vulnerable within the vulnerable' (Ariyabandu & Foenseka, 2006; ICIMOD, 2015).

Gender inequality, with other existing inequalities, creates hazardous social conditions, placing different groups of women at various levels of risk when disastrous events unfold (Wisner et al., 2004). In the wake of a disaster, the women's role of primary caregiver will remain even if the family is forced to relocate to a temporary shelter if their dwelling has been destroyed, adding a further level of stress (Bradshaw

& Fordham, 2013). The focus on gender entails a deeper understanding of the consequences of disaster risk for people, not only according to their geographical location but also due to their social roles and power dynamics shaped by social constructions of people's relationships to the environment and access to resources (Neumayer & Plümper, 2007). Therefore, there is a need for focused studies to better comprehend the gender dimension in disasters.

3.3.3 Gender vulnerability to disaster in Nepal

Gender norms play a significant role in compounding the vulnerability of women in each and every aspect of day-to-day life. Unsurprisingly, in line with other disaster events in many parts of the world, women were disproportionately affected with a higher number of deaths than men in the 2015 earthquake in Nepal (Oxfam, 2016). A report by the National Planning Commission, Nepal, on mortality in the 2015 Gorkha earthquake, reported a fatality rate for women at 55 percent (ranging from 49 percent to 64 percent depending upon district) compared with 45 percent for men (National Planning Commision, 2015; Petal et al., 2017). This figure perhaps reflects the high rate of out-migration for employment of working-aged men from the earthquake-affected districts, and the gendered division of labour that meant more women were indoors cooking and caring for young children at the time of the earthquake (Oven et al., 2019). Based on Nepal's national census (2011), 6 percent of the total population was absent in those districts when the 2015 earthquakes struck. Of the absent householders, 80 percent were male migrants, many of whom had left for foreign employment, which is a common demographic feature in rural Nepal. A considerable number of the households in the earthquake-affected districts were, therefore, headed by women. According to the estimates from UN Women, the 13 districts most severely affected by the 2015 earthquake in Nepal include approximately 318,000 female-headed households, 38,000 women with disabilities and 765,000 women and girls who are non-literate (UN, 2015). Typically, rural, poor female-headed households suffer from a 'triple burden'; a reproductive and nursing burden (this is mainly related to childbearing/raising, caring responsibilities for the elderly and disabled); a productive burden (in terms of engagement in day-wage labour or subsistence agriculture); and a community burden related to the voluntary, unpaid roles carried out in and for the community and the additional role in response and recovery (Bradshaw & Fordham, 2013; Moser, 1989). This 'triple burden' may further

compound the vulnerability of female household heads to poor mental wellbeing and low resilience (Chant, 2003; Enarson, 1998; Figart & Warnecke, 2013).

In a country like Nepal where patriarchal attitudes predominate, women's responsibilities are inclined towards childcare and domestic duties, rather than employment outside the household (Action Aid, 2015). Due to women's responsibilities as carers and mostly doing domestic indoor work, typically during the time of hazard events like earthquake women are associated with rescuing children and elderly people, placing themselves at risk (Bradshaw & Fordham, 2013). This role will persist even in temporary shelter if their dwelling is destroyed by the disaster, putting them under a lot of stress. Men, in the patriarchal societies are allocated the breadwinners roles in the family, may find it difficult to cope if they have lost their means of a livelihood. Such disruption to social norms creates increased tension and abuse rates are often seen to rise in post-disaster settings which again hit back to women in form of violence (Hadmoko, 2013). The power relations in decision-making processes in and out of the home, and inequalities in workloads and income hold women back from accessing and securing livelihoods to have control over their own lives and reduce their economic vulnerability. Thus, women lack access to or control over assets, including the resources necessary to cope with disaster events, such as information, education, health care and wealth (Bradshaw & Fordham, 2013).

During and following a disaster situation, women's mobility may be hindered by domestic and care work, and gender biases in relief and rehabilitation work often affect their ability to benefit from relief efforts and compensation (Mehta, 2007). For example, in post-earthquake relief efforts by the government, every household was asked to provide property and land ownership documents to access emergency support and grants for building temporary shelters. During the earthquake, many families affected by building collapse lost personal documents necessary to access relief and rebuild their lives, including birth certificates, citizenship certificates, marriage certificates, and property papers (Oxfam, 2016). In the patriarchal male-dominated society of Nepal, properties are predominantly legally owned by men. In the households where men were away from home and documents were lost in the earthquake or the men had taken them with them, women were unable to provide proof of landownership, which had an impact on receiving aid (Limbu et al., 2019b). This is just one example of how women faced extra challenges following the

earthquake because of their role as de facto heads of household within the context of patriarchy in practice. At a more structural level, continued inequality of access to different assets, such as political relationships, have hindered women's capacity to be able to survive, recover and rebuild after a disruptive event (Action Aid, 2015).

In a hazard risk assessment project by UNDP in multiple countries in South Asia including Nepal, it was found that women's jewellery (often their only source of economic security) tends to be sold first to cover expenditure, making women further resource poor personally (Mehta, 2007). Another cultural way of coping with food shortfalls that is gendered within the household is that women are more likely to eat less as they feed all their family first and then eat last. In addition, women who are engaged in small-scale enterprises destroyed by disasters were found to face relatively harder adjustments to their new situations (Regmi, 2016; Thapa, 2001).

3.4 Disaster landscape and wellbeing

In this section I review the literature on disasters. I first introduce the concept of disaster, then highlight the literature on disaster in developing countries and explore the disaster vulnerability of Nepal. I then discuss how disasters have an impact on people's mental wellbeing and why it is necessary to maintain the wellbeing of people post-disaster for successful recovery and reconstruction of communities.

3.4.1 Disaster and its global, regional and national impact

The United Nations International Strategy for Disaster Reduction (UNISDR) defines a disaster as 'a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community/society to cope using its own resources' (Disaster Reduction Center Asia, 2002). While disasters are defined in numerous ways, the common characteristics in these definitions are: sudden and severe disruption of everyday life, widespread human impact such as injury and loss, physical impacts such as infrastructure destruction, and disruption in essential services (Carter, 2008). Scholars argue that disasters and their devastating consequences to individuals, communities and societies are becoming more common, reflecting wider environmental change (Milly et al., 2002; Wannous & Velasquez, 2017). Stocker et al. (2013b) argue that the frequency of these events is unlikely to reduce soon.

Every year disasters impact more than 217 million people globally (Friedli, 2009; Leaning & Guha-Sapir, 2013). In the year 2019 alone, more than 95 million people were affected by disasters (natural disasters which exclude biological disaster in this analysis) across the world (Centre for Resreach on the Epidemiology of Disasters (CRED), 2020). The negative impact in terms of loss of life and livelihood is greater in low-income countries where the capacities to prepare for and respond to disasters are limited (Ahern et al., 2005; Chae et al., 2005; Novick, 2005). The records on disaster events in 2019 show that Asia experienced 45 percent of total disaster events that took place, affecting 74 percent of the population, and accounting for 45 percent of total deaths (Centre for Resreach on the Epidemiology of Disasters (CRED), 2020). Developing countries are more prone to disasters than developed ones, largely due to the demographic conditions, poverty, rapid socio-economic changes, fast-expanding urbanisation, development within high-risk environments and their limited capacities to prepare for and respond to disasters due to a lack of resources. As a consequence, the impact is higher in terms of loss of life and livelihood (Ahern et al., 2005; Chae et al., 2005; Novick, 2005). The detailed process by which the above-mentioned unsafe conditions progress to increased risk in a disaster is shown in the Pressure and Release (PAR) model in Figure 11. For example, high population density, lack of employment or low-paid jobs and poverty contribute to poor housing standards, making certain groups socially and economically vulnerable.

Nepal ranks as one of the most disaster-prone countries in the world, with high vulnerability to floods, landslides and earthquakes due to the country's geography intersecting with an active tectonic environment and monsoon climate (Government of Nepal, 2013). A 2016 report estimated that nearly 10,000 families had been affected in the previous 10 years by different natural hazards with an economic loss of over £3 billion in Nepal (DFID, 2016). As noted above, Nepal is situated in a seismically active zone. The most devastating earthquakes Nepal has recorded are the Bihar-Nepal earthquake in 1934 with a magnitude 8.4 Mw, one in 1988 with a magnitude of 6.7 Mw, the Nepal-Sikkim earthquake in 2011 of 6.8 Mw and the most recent on 25 April 2015 at 7.9 Mw (Dube, 2015). In the three decades prior to the Gorkha earthquake, Nepal experienced nearly 80 earthquake events, big and small (Government of Nepal, 2013). Yet, the frequency of earthquakes is still less than that of floods and landslides,

which occur each year causing significant impacts in terms of loss of life and livelihood.

Earthquakes, in particular, have a long history of significantly impacting societies through building collapse and infrastructure damage and subsequent disasters such as landslides, fires and tsunamis (Ratnapradipa, 2012). Considering the frequency of hazards and other vulnerabilities, it is important to consider reducing disaster risks in the first place and to take into account other factors contributing to recovery and influencing engagement in preparedness for future disasters (Welton-Mitchell et al., 2018). In the aftermath of the quakes, people were forced to live in temporary dwellings for a long time with limited access to food and water. The poor living conditions of the people were exacerbated by monsoon rain which arrived approximately two months after the first earthquake (O'Brien et al., 2005).

3.4.2 Disaster and its consequences for mental health

Disasters interrupt normal activities of communities and can overwhelm local resources, having a significant impact on the socio-economic and mental health and wellbeing of survivors (Makwana, 2019; Shear et al., 2011; Ursano et al., 2007). Evidence on disaster and mental health suggests the cumulative and prolonged effects of an event such as injury, loss of life, and the unpredictable social (social disruption, loss of family and friends) and economic (loss of and damage to homes, farmland and loss of livelihood) losses caused by disasters can harm individuals' physical health, mental health and wellbeing (Adams et al., 2002; Adams & Boscarino, 2005; Bich et al., 2011; Dirkzwager et al., 2007; Kokai et al., 2004; Novick, 2005; O'Brien et al., 2008). Survivors in the affected areas may find themselves displaced from their homes, with disruption to existing social support networks, which consequently disrupts normal routines. People face a chronic struggle to rebuild following material losses, the feeling of separation from their home and/or pressures due to living in a severely damaged environment (Warsini et al., 2014). This can intensify emotional and psychological trauma and stress (Astbury, 2001; Chen et al., 2007; Lai et al., 2004; Montazeri et al., 2005; Wang et al., 2000; Zhang et al., 2011). It leaves disaster survivors in a state of shock, makes them feel insecure, and renders victims psychologically vulnerable to different maladaptive reactions like stress and anxiety disorders (Makwana, 2019). The shorter and longer-term impacts on mental health

post-disaster can make recovery activities a challenge following a disaster (O'Brien et al., 2005). Hence, mental health is one of the greatest concerns for disaster survivors, particularly over the longer term(Briere & Elliott, 2000; Yokoyama et al., 2014).

A review of empirical research on disasters and mental health published between 1981 and 2001 (F. H. Norris et al., 2002) suggests that a substantial proportion of the population affected by an earthquake is expected to experience a wide range of mental health and psychosocial problems including distress, which may not be clinically significant. Mental health studies post-disaster suggest that researchers should not focus too narrowly on any specific disorders (Bonanno et al., 2006; Fran H Norris et al., 2002). The consequence of this focus is that relatively little is known about the adult capacity to maintain healthy mental functioning or resilience, following a disaster (Bonanno et al., 2006). Studies have highlighted that rather than emphasising the absence of disorder, it is important to focus on good mental functioning as it determines the quality of life, cognitive capacity, physical health and social productivity (Huppert et al., 2005; Linley & Joseph, 2004).

Disasters have a substantial impact on the subjective wellbeing of the affected population in a variety of ways: (a) as a consequence of disruption and losses caused by a disaster such as job loss, loss of the house, and health impairments and (b) due to psychological mechanisms (fear, anxiety, and distress as a result of the loss of valuable goods or loved ones, an undermined social support network, recurrence of aftershocks) (Rehdanz et al., 2015). Depending on the severity of the consequences of disaster and the extent of individual exposure, it might produce fundamental changes in how people evaluate wellbeing within their present life (Ibid). There is no doubt that the prevalence of mental disorders is higher in the post-disaster context as an effect of deteriorated environmental conditions on mental health and wellbeing (de Jong, 2011; Tol et al., 2011; Tol et al., 2010). Based on a review of studies conducted in Nepal and elsewhere, following humanitarian crises the expected prevalence of common mental disorders such as depression, anxiety and PTSD may increase by 10 to 20 percent from the pre-crisis baseline (TPO Nepal, 2015).

An individual's reaction to disaster follows different phases of disaster mental health: heroic phase, honeymoon phase, disillusionment phase and restoration phase which is shown in Figure 12 (Math et al., 2006). The heroic phase, which is immediately after

the disaster before relief agencies step in, lasts for about a week when survivors in the community show altruistic behaviour by engaging in rescuing, managing food and shelter for other survivors (Math et al., 2015). The second phase is called the honeymoon phase as the community receives attention and support from relief agencies, media, VIPs visit with the compensation package, relief aid and promises which provide survivors with a sense of relief and faith of restoration of their loss; this lasts for 2-4 weeks post-disaster (Ibid). The third phase, the disillusionment phase, is when all relief aid and agencies start to fade away, survivor communities face the reality of a complex process of rebuilding, and rehabilitating appears a distant dream because of administrative hurdles. The harsh reality people face in this stage provides fertile soil for breeding mental morbidity which lasts for 3-36 months before the community restores their normal life again. Therefore, understanding the wellbeing of people in the longer term post-disaster is important for smooth disaster recovery and reconstruction.

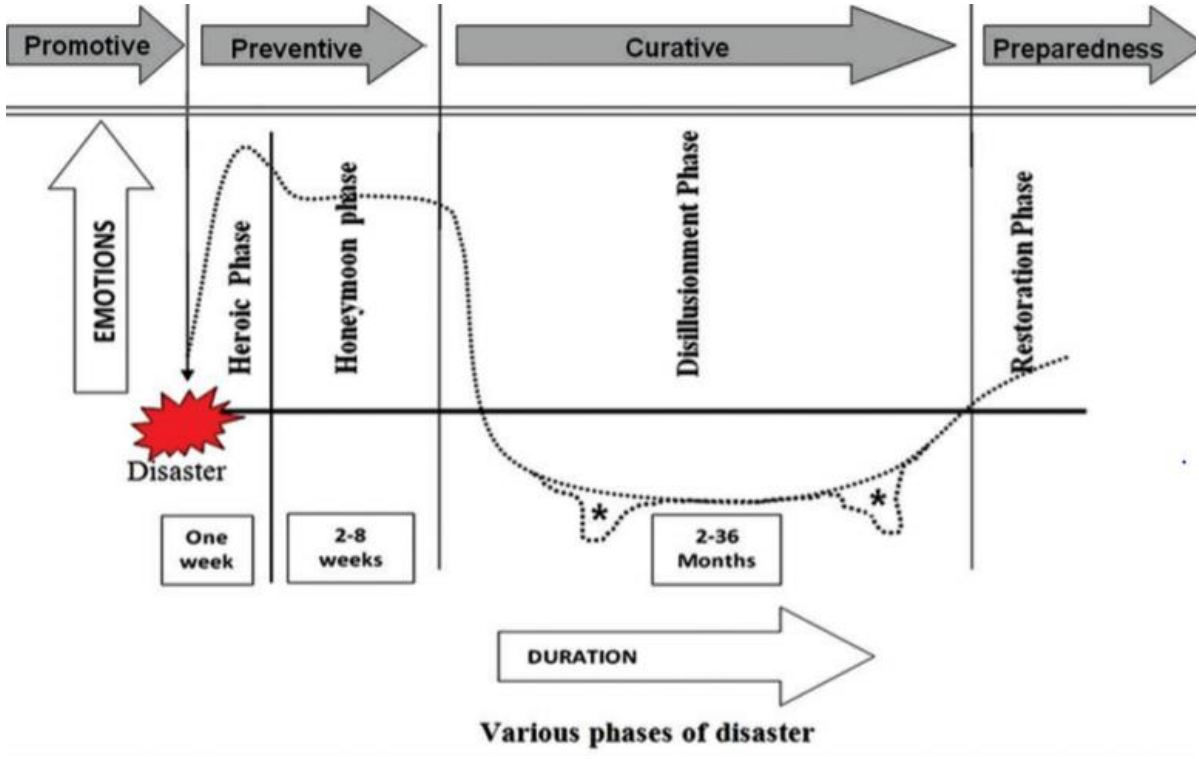


*Figure 12: The various phases of post-disaster mental health. Source: (*Math et al., 2006*)*

3.4.2.1 Earthquakes and their impact on mental health

Earthquakes, in particular, have a long history of significantly impacting societies through building collapse and infrastructure damage and subsequent disasters such

as landslides, fires and tsunamis (Ratnapradipa, 2012). A review of empirical research on disaster mental health by F. H. Norris et al. (2002) suggests that a substantial proportion of the population affected by an earthquake is expected to experience a wide range of mental disorders. The threat to life persists long after the initial earthquake with the possibility of aftershocks (Chen et al., 2007). Therefore, the impacts of the event are experienced for several years – most likely resulting in longer-term mental health problems apart from the more prevalent short-term psychiatric morbidity post-disasters (Bland et al., 1996; Chen et al., 2007). However, the long-term impact of disasters on mental health has been little studied (Bland et al., 1996; Chen et al., 2007). Most of the disaster mental health studies have focused on short-term traumatic stress disorders in affected communities (F. H. Norris et al., 2002).

3.4.3 Importance of disaster mental health and wellbeing

With the increased frequency of disasters, reducing risk from hazards cannot be done by focusing solely on the hazards. Societies will have to be prepared to face and live with changing environmental conditions, and therefore they will be required to reduce vulnerabilities to hazards and build community and individual resilience (Birkmann et al., 2013). In the face of disaster, it is important to recognise that the health concerns of affected communities extend beyond health protection and disease prevention to include the promotion of health and wellbeing (Généreux et al., 2020). Mental health promotion activities that go beyond preventing and treating illness involve actions that support people to adopt and maintain healthy ways of life and create living conditions and environments that often have an important outcome on the prevention of mental disorders and enhance wellbeing in a population – regardless of whether or not it is affected by a disaster (Herrman, 2012). Mental wellbeing helps victims to adapt to the changes they experience post-disaster, thus helping them get back to normal life despite their loss (Ibid). Promoting mental health and wellbeing at a population level leverages the post-event recovery process and good functioning of the community to create healthier, resilient and sustainable communities (Herrman, 2012). Therefore, it is important to expand knowledge on the effective approach to mental health and wellbeing in the context of disaster, which has been little researched (Harris-Roxas et al., 2012).

Disaster mental health research focuses too narrowly on specific mental disorders (Bonanno et al., 2006; Fran H Norris et al., 2002). Similarly, conventional disaster risk management places much more focus on hazards, risks, vulnerability, and adverse health outcomes following disasters (i.e., deficit-based models) and seeks solutions to these (Généreux et al., 2020). The consequence is that little is known about the way disaster survivors maintain their own mental health or resilience following a disaster (Bonanno et al., 2006). Only recently have studies started to explore disaster mental health responses from a positive perspective which is wellbeing – a wider population approach that considers community as an asset and focuses on the whole community rather than on a few ill members of that community (Herrman, 2012; Kreutzmann, 2012). Thus, there is an increasing call for more studies exploring interventions to build the intrinsic capacity of a community to adapt to disasters (Van Kessel et al., 2014). A recent intervention study conducted in post-earthquake Nepal to determine the effect of disaster preparedness on mental health concluded that a mental health integrated disaster preparedness intervention which consisted of a three-day workshop on coping skills, disaster preparedness and use of a peer-based help-giving and help-seeking model designed to encourage community cohesion is effective in enhancing resilience among earthquake-affected communities in Nepal (Welton-Mitchell et al., 2018). The need to incorporate mental wellbeing into disaster policy and practice to increase disaster resilience among individuals and communities has become more urgent with the increased occurrence of disaster events (Sandifer & Walker, 2018). The way communities deal with the crisis varies depending on the culture and traditional practices (Ibid). Thus, disaster recovery programmes need to include mental health promotion to improve understanding of mental health and its determinants more broadly, is required for particular community (Herrman, 2012). For example, methods of coping, help-seeking, and seeking treatment for mental disorders vary in different communities. Studies of such methods could provide important information for decision-makers, practitioners and researchers to promote health and wellbeing of communities and to increase their resilience in coping with hazards (Généreux et al., 2020).

Although there are widely known and accepted determinants of health, including socio-economic position, health behaviour and material resources (Marmot, 2005; Marmot et al., 2010), in disaster events, all of these determinants may be affected to

some extent (Warsini et al., 2014). The short-term disruption in wellbeing as an impact of disaster is common in the immediate aftermath, but some rapidly recover to pre-disaster conditions (Fran H Norris et al., 2002). It is not exactly clear what enables those individuals or communities to withstand the crisis, a fact that makes the study of resilience both interesting and important (Patel & Goodman, 2007). Walker-Springett et al. (2017), in their study of wellbeing in the aftermath of floods, suggested that the interactions between disaster events, their aftermath, and recovery leading to individual health and wellbeing outcomes are complex, and that the pathways and mechanisms through which wellbeing is affected are often hidden and remain under-researched. Although studies have been conducted on the socio-psychological health impacts of disaster events, most of them focused on analysis of single outcomes or particular factors. Less attention has been given to the analysis of how multiple factors and processes combine to contribute to wider wellbeing outcomes (Walker-Springett et al., 2017). This study analyses the diverse factors that explain changes in wellbeing outcomes for those who experienced and survived the earthquake event.

Disaster preparations and responses are incomplete unless they address the mental health aspects of disasters (Oldham, 2013). Although mental health is a significant concern after the disaster, the introduction of mass mental health response to disasters did not take place until the 2005 Indian Ocean Tsunami, which marked a watershed in understanding mental health response to the disaster (Ampuero et al., 2015; Herrman, 2012). This is when the World Health Organisation (WHO) and other important international organisations started considering the inclusion of programmes of mental health and wellbeing promotion in emergency settings to prevent mental disorders, instead of just focusing on identifying and treating cases (Van Ommeren & Wessells, 2007). The international Hyogo Framework for Action (HFA) 2005–2015: Building the Resilience of Nations and Communities to Disasters was criticised for being too narrowly focused on health services, overlooking the wider determinants of individual health and wellbeing (Aitsi-Selmi & Murray, 2016). The Sendai Framework for Disaster Risk Reduction (SFDRR) 2015–2030, the successor of the Hyogo Framework , adopted in March 2015 in Sendai, Japan by 187 members of the United Nations, identified health as an explicit outcome of DRR and called on the health and scientific community to take action to help reduce disaster impacts through prevention, preparedness, response, recovery and rehabilitation (UNISDR,

2015). It put people's mental and physical health, resilience and wellbeing higher up the DRR agenda compared with its predecessor, the Hyogo Framework (Aitsi-Selmi et al., 2015). Also, the Sustainable Development Goals (SDGs) 2015 explicitly include health and wellbeing and gender equality as two of its seventeen goals. Using wellbeing as a basis for more holistic policy analysis can guide better understanding of individual and local priorities (Copestake, 2008). Thus, when the attention of the policy community lack focus to protect people's health and wellbeing from the risks of disasters, this study can make a small contribution towards shifting the focus to wellbeing and resilience and to guide local disaster policy.

3.4.4 Gender and wellbeing

As with wellbeing, gender is also now being more explicitly considered in disaster policies, for example in the Sendai Framework (Wisner, 2020; Yadav et al., 2021a). According to the WHO, women's health is the outcome of their position in the society; having an equal share of resources and decision-making contributes to better health, and inequalities degrade women's health. The social gradient in health is heavily gendered in low-income countries, arising from women's greater exposure to poverty, discrimination and socio-economic disadvantage (Astbury, 2001). As summarised by the WHO:

> *Women's health is inextricably linked to their status in society. It benefits from equality and suffers from discrimination. Today, the status and wellbeing of countless millions of women world-wide remain tragically low. (WHO, 1998, p. 6)*

Gender is considered as a significant social determinant of health and wellbeing and gender analysis is important in improving the mental health of men and women (Manandhar et al., 2018). The impacts on health and wellbeing of women during disaster vary significantly as gender is intricately linked to wider social, cultural, institutional, physical, and economic constraints, many of which are rooted in systemic bias (Bradshaw & Fordham, 2013). Gender difference in post-disaster psychopathology has been observed in developed and developing countries regardless of the type of disaster, suggesting that women are more affected than men (Bonanno & Gupta, 2009; Curtis et al., 2007; Goldmann & Galea, 2014; Gruebner et al., 2015; Kuwabara et al., 2008; Fran H Norris et al., 2002; Rodriguez-Llanes et al., 2013).

However, while women's increased vulnerability is well noted in the literature, their capacity to responded to hazard is less well documented (Bradshaw & Fordham, 2013). Despite having experienced serious adversity in disaster, some women are able to successfully resume their life along with their given vulnerabilities as shown by a study of Taiwanese women exposed to the Chi Chi earthquake and Thai women exposed to the Indian Ocean Tsunami (Liu & Mishna, 2012; Rigg, Law, et al., 2005; Rigg, Lawt, et al., 2005; Rutter, 2013). For example, working-class Taiwanese women described themselves as having unique characteristics of 'toughness' and 'persistence' to overcome challenges in everyday life as they grew up in disadvantaged families with limited resources. Women said they made the most of these characteristics after the earthquake to hold three jobs at the same time to earn more and used their earnings for reconstruction of their family home.

Women are not only victims or the ones on the list of a most vulnerable group, but equally, are responders and the agents of change (Yadav, 2020). Women's contribution to helping communities prepare for and respond to a disaster and build resilience is often overlooked (Austin Lord, May 2016; Bradshaw & Fordham, 2013). The invisibility of women and girls was highlighted by UNISDR in 2012 with the theme of 'Women and Girls: the [in]Visible Force of Resilience' on International Day for Disaster Reduction. This theme highlighted lack of recognition of the efforts and contribution of women in protecting their communities before, and rebuilding after, disasters.

Other factors that may influence or mediate the vulnerability of women to negative health and wellbeing impacts following a disaster/the earthquake include limited access to education; being unaware of safe places to shelter during the earthquake as they are less likely to participate in disaster preparedness training; social and cultural constraints such as the necessity for women to be accompanied by a male family member outside the home; the gender division of labour, with more indoor activities at the time of the earthquake such as cooking and caring – in particular caring for children and the elderly, which slowed down their escape from collapsing buildings (Bradshaw & Fordham, 2013; Regmi, 2016).

3.5 Social capital and post-disaster recovery

There are several definitions of social capital and in general social capital is defined as the resources available to individuals and groups through their connections to social networks (Coutts et al., 2004; Kawachi & Subramanian, 2006). Given this definition, social capital can be viewed as both an individual and collective community attribute (Ferlander, 2007). While social capital has often been studied as a community attribute, with a focus on measuring the presence and resources of social networks linkages between community members, social capital can also be studied as an individual attribute by measuring the level of social support an individual has through their network connections (Kawachi & Berkman, 2000).

The individual level measures social connections and support, while the collective level includes trust within a community (Ferlander, 2007). These two schools of thought are referred to as the network approach and the social cohesion/communitarian approach respectively. Although there is a continuing discussion on whether social capital is affiliated with individuals or groups, multiple academics suggest that it can be associated with both. Kawachi (2006) similarly argues that it is erroneous to view social capital as only an individual or collective asset, as it can be both. This study considers social capital as a resource, whether individual or communal, that can be obtained through various forms of social networks.

Although there are several interpretations of social capital, most of them include two components: a structural aspect and cognitive aspect (Ferlander, 2007). Structural aspect focuses on participation in the social network and interpersonal connections. Conversely, norms of reciprocity and trust are considered the cognitive aspect of social capital that describes values or attitudes (Ibid).

The Council of Europe (CoE) (Council of Europe, 2004) defines social cohesion as: "*the capacity of a society to ensure the welfare of all its members, minimizing disparities and avoiding polarization. A cohesive society is a mainly supportive community of free individuals pursuing these common goals by democratic means*". Social cohesion in society is marked by the abundance of mutual moral support and believes in sharing collective energy *(*Kawachi & Berkman, 2000*)*.

Social network which is the structural and core element of social capital is defined as a set of soically relevant nodes or network members connectred by one or more relations (Marin & Wellman, 2011, p. 11). The different forms of social network have been conceptually distinguished by the direction of their ties and their strength. Ferlander (2007) originally from (Granovetter, 1973) has proposed a common way of classifying social networks based on strong and weak ties. Strong ties consist of close relationships such as immediate family and close friends that are regularly maintained and have multiple connections. Conversely, weak ties comprise non-intimate relationships, such as acquaintances, that are less frequently maintained and have a single connection. While strong ties refer to people who are emotionally close to oneself, weak ties refer to people who are emotionally distant from oneself.

The three categories of social capital were outlined by Woolcock and Narayan (2000) 1) Bonding, 2)Bridging and 3) Linking social capital. Bonding social capital refers to the ties between immediate family members, neighbours, close friends, and business associates who share similar demographic characteristics (Woolcock & Narayan, 2000). Bonding social capital is formed through networks that share similar certain demographic characteristics like age, ethnicity, or education (Ferlander, 2003; Putnam, 2000). Such networks based on homogeneous networks tend to be inward-looking and reinforce exclusive group identities based on social class, making them an exclusive asset for the privileged class.

On the other hand, bridging social capital is based on heterogeneous and outward-looking connections that include people across social groups (Woolcock & Narayan, 2000). Bridging social capital refers to ties between people from different ethnic, geographical, and occupational backgrounds but with similar economic status and political influence. Putnam (2000) argued that bridging social capital allows for the creation of broader identities and reciprocity, while bonding social capital reinforces narrow identities. Bonding ties refer to people similar to oneself, whereas bridging and linking ties refer to people who are different from oneself (Ferlander, 2003). A family, for an example, often constitutes a social network of strong ties, but tends to be bridging in terms of gender and age.

Linking social capital refers to ties between community members and those in positions of influence in formal organisations such as banks, agricultural extension

offices, schools, housing authorities, or the police (Woolcock & Narayan, 2000). Woolcock suggested that individuals experiencing poverty usually have strong bonding social capital and some bridging social capital, but insufficient linking social capital, which is crucial for improving the economic environment.

Table 3: Examples of different forms of network ties: bonding, bridging, and linking, strong and weak (source: Frelander, 2007)

Level of strength and diversity	Strong ties	Weak ties
Bonding (horizontal) ties	Close friends or immediate family with similar social characteristics, e.g. social class or religion	Members with similar interests or social characteristics within voluntary associations
Bridging (horizontal) ties	Close friends or immediate family with different social characteristics, e.g. age, gender or ethnicity	Acquaintances and members with different social characteristics within voluntary associations
Linking (vertical) ties	Close work colleagues with different hierarchical positions	Distant colleagues with different hierarchical positions and ties between citizens and civil servants

Numerous studies have suggested a positive correlation between social capital and health (Ferlander, 2007). Based on a survey conducted in Russia, it has been observed that social capital has a greater impact on an individual's physical and emotional wellbeing and was related to better self-reported health (Rose, 2000). Similar finding was suggested in study in Findland that individual-level social capital and self-rated health (Hyyppä & Mäki, 2001).

Social capital also play an important role in disasters. Its impact could be compared to the buffering model found in social support research, where the advantages of social connections are more obvious when a significant stressor is present (Kawachi & Berkman, 2001). The literature indicates that social capital helps communities to prepare for, respond to, and recover from disasters by facilitating efficient relief and rescue efforts, quick dissemination of information, and connection with formal aid institutions (Kawachi & Subramanian, 2006). Social capital plays a crucial role in recovery (Nakagawa & Shaw, 2004). Evidence from the Kobe case study highlights that communities with stronger social capital and engaged in community activities respond proactively to reconstruction programs, resulting in a faster and successful recovery post earthquake (Ibid).

Furthermore, social capital may have a direct positive effect on individuals' mental health, as people feel more secure and supported in close-knit communities (Kawachi & Subramanian, 2006). Indirectly, social capital can also prevent additional problems such as violence and looting, which can further endanger survivors' wellbeing. However, following disasters, there is often a breakdown in social capital (Kawachi & Berkman, 2001) as a result of individuals being dispersed and relocated(Najarian et al., 2001). This can render those affected by the disaster more susceptible to experiencing mental health issues (Norris et al., 2008).

The study indicated a significant proportion of the link between social capital's two components and mental health outcomes is mediated through individual assessments (such as property loss and primary and secondary appraisals), social support, and coping mechanisms (R. Wind et al., 2011). The incorporation of individual characteristics in the analysis partially obscured the association between social capital and mental health outcomes. However, cognitive social capital consistently showed a relationship with reduced mental health problems, while structural social capital was only linked to increased anxiety and not to PTSD or depression (Ibid).

3.6 Summary

This chapter discussed the wider literature in the field of disaster mental health and wellbeing, identifying gaps in the literature that this study hopes to fill.

The impacts of disaster overlap considerably with existing inequalities, structures of disadvantage and limited political voice. As part of these, women are recognised as often carrying a disproportionate share of the impacts of disasters. However, not all women are affected in the same ways and greater nuance is needed in understanding the factors affecting relative vulnerability and resilience to a disaster's impacts. Disaster studies and management now recognise the significant and long-term impacts on mental health. However, most attention has been given to mental illness as expressed through specific post-disaster illnesses such as PTSD. Therefore, disaster mental health studies are mostly dominated by illness models.

The expression of resilience, through coping and the maintenance of mental wellbeing, is equally important to understand and demands greater research attention. This study therefore addresses a research gap that combines the need to

explore variation in women's experiences and responses to disaster effects and the need to better understand the factors supporting resilience and mental wellbeing. The chapter reviews ways of understanding wellbeing as a subjective state shaped by multiple factors and considers the applicability of different frameworks in the context of Nepal. The Friedli framework best covers the concerns of this study and the understandings of wellbeing found in Nepal. The next chapter describes the study aims, research design, study phases and the specific measures of wellbeing adopted to explore variation in women's mental wellbeing in post-disaster Nepal.

Chapter 4 Methodology

4.1 Introduction

In this chapter, I outline the methodological approaches I used in my research. The research aims and objectives are presented, along with the research design. I then discuss the contrasting epistemological standpoints underpinning qualitative and quantitative research and then move on to the debate around mixed-methods research. Then I fully discuss the research methods I have adopted. To make the study robust and representative, statistical sampling has been followed and care has been taken to include all ethnic groups, and to ensure proportionate representation of both urban and rural localities. At the end of the chapter, I reflect on my own positionality as a researcher, and the ethical considerations of the study.

4.2 Aims and objectives of the study

This study sits at the interface of Geography, development studies, Public Health, and Sociology. The overarching contributions of my study are twofold:

i) to better understand the resilience of women in terms of mental health and wellbeing following a specific disaster event – the Gorkha earthquake in Nepal

ii) to examine localised determinants that help to maintain mental health and wellbeing following a disaster event.

Specifically, the research addresses the following objectives:

1 To explore the everyday lives of women before the 2015 Gorkha earthquake and the implications for mental health and wellbeing.
2 To document the challenges faced by women and their response strategies in the aftermath of the 2015 Gorkha earthquake.
3 To identify the factors shaping women's differentiated experiences of the processes of recovery and reconstruction that have influenced women's wellbeing in the aftermath of the earthquake.

To identify these determinants, I have adopted a critical realist perspective which views society as 'inseparable from its human components because the very existence

of society depends in some way upon our activities' (Archer & Archer, 1995, p. 1). Similarly, Fleetwood (2004) (p. 42) believe that 'social structure is relational: it exists in virtue of agents entering into relationships'. These two assertions indicate that humans and society are not mutually exclusive but are mutually reinforcing and possible interaction can produce different health outcomes which have been described in the literature chapter through various models (Friedli et al., 2010; World Health Organisation, 2010). Using this theory, I am interested in identifying personal, household, community, and wider structures that determine individual mental health and wellbeing outcomes.

This study focuses on one of the most severely affected districts in terms of damage caused to property, livelihood and loss of life following the 2015 Gorkha earthquake. Dolakha District is located in Central Nepal, northeast of the capital Kathmandu. Dolakha was selected based on certain criteria which are described below in section 4.7.4. Post-disaster Dolakha is an important case for studying the gender impacts of the earthquake sequence: it has the highest number of households headed by women (CBS, 2011), high male migration (DDC, 2015), and is a severely affected district (Government of Nepal, 2016) whose HDI value is one of the lowest across the 14 most severely impacted districts (CBS, 2011). HDI is a measure that uses three dimensions to assess the overall development of a country: life expectancy at birth, level of education attainment and per capita income. The wider literature has revealed the disproportionate impact of disasters on women (Oxfam, 2005), and the impact on the mental health of any disaster is much higher in women (F. H. Norris et al., 2002). (See section 3.3.3 for detailed information on this.) In Dolakha, where the number of households headed by women is high and male migration for employment is also high, women are the ones who face the consequences of the disaster, and they are the ones who have to overcome all the adverse circumstances and move ahead to recover and reconstruct communities for which their wellbeing is crucial.

In addressing my aims and research questions, I first explored the differences in the lives of women living in different locations: urban (comparatively less deprived area) and rural (more deprived), and if they are causing any differences in their wellbeing. Further, I wanted to look at how the earthquakes have posed challenges to the mental health and wellbeing of women and how they are coping with post-disaster life. Finally, I identify the dominant determinants of post-earthquake wellbeing in relation

to the experience of the earthquake itself and general characteristics of everyday life. The study thus engages a broad sense of mental health as positive health or wellbeing rather than mental health as an absence of mental illness. I am specifically interested in the mental wellbeing of women affected by surviving, and living with their experiences of, the major Gorkha earthquake in 2015. Focusing on those women who exhibit better health and wellbeing despite living in a significantly adverse environment after the earthquake helps to explore protective factors that may help to mitigate against the detrimental effects of the earthquake, and thus to develop an understanding of mechanisms underlying 'individual resilience' in the aftermath of a disaster. Hence, this study's ultimate objective is to inform local policy and national discussion on the development of sustainable disaster management plans by promoting community and individual resilience.

4.3 Research design: A mixed-methods approach

To answer the research questions, I adopted a mixed-methods approach. The empirical investigation was conducted in two phases. First, open-ended interviews were conducted with key stakeholders working in the sector of women development, mental health sectors and disaster management sector in the district, to identify the key issues women faced following the 2015 Gorkha earthquake; then group and individual interviews were held with women who had experienced the earthquake irrespective of their mental health and wellbeing status. The qualitative research essentially enabled the identification of key issues for women in coping with the aftermath of the earthquake which were then used to inform the design of the wider survey (Dunn et al., 2011).

Focus group discussions were conducted with a heterogeneous group of women covering a range of age groups, caste and ethnic groups, marital status, and professions. The qualitative data collection was intended to develop critical insights into the everyday experiences of women, experiences of the earthquake, and perceptions on the wider picture of post-disaster life for women, their adaptation strategies, their concerns for their own mental health and wellbeing, local understanding of meaning of wellbeing and local determinants of health and wellbeing from their own perspectives. The other interviews with key informants helped me to understand the local post-disaster context of mental health and the

impacts of the earthquake sequence on women from the perspective of individuals supporting their recovery and how they responded to the mental health challenge in the aftermath of the disaster.

In the second phase of data collection, a large cross-sectional survey was conducted with purposively selected women. The survey design was informed by Friedli's model and the qualitative findings, and the aim was to provide information about inequalities in mental health across a relatively large group of women, which would allow me to generalise the findings to the wider population. It allowed me to explore the relationship between inequalities in mental health and wellbeing and their determinants, looking at which factors were contributing towards the gap. The survey findings would then allow me to unpack what causes inequality in people's mental health and wellbeing, and how women's experiences before, during, and after the earthquake matter to their wellbeing. The combination of these two research methods was needed to answer my research questions, enabling me to triangulate and assess the representativeness of the qualitative responses.

From a personal standpoint, my view is that social research should help to promote social justice. In the modern world, hatred, negativism, crisis and depressing events dominate everyday news, which makes us feel as if only bad things happen; there is no focus on good things (Stafford, 2014). This thesis explores mental health and wellbeing from a positive perspective and gives voice to the experiences of women in challenging conditions like the aftermath of the disaster, with the hope of taking their voices forward to higher authorities so they can understand what is important for women for more sustainable post-disaster development.

4.4 Access to the study communities

Conducting research in communities, especially at the time when people themselves were struggling with their living conditions in the aftermath of the earthquake, was challenging and raised important ethical considerations (Gaillard & Gomez, 2015; Gaillard & Peek, 2019; Oven et al., 2020). However, the use of formal professional channels in a top-down approach facilitated my access to the relevant communities. I first approached a Public Health Administrator in the Ministry of Health. I shared the brief of my research aim and objectives, presented an ethical clearance letter provided

by the Nepal Health Research Council and from Durham University, and asked them to provide suggestions on how I should approach the district (see section 4.10 for details on ethical clearance). They provided me with a 'Letter of request' addressed to the head of Dolakha District Health Office asking them to provide necessary help during the fieldwork. With that letter, my access to the district health office became much easier and was formalised. My first meeting at the district was with the Chief of the District Health Office. After I met him, he asked one of the public health supervisors there to help me to further build up a link at the community level. The District Health Office produced a similar 'Letter of support' addressed to the head of Peripheral Health Centres in my study areas. Once I arrived at Village Development Council level, I then approached the local health centre with the help of the letter provided by the District Health Office. The heads of the local health centres then linked me up to Female Community Health Volunteers (FCHVs) who introduced me to the local communities. And local women helped me logistically to conduct the group discussions (see figure 13).

Figure 13: Local women guiding the way to the study communities

4.5 Study district selection

The case study district was selected based on four different criteria: district hardest hit by the earthquake, low HDI, high-level out-migration, and last but not the least is to avoid an over-researched district. Fourteen out of 77 districts were recorded as worst-hit districts in terms of casualties, infrastructural losses and lifeline damage, mostly lying in the central part of the country (Molden et al., 2016). To narrow it down, 6 out of 14 districts that were the severely affected districts were considered further

for the study: Gorkha, Dhading, Nuwakot, Rasuwa, Sindhupalchowk and Dolakha (Gautam & Chaulagain, 2016). As the literature suggests that people living in the hardest-hit areas are more prone to being traumatised either through being a direct victim, or through the loss of family or friends, loss of their homes and other possessions, the vulnerability of people to poor mental health outcome is even higher, which justifies the need for this study in those areas.

Out of the six severely affected districts, three districts with the lowest HDI were further considered for selection and the remaining three were excluded. HDI, the summary measure of life expectancy at birth, education, and standard of living scored out of 1, where 1 is most developed and 0 is least developed. HDI scores for each district of Nepal have previously been investigated as an indicator for disaster risk to average losses and as a proxy for human vulnerability to earthquakes; the lower the score the higher is the vulnerability (Patt et al., 2010; Striessnig et al., 2013). From the last three districts, considering its high rates of male out-migration and the fact that it has not been over-researched post-Gorkha earthquake, Dolakha was selected after consultation with NGOs working in the district.

Study site selection process and its introduction; municipality, ward, and household

Post-disaster, the longer-term mental health and wellbeing of women was examined selecting a representative sample of women aged 18 years or over living in the earthquake affected areas. In this sub-section, I describe the process of selection of study municipalitys, VDCs, wards and households. The study sites were selected based on three different criteria:

- Rural/urban representation
- High levels of earthquake impact as evidenced through building damage
- Caste and ethnic composition

The first stratum used for both the stages of the study was urban vs rural. This stratification was used as the impacts of the earthquake differ between urban and rural areas such that there was greater destruction in the rural part of the country and more lives lost. In addition, the rural population of the district is, on average, less affluent than the urban, with less access to material resources, and rural life is much harder for rural women. These factors likely heightened the disparities in impacts

from the earthquake suffered in rural and urban areas. Another criterion was the higher impact of the earthquake, as impact on mental health is worst in worst-affected areas. Caste and ethnicity is something that is very important to consider in terms of Nepal as it has influences over social status, gender construction and access to resources (Bennett et al., 2008), and the VDCs differ in their ethnic and caste composition (District Development Committee Office, 2015a).

The criteria used for the selection of study sites were the same for both stages of the study. However, the selection process was repeated in both stages of the study because structural changes took place between the two stages of the study because of federalism. During the first round of fieldwork, the old administrative units were used as government offices were still using the old structure officially and in practice and in their documentation, and no data were available according to the new structure. Therefore, old structures were also followed in my study for the first round of data collection. However, during the second round of my data collection the new administrative structures were implemented in practice ; therefore I needed to change the sampling frame. That is why in the first round of study I have used VDC but during the second round the concept of VDC had been replaced by that of rural municipality. As the size and administrative structures were completely different after the implementation of federalism, I had to reselect new study sites for the second round of the study.

For the first stage of the study, ten FGDs were conducted in ten different wards of four Village Development Committees (VDCs) systematically selected. In each VDC with 8–9 wards, 2–3 wards were selected for the study. The entire VDC was transformed into a single ward within a municipality after the change. Under new federal restructuring in 2015, those four VDCs now belong to two urban municipalities, Bhimeshwor and Jiri, and two rural municipalities, Kalinchowk and Bigu, with each of the VDCs becoming a single ward in the new municipalities. In the recent federal structure, Sunkhani VDC falls in Kalinchowk rural municipality, Suspachhewamati VDC in Bhimeshwor municipality, Laduk VDC in Bigu rural municipality, and Jiri municipality. The five studied municipalities can be seen highlighted with a black border in Figure 14.

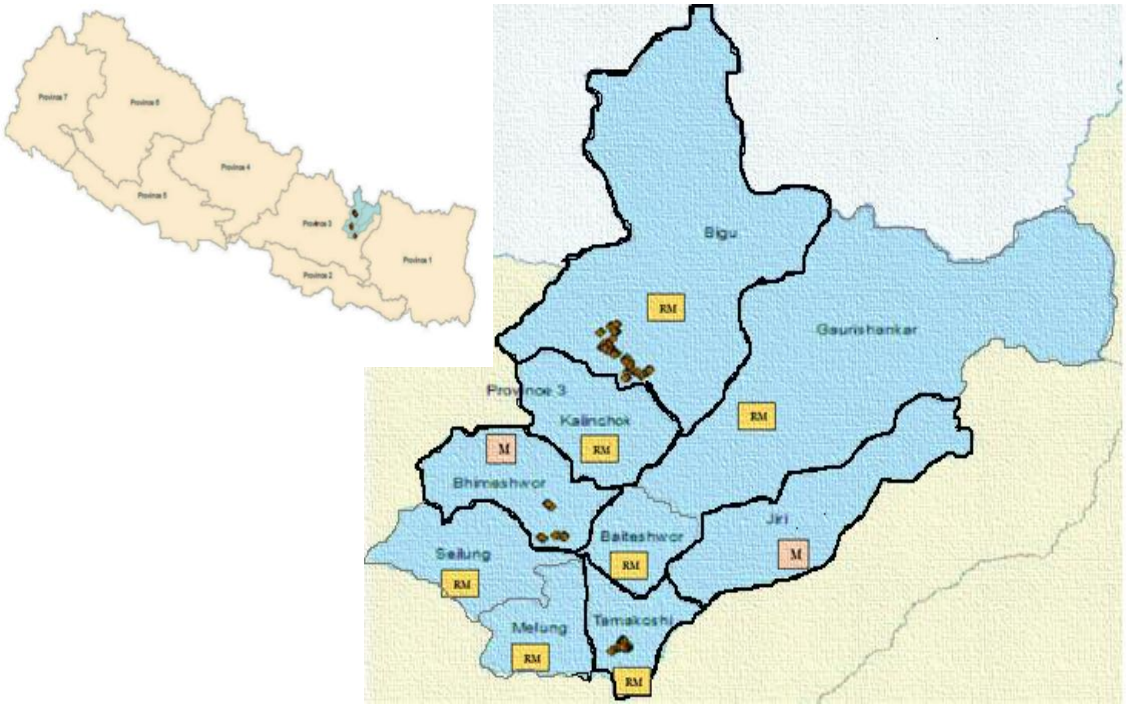


Figure 14: Map of Nepal and Dolakha district with study municipalities highlighted with bold black border

For VDC selection, key district-level stakeholders were consulted (including from the District Health Office, District development Office and NGOs working in mental health post-earthquake in Dolakha). To conduct focus group discussions (FGD), lists of municipalities and VDCs were used as a sampling frame. One municipality and three VDCs were selected for the FGD to make the data representative of urban and rural locations. Stakeholder consultation at district level was considered for selection of municipality and VDCs. According to them, almost all VDCs suffered extensive physical infrastructural damage with almost all houses destroyed in rural areas. But out of 50 VDCs, stakeholders recommended Suspachhemawati as one to be considered, as the whole village had been relocated to a new place because of earthquake-triggered landslides and high cases of mental illness including depression and PTSD had been noticed. The second suggestion was Sunkhani VDC, which was the epicentre of the 12 May earthquake and the most severely hit. Therefore, Sunkhani and Suspachhemawati were selected without considering further criteria.

The second criterion for selection of the remaining two VDCs was ethnic composition, to assure representation of all the major ethnicities living in the district in the study. Chhetri and Thami were the main ethnic groups in the two selected VDCs from the first criteria. Therefore, one municipality and one VDC were selected for the study that had dominant ethnic groups other than the above two. Data on the district profile published in 2015 were used to understand the ethnic composition of different VDCs. Jiri, with Sherpa as the dominant ethnic group and Laduk, with the Tamang ethnic group, were selected by this process. Therefore, the study was conducted in Sunkhani, Suspachhemawati and Laduk VDCs and Jiri municipality.

Table 4: Summary table of study site and respondent selection process for FGDs

Stages	Strata	Rationale	Selected	
Step 1: Purposive selection of district using four selection criteria: severely hit district, low HDI, high level of out-migration, and not over-researched district post-disaster.				
Strategy: Stratified purposive selection of municipalities; urban-rural as a strata and then selected based on ethnicity to cover major ethnicities of the district				
Step 2	Urban-2 Rural-7	It determines access to material resources, differential exposure to the earthquake damage	1 Urban Municipality (1/2)	2 Rural Municipalities (2/7)
Strategy: Selection of most ethnically diverse wards in each municipality				
Step 3	Ethnic diversity	To make sure all ethnic groups are included in the study	Most diverse ward out of 9 wards in Bhimeshwor M	Most diverse ward 1/8 wards in Bigu & 1/ 7 wards in Tamakoshi RM
Strategy: Diverse ethnicity				
Step 4	HH selection	To make sample more ethnically representative	Ethnically representative	Ethnically representative
Strategy: Purposive sampling of the women who fulfil eligibility criteria				
Step 5	Respondent selection	The interest group is household head women or youngest married women	Respondent	Respondent

For the second stage of the study, which was the household survey, the Federal classifications of urban and rural locations officially known as 'Nagarpalika' (urban municipality) and 'Gaunpalika' (rural municipality) were used as a sampling frame (see Table 3). All nine municipalities had the same probability of being sampled as municipalities were randomly selected using a random number generator in Excel by using a random formula after allocating serial numbers to each urban and rural municipality separately. One urban municipality and two rural municipalities were selected.

The initial plan was to select one urban and one rural municipality, and to then select one ward from each of them. But after the ward selection process, I realised that the total number of households in a selected ward in a rural municipality was low, almost equivalent to the total required number of sample households. This means there was a chance of not having enough sample households, as only households that include female members were eligible for the survey. Hence, to give more flexibility, another rural municipality was selected, making two rural municipalities and one urban municipality. In the urban municipality, the average number of households was much higher at ward level so only one ward was selected.

After the selection of municipalities, at the lowest level, 2 to 3 wards wereselected. First, wards were ranked based on heterogenicity of the wards using Simpson's Diversity Index and selected top 2-3 wards to ensure coverage of all ethnic groups as far as possible in that ward. Simpson's Diversity Index, also known as the species diversity index, was originally developed in the field of biology to quantify the diversity of a predefined area by measuring the number and distribution of each species, and is now applied to show the ethnic composition or compare the distribution of ethnic groups of different areas (Evers, 2014). Simpson's Diversity Index provides support to include multiple characteristics and attributes by giving an equal probability of drawing respondents of all different types of ethnic groups (Gregorius & Gillet, 2008). In this study, the index was used to select diverse study wards in terms of ethnicity to ensure the study was representative in terms of ethnicity. Whichever ward was ranked in first place by Simpson's Diversity Index was selected as a sample ward for a survey. The statistical formula for the Simpson index used is as follows:

$$D = \frac{\Sigma(n_i - 1)}{N(N-1)}$$

where N is the total number of ethnic groups in the study and n is the number of people of that particular ethnicity.

Household sampling

The final stage of sampling was to distribute the total number of households to be included in the interviews in each municipality. At the municipality level, the first criterion for selecting households was to define the number required in proportion to

total households in urban and rural municipalities. In Dolakha, 23 percent of households are urban and 77 percent are rural. The total sample was distributed proportionately to the number of households in three municipalities, making 177 for Bhimeshwor municipality, and 480 for the two rural municipalities. The survey mirrored this, with 23 percent of the total sampled households located in urban municipalities and the remaining 77 percent of sampled households in rural municipalities to make the sample representative.

Within selected municipalities, 2–3 wards ranked top after calculating diversity were purposively selected.. Similarly, at the ward level, the number of households to be studied was proportionate to the total household number of the ward, such that in a ward with a greater number of households, a larger household sample was taken and vice versa. After allocating the number of total sample households in each ward, it was further divided proportionate to ethnic composition so that proportionate stratification was achieved for ethnicity at each ward level (see the sample size calculation formula in Annex B). Ethnic composition at the ward level was taken from the recent District profile, which is published by District Development Committee every fiscal year. Finally, households were purposively selected to fulfil the allocated ethnic quota determined at the household level.

An introduction to study VDCs, municipalities and wards

The demographic detail of the four selected VDCs, namely Laduk, Jiri, Sunkhani and Suspachhemawati, based on the National Population Census, 2011 is given in the table in Annex B and a short introdution is provided below.

Laduk VDC

Laduk VDC is situated in the northernmost part of the district, with 928 households. The VDC has 44.5 percent of households headed by women, an absent male figure of 14 percent, and up to 50–75 percent of the population are marginalised caste/ethnic groups mainly including Tamang, Thami and Dalit. The predominant ethnic groups of the VDC are Chhetri (39%) and Tamang (38%). Ward numbers 2, 5 and 7 were selected for the study; details of the wards are given in the table in Appendix B. Out of three FGDs conducted in 3 wards, one was conducted with high-caste Chhetri women and two were conducted with more marginalised hill ethnic Tamang women.

Jiri Municipality

Jiri is situated in the south-west part of the district and is a second municipality of Dolakha after the district headquarters (Charikot), with 1,899 households. This municipality has 54 percent of households headed by women and an absent male figure of 28 percent. The municipality is composed of 42 percent Chhetri people followed by marginalised the ethnic groups Jirel (35 percent), Sherpa and others. Therefore, in both FGDs conducted in 2 wards the participants were a mixture of Sherpa, Chhetri and a few Tamang. Ward numbers 5 and 6 were selected for the study; details are given in the table in Annex B.

Sunkhani VDC

Sunkhani is a VDC bordering Charikot, the district headquarters. This was the largest of the four VDCs and comprised 1,194 households, of which 31 percent were headed by women. The absent male figure of the VDC was 11 percent. The VDC predominantly consist of so-called well-off ethnic groups: Chhetri 49 percent of the population and Brahmin 27 percent. This VDC was the epicentre of the 12 May 2015 earthquake. Two wards were selected here for FGD and mostly comprised Chhetri/Brahmin people with a small number of Newar households. Wards 2 and 7 were selected for the study; details are given in the table in Annex B.

Suspachhemawati VDC

Suspachhemawati VDC borders Charikot and has since been amalgamated with Bhimeshwor municipality. It comprised 864 households, out of which 29 percent were headed by women. The majority of residents (70%) were Thami, a marginalised ethnic group, and also the ethnic tribe found in this district. Out of three different wards selected, one of them was completely relocated to a new site due to earthquake-triggered landslides. All three wards selected here were Thami-dominant communities with a few Dalit households. According to the key informant interviews, the reported symptoms of mental illness were higher within this VDC in the post-earthquake period. Wards 2, 3 and 4 were selected for the study; details are given in the table in Annex B.

The three municipalities where the survey was conducted, one urban municipality and two rural municipalities, are introduced briefly below.

Bhimeshwor Municipality

Bhimeshwor municipality, the urban study site, lies high above the Tamakoshi River and is composed of nine wards. The spatial distribution of settlements in Bhimeshwor municipality is clustered along the main road as an accessible commercial area and scattered in the agricultural village areas, mainly three newly added wards. There is a dense linear settlement in the main town of Charikot (see Figure 15), which is a sampled ward and the district headquarters of Dolakha. It is located at almost 1,800 m (5,900 ft) in elevation and assumes the perfect picture of a burgeoning highway town. The town has with newly built hotels, lodges, shops, and various government offices, as well as residential areas. The district headquarters is an important marketplace, a transportation hub and government centre which is crossed by the east–west Lamosanghu–Jiri road (Niraula et al., 2013). This urban core displays dense building clusters, the majority of which are made with reinforced cement concrete (RCC) frame structure with multi-storeyed construction. There are some old stone mortar houses and old buildings on the periphery that seem to defy the modernisation process. The whole town is located on steep terrain and is a very ancient town with a compact settlement. The newly added wards are gradually undergoing urbanisation with emerging markets, although this urban growth has been hindered by limited population growth and the steep terrain of the area (Ministry of Water Supply, 2018). However, Charikot, as the district headquarters, includes a significant proportion of people with much better socio-economic opportunities, higher literacy levels and living conditions compared to those in a rural settlement. The impact of the Gorkha earthquake in the Dolakha district was worse in villages than in this small headquarters town regarding damage to houses. The highest number of houses still standing after the earthquake was also in Bhimeshwor municipality, mainly due to the strong nature of newly built houses (District Development Committee Office, 2015b).

Tamakoshi Rural Municipality

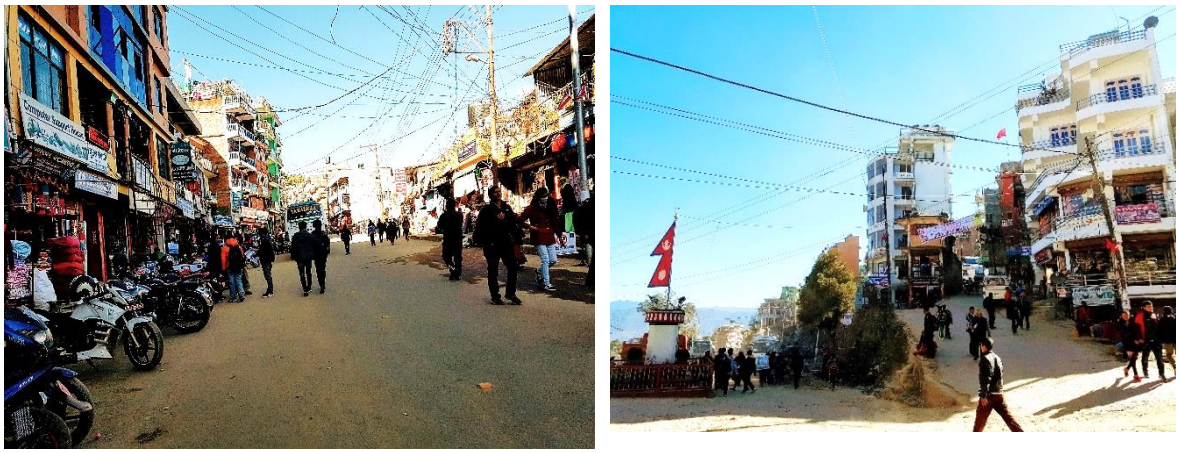


Figure 15: Charikot, the district headquarters

Tamakoshi rural municipality consists of seven wards. It is 89.15 sq km in size and has a population of 18,849. It is located at the southern part of the district on the banks of the Tamakoshi and Khimti rivers. The study purposively selected the most heterogeneous ward in terms of ethnic composition. The sample ward selected from the seven wards is called Malu, which is located on the ridge top and is hard to reach.

Bigu Rural Municipality

Bigu rural municipality is located in the northern part of the district and has eight wards with a total area of 663.2 sq km and a population of 18,449. Ward number five, named Chilankha, was selected as a sample out of eight wards in Bigu, which is one of the remotest municipalities in the district (see Figure 16).

Figure 16: Chilankha village of Bigu rural municipality and Malu village of Tamakoshi rural municipality

Study participants and inclusion criteria

Respondents for the quantitative survey were women aged 18 years or over, mostly young and married, and permanent residents of the selected households, who were in the community during the Gorkha earthquake. If the female was head of the household, then she was automatically a priority respondent. If there was more than one woman in the household, priority was given to the younger married ones as it would be easier for them to understand questions than the older women because they had a better chance of being literate. The older women may be the matriarchs, but the young women are probably the members of the household who had to negotiate and manage the day-to-day challenges following the earthquake – especially when husbands were absent (as well as looking after young children and elders). In addition, studies have revealed that younger married women or women with male partners are among the most vulnerable before and after disaster events among married women as they are shown to have less access and control over household assets than older married women to cope with disaster (Bradshaw, 2001, 2004; Bradshaw & Fordham, 2013).

4.6 Methodological approach

Qualitative research has long been used in social sciences and is rooted in a phenomenological/interpretivist framework (Arghode, 2012; Firestone, 1987). This framework attempts to uncover the reality of people's experiences in the social world where the researcher explores the attitudes, behaviours, emotional responses, and experiences of specific social groups (Ibid). Qualitative research is concerned with constructivism, in which social phenomena and their meanings are treated as continually constructed and revised by social actors, through processes of social interaction (Bryman & Bell, 2001). Qualitative approaches are considered more suitable for exploring people's experiences, the meanings and emotions involved in those experiences and the ways in which people reflect on and respond to those experiences. These are difficult to capture with predefined variables (Creswell & Poth, 2016). Hence, qualitative research methods are important in exploratory work, and in the understanding and development of concepts of social phenomena in natural settings as emphasis is given to the experiences and views of the participants (Peters, 2010; Pope & Mays, 1995). The key strength of qualitative methods, revealed from a

critical realist perspective, is the open-ended nature of study which allows themes to emerge during an inquiry that otherwise would not have been anticipated in advance and also to illuminate complex concepts and relationships that are unlikely to be captured by the predetermined response categories (McEvoy & Richards, 2006). Qualitative work is based on an inductive process where observation leads to the development of hypotheses; in contrast quantitative workplaces emphasis on the deductive approach or testing of already developed hypotheses – seeking to use data to confirm theory to identify cause and effects. In doing so, the qualitative method allows the uncovering of personal perception of participants based on day-to-day actions where researchers do not impose prior categories and concepts. By contrast, the quantitative approach can lead to the oversimplification of human experience (reductionism) and the objectification of the human person.

Quantitative methods are often assumed to be largely underpinned by positivist principles, which include an assumption that a full understanding of a subject can be drawn from objective and replicable data, following the methods of experiment or non-experimental 'real circumstances' through population survey and taking these data to mirror reality (Ryan, 2006). Positivism is often cast as a model of objectivism that denies subjectivity (Hanson, 2008). This approach constitutes legitimate evidence through quantification which, using correct techniques, is good for exploring patterns in terms of distributions by different personal characteristics and identifiable relationships between given variables. This approach assumes that the social life of people remains independent of human consciousness, and that research should respond to objective experience (Carey, 2009). Quantitative research is thus largely underpinned by treating aspects of social life which can be quantified and measured and that these should be examined, as far as possible, objectively (Peters, 2010).

Although qualitative and quantitative strategies are often considered conflicting and incompatible, they can also be seen as complementary in a mixed-methods approach (Malterud, 2001). The rationale for using mixed methods is the fact that neither method is sufficient by itself. Creswell (2014) argues that mixed methods fall in the middle somewhere on the continuum between strictly qualitative and quantitative approaches and offer a combination of both, which is capable of providing a better understanding of a research problem than either approach could do alone. This mixed-methods approach has gained popularity in recent years in social science

research (Morse, 2016). This study is based on a combined methodology to produce a comprehensive account of the experiences of the 2015 Gorkha Earthquake.

Mixed-methods designs address two fundamental dimensions - timing of data integration or how the different types of data sets are used in terms of chronology, and the purpose of integration (Creswell et al., 2006). Sequential and concurrent designs are the two most commonly used designs in mixed-method approaches. In sequential designs, datasets are dependent on one another where data collection and analysis occur in chronological phases and qualitative data inform quantitative data or vice-versa (Guest et al., 2013). In contrast, in a concurrent design, data are collected and analysed at the same to compare findings from both datasets which are not dependent on one another (Ibid). To simplify many sub-designs under each criterion and to cover variations of the designs, six different major designs have been put forward: Sequential Explanatory Design, Sequential Exploratory Design, Sequential Transformative Design, Concurrent Triangulation Design, Concurrent Nested Design and Concurrent Transformative Design (Creswell et al., 2003). Creswell (2014) describes them as: exploratory sequential method, where qualitative study is conducted and analysed then in the 2nd phase, qualitative result is used to develop quantitative variables, instruments or interventions and finally quantitative study will be conducted using that tool and provide new results; explanatory sequential methods, where quantitative study is conducted, analysed and results are then explained further with qualitative methods; convergent parallel mixed methods, in which quantitative and qualitative methods are undertaken at roughly the same time, both having equal importance, results are merged to provide a comprehensive analysis of the research problem, comparison and explain convergence/divergence of findings.

This study uses the sequential exploratory mixed-method design in terms of chronological phase of data collection, purpose of data collection and integration. In the first phase, a qualitative study was conducted. The sequence followed for this study was that in the first phase qualitative data were collected and in the second phase quantitative data were collected. The reasons for collecting qualitative data in the first phase are twofold: to explore understandings and terminology related to wellbeing in the Nepalese given the lack of an existing validated tool to measure wellbeing; and to identify potential local determinants that influence the wellbeing of

women that need to be studied further in another round of the study given that the understanding of post-disaster wellbeing is limited in Nepal. The qualitative findings were used to choose the most appropriate tool for measuring wellbeing in relation to local understandings and to guide the identification of variables for the survey questionnaire.

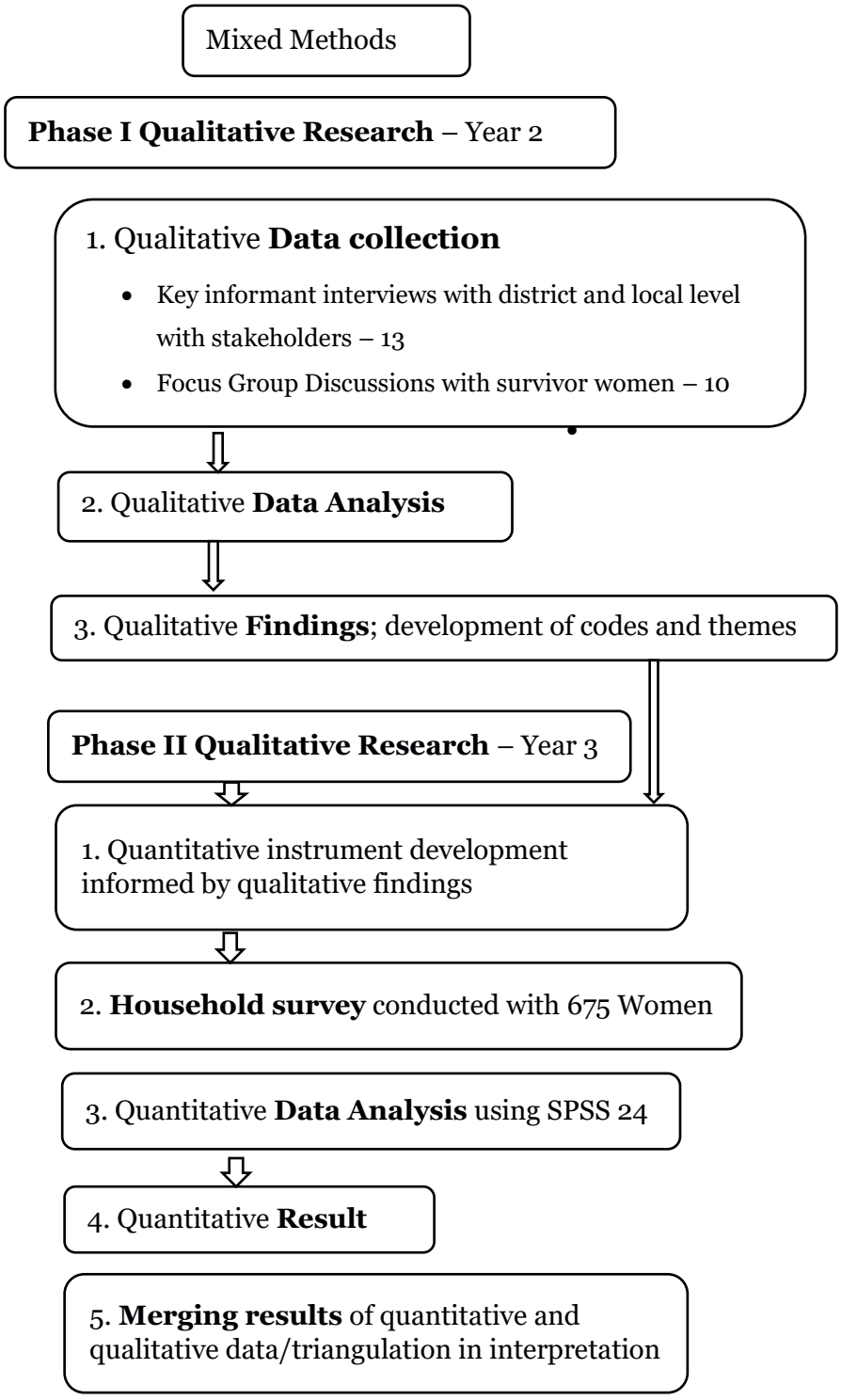


Figure 17: Visualisation of exploratory sequential mixed-methods procedure followed in this study

In the second phase, a survey was conducted with the intent of exploring whether the indications of influences on post-disaster wellbeing from the qualitative study applied across a more extensive and representative sample, to assess the relative importance of different contributions and to further capture variation in women's post-disaster experiences. The two methods also enable the triangulation of data from both methods by comparing convergence or divergence of the findings (see

Figure *17* for detailed procedure).Despite many advantages and the growing popularity of using mixed methods, the adoption of mixed-methods strategies has not been without criticism (Slevitch, 2011) (Johnson & Onwuegbuzie, 2004). Kuhn (2012) argues that qualitative and quantitative approaches have completely different underlying epistemological assumptions so they are incompatible with each other and cannot be combined. Others, however, such as Sale et al. (2002) suggest that mixed methods have the ability to tap the strengths of the individual methods and minimise the weaknesses, and multiple methods can be combined in a single study if it is done for complementary purposes even though two approaches are ontologically and epistemologically disproportionate. In addition, mixed-methods approaches are practical in researching complex social issues, including those relating to mental health and wellbeing (Baum, 1995).

As the two different methodologies (mixed methods) are associated with different types of philosophies, there is an apparent issue of finding a reconciling paradigm (Mertens & Tarsilla, 2015). Nevertheless, the discourse around paradigms gradually lost its significance as scholars urged for an adoption of pragmatism as the philosophical foundation for mixed-methods research, emphasising the importance of acknowledging and transparently outlining the use of each approach (Greene & Caracelli, 1997). In response to this theoretical debate carried out between methodological purists, critical realism offers an alternative epistemological standpoint to bring both into the same fold (McEvoy & Richards, 2006). Critical realism attempts to represent reality rather than to attain 'the truth'. Realism claims that there is a social reality that, although socially constructed, is also independent of the researcher and of the research process and what we need as researchers are multiple perspectives on the social world (Ibid).

4.7 Part one: Qualitative study methods

This section discusses the choice and purpose of the different methods used in this study to collect qualitative data and provides details of the processes associated with each method. I conducted interviews through two approaches and two groups of local people in the first qualitative round of the study: key informant interviews with relevant stakeholders from the study district, and focus group discussions (FGDs) and in-depth interviews with women in the study district who had lived through the Gorkha earthquake.

Key informant interview

After entering the study area, the first key informant interviews were conducted with key stakeholders working in district-level government and non-government organisations (see 2 in appendix B for details of participants).

Key informant interviews were more of an informal discussion conducted by using a set of broad guideline topics (See Appendix B for the guideline) to facilitate the discussions. I intentionally selected key informants who had direct experience of the earthquake, knowledge of the community, and knowledge of the issues faced specifically by women. The purpose of the key informant interviews as a first step was to gain a wider knowledge of the community, the experience of the impact of the earthquake, the status of women in the district, prioritised post-disaster health and wellbeing programmes and the status of rescue, recovery, and reconstruction activities. Another reason for doing key informant interviews first was to modify the key themes in FGDs in case any important local issues were pointed out by the key stakeholders.

I personally arranged appointments with key stakeholders in the district by visiting relevant organisations. District-level key informant interviews provided me with a wider picture of the communities involved in my study, the position and daily lives of women and the local experiences of the earthquake and post-earthquake recovery. In total, I conducted 13 key informant interviews; the details of the key informants are summarised in Table 2, Appendix B.

Figure 18: Conducting interviews with key informants

Focus group discussions

Focus group discussions involve a group of people with a similar background or common interest brought together to gain insights into important aspects relating to the issue under study from local participants' perspectives and to identify the range of different views and areas of debate on the research topic (Hennink, 2014). This method allows the researcher to have an interactive discussion with predetermined groups of six to ten participants who have a similar background. FGDs enable an exploration of a wide range of opinions with the different representations on one issue. In this study, ten FGDs were conducted with seven to 13 participants in each group and comprising 102 women in total. The study was conducted in three VDCs and one urban municipality.

Figure 19: The research team conducting FGDs

FGDs go beyond individual perspectives and can produce 'collective narratives' on the issue (Hennink, 2014). An FGD is highly effective in moderating different views of

debate and ensure that any of those views are held in a group. Focus groups create a 'synergy' in a group which can make the method more productive compared with individual interviews.

The participation and group dynamic in FGDs were generally good and most of the participants engaged in the discussions and expressed their views. The homogeneous ethnic composition in most of the and all the members in the group being from the same neighbourhood made them feel comfortable to talk and they did not feel intimated by other members. In the groups composed of few other ethnic groups, the dominant group consciously time and again encouraged those women to share their views too. Women in villages were expressive beyond my expectation. As reflected in section 5.3.4, the literacy rate of study participants is higher than the district average, which might be due to the criterion of selecting younger married women. Their educational status might be a reason why they show greater confidence in expressing themselves and engaging in the research process. The study conducted in a rural village of Kaski suggested that the engagement of women in different groups, like rural microcredit groups and community groups, and attending meetings and awareness programmes, increased their knowledge, experience, and confidence in participation (Dahal, 2014). For the few participants who were silent, to ensure their participation I personally encouraged them and gave them opportunities if they wanted to share their views on the topic.

Figure 20: The researcher conducting FGDs

The total number of group discussions was based on the concept of 'theoretical saturation' (Bryman, 2004) which resulted in 10 groups with more than 100

participants from all major caste/ethnic groups (see Table 1 in appendix B for detailed composition of FGD). Broad checklists were developed based on models described in the literature chapter and were used for group discussions. Participant recruitment was often conducted verbally with the help of female community health volunteers working in those communities who are trusted members of the community. The health centre leads in all selected wards kindly supported me with reaching communities by putting me in touch with local FCHVs who work under the local health centre. In some places, they provided me with the phone number of the allocated FCHVs and in most cases they themselves called FCHVs and asked them to provide me with necessary help in the community.

FCHVs are considered as the backbone of health care in Nepal and are appointed in each ward. They provided door-to-door services at grassroots level in health promotion (sanitation, nutrition, family planning, HIV, and maternal and child health), supporting health services deliveries (like family planning, deworming, polio campaigns, and integrated management of childhood illnesses), and collecting and reporting demographic data to an intermediary in the community (Khatri et al., 2017). They were on the front lines in providing psychosocial support after the Gorkha earthquake in the communities as villagers trust volunteers (Kandel & Lamichhane, 2019). FCHVs who themselves belong to those communities helped me with finding the participants based on my research criteria and organising the discussions.

The selection criteria I gave to FCHVs included women from households most severely impacted by the earthquake, women from different castes/ethnic groups, different professions, women household heads, and single women if possible. Although the priority was to include different castes/ethnic groups but the composition of villages was dominated by one major caste/ethnic group with very few households of other caste/ethnic groups. Hence, the ethnic composition within the group was mostly ethnically homogenous but heterogeneous in terms of caste/ethnicity composition between groups. While deciding the group for FGDs, the ethnic composition – which is major factors shaping local power relations – was considered (Nightingale, 2002). The groups were composed to maintain homogeneity within groups and heterogeneity between groups (Bedford & Burgess, 2001). To capture the voice of all castes/ethnic groups living in the selected VDCs, I particularly emphasised that FCHVs should include as many minority women as possible.

However, there were no villages in which Dalit members were dominant in the selected study wards, hence they were included with other ethnic groups wherever possible. In group discussions, if there was a minority representation in a group, other women consciously gave her a chance to express herself, as they were from the same community and know each other well even though there are different power dynamics between caste/ethnicity in the communities. Hence, dominance according to ethnicity was not experienced during the discussion. Although multiple ethnic groups were part of group discussions, all women were fluent in Nepali and, as such, a translator was not needed to conduct FGDs. However, I selected one of the research assistants who was fluent in the Tamang language to be present in case translation was needed, as Tamang is the commonest local language used in the area after Nepali. The only challenge in managing the FGDs was that sometimes women were excited to share their part of the story and would talk at the same time, especially when the stories were similar and familiar across the FGD and they shared consensus on them.

Other background characteristics, particularly occupation, were common to the majority of women as most of them were housewives. In a few groups there was a teacher or FCHV as a member of a group. This reflects the low employment level of women. The group members were, therefore, socially similar and felt comfortable talking in a group and all were going through similar problems of homelessness and challenges in reconstruction. I conducted all FGDs with help of two other research assistants who were bachelors' students in Nursing, so they had good skills dealing with women. We shared roles in a team. I conducted all the discussions to make sure I did not miss any important issues of my study interest. One research assistant took the role of organising the group and the other member assisted with documentation by taking personal notes about the discussion, and the dynamics between the group members, to supplement the audio recording. The discussions were recorded in their entirety for the purpose of my study with due permission from the study participants.

Since I was looking to understand women's pre-earthquake life, the experience of the 2015 earthquake, and their perceptions of wellbeing in post-earthquake life, the best strategy to do so was asking people to share their experiences. Qualitative methods provide a thick in-depth understanding of an issue within the local socio-cultural context post-disaster (Palinkas, 2006). Women voluntarily participated in 45–60-minute discussions on average to explore their experiences of the Gorkha earthquake

and aftershocks. Most of the focus groups were conducted outside the home of one of the participants, and a few of them in public spaces. After participants were gathered, they themselves decided the location mutually to conduct the discussion. Before the interview began, I introduced myself and the team and shared the aim of the study. I then obtained the oral consent of the participants to be part of the study and to record the discussion. The interviews were recorded, and notes were taken by my research assistants as I facilitated the discussion. The contact details of an NGO working in mental health and wellbeing in Dolakha district was shared with participants in case they required further support or wished to discuss any issues of concern about mental health raised during the focus group. Probing was performed according to the reflections of each participant on different concerns of life after the earthquake. Interviews began with a broad question about the participant's pre-earthquake daily life and how it had changed post-earthquake. Details of participants and the FGD guidelines are included in Appendix B.

In-depth interviews

In-depth interviews were conducted with seven focus group participants with particularly negative or positive experiences to share, including the loss of close family members, single women dealing with the impacts of the earthquake and the reconstruction process on their own, or women who were ahead in reconstruction. This individual case study methodology enables a researcher to gain in-depth insight, carry out intensive analysis of a diverse range of issues, and explore inequalities (Harrison et al., 2017). Burawoy (1998) suggests that with case studies, researchers gain greater insights into the research problem by continually building and extending on a case, all the while using theory, as he argues it helps to build up from the micro-level of people's experiences to an analysis of social processes in their wider contexts. In the study, case studies enabled me to further validate the important themes generated from group discussion through individual in-depth examples. Details of participants and the case study guide are included in Appendix B.

Data analysis

As with the FGDs, all interviews were conducted in the Nepali language as all the participants were fluent in Nepali. The audio recordings of 20 interviews and 10 focus group discussions were transcribed first in Nepali, using Express Scribe software. All

30 transcribed interviews and discussions were then translated into English. Then, the translated text was read several times for familiarisation to extract codes and categorise. The coding was undertaken using NVivo, a tool for qualitative data analysis. Codes were generated for categories such as ethnicity, family structure, access to facilities, life events, reconstruction, life before the earthquake, impact of the earthquake, reasons of fear, change induced in everyday life by the earthquake, opportunities generated by the earthquake, support received, coping strategies, recovery, the role of remittance and reconstruction, etc. After completion of coding, and reviewing determinants suggested by the wider literature (Friedli et al., 2010), positive and negative themes that impact mental health and wellbeing were identified which were used in developing the survey questionnaire.

4.8 Part two: Quantitative study, cross-sectional survey

The second round of data collection entailed a large-scale quantitative survey carried out in 675 households through face-to-face interviews at the household level. The aim of conducting the survey was to analyse the findings from the survey as a cross-sectional snapshot of wellbeing at a single point in time and triangulating those results with the qualitative findings to gauge the extent that those interview findings hold true across the larger population. Cross-sectional studies offer a 'snapshot' of the outcome and the characteristics associated with these outcomes at a population level, at a single point in time (Levin, 2006). Cross-sectional studies are conducted with sample populations usually taken from the whole population who may or may not have a particular health outcome. Therefore, it is used to estimate the prevalence of the outcome of interest (Alexander et al., 2015). It is designed to get a sense of the concerns that emerged from the qualitative stage. This approach is used to provide scale, reproducibility, validity, and comparison to identified protective mechanisms from a qualitative study, and explore subjective experiences of wellbeing.

The fundamental characteristics of the survey are that the participants are asked the same questions, in the same order, and their responses are recorded in the same way (Rea & Parker, 2014). This is to ensure that any bias, for instance with the interviewer affecting responses by asking questions in inconsistent ways or changing the order of questions affecting how participants respond. It means that the survey is replicable. The survey is a powerful tool for public interventions by helping in priority setting and

by promoting the use of appropriate decision-making approaches (e.g., targeting most at-risk populations) (Généreux et al., 2020). However, there are certain errors that may arise in a survey such as errors of non-observation, where the sample make up only part of the target population, and errors of observation, where recorded data deviate from the truth (Scheaffer et al., 2011).

Development of survey tool

Phase two of the research involved a household survey using a semi-structured questionnaire. As indicated above, the questionnaire content was informed by first-stage qualitative work. The survey questionnaire was designed in three parts: demographic characteristics of the respondent; life before, during, and after the earthquake; and assessment of mental health and wellbeing. For the socio-demographic part of the questionnaire, wherever possible, I used the question formats from existing national survey questionnaires such as the National Census and Nepal Demographic and Health Survey. This makes use of well-tested questions in terms of validity and reliability and enables direct comparison with national data.

The second part of the questionnaire, which is about life experiences of women before, during, and after the earthquake, was designed through combining the qualitative data with the wider literature and particularly the discussions and framings of (Campion & Nurse, 2007b; Friedli, 2009). For example, for the question on the experience of past traumatic events, the options included were based on what people expressed as their traumatic experiences in the past in focus group discussion, such as armed conflict, accident, loss of loved ones, other disasters, etc.

The third part is an assessment of mental health and wellbeing by using standard tools. Wellbeing was measured using the format of four broad standardised questions to capture subjective wellbeing as developed by the UK Office of National Statistics (Office of National Statistics, 2018a; ONS, 2018). Selection of an appropriate tool was a challenging task during the design phase as, on the one hand, a standardised and validated tool to measure mental wellbeing and resilience has not been developed in Nepal while, on the other, adopting tools from different contexts brings challenges of relevance and applicability. I worked in consultation with a local organisation (TPO, Nepal) working in the sector of mental health while finalising the tools. The Research Manager of the organisation (also a key informant) revealed that most of the previous

studies in Nepal used PTSD, depression, and Patient Health Questionnaire (PHQ) to study mental health, which measures symptoms, and confirmed that there was no tool available to measure the more positive concept of wellbeing. There is, nonetheless, a move towards more research in Nepal giving attention to this and using similar concepts to measure wellbeing. For example, the multiple indicator cluster survey (MICS) in Nepal, a nationally representative survey conducted by UNICEF and CBS, included happiness and satisfaction questions for the first time in the 2018 survey to measure subjective wellbeing (Central Bureau of Statistics (CBS), 2020).

Use of four questions for Office of National Statistics (ONS4) on wellbeing in this study

Before I discuss how I have assessed wellbeing for this study, I provide a brief justification for looking at wellbeing. Several approaches have been used to understand the difference in health outcomes between population subgroups in the aftermath of a disaster, but most disaster research focuses on illness and has given little attention to positive health aspects such as wellbeing. Studies have often used mental health diagnostic tools to identify mental illness and those with an absence of symptoms are classified as healthy. In order to understand the characteristics and determinants of wellbeing, it should be studied on its own, not as an absence of mental disorder. The study by Kohrt et al. (2010) in Nepal among child soldiers recommended paying particular attention to the inclusion of positive outcome measures on mental health rather than relying solely on markers of pathology and impairment. In addition, this study is not an epidemiological one using detailed diagnostic tools to identify illness and the ONS4 offers a way to capture and assess the positive aspect of wellbeing beyond a simple absence of disease.

To measure mental wellbeing in this study, I used the four personal wellbeing questions which have been asked by the UK Office of National Statistics (ONS) in the UK Annual Population Survey since 2011 (Dolan et al., 2011). The instrument with four simple questions captures several facets of wellbeing: evaluative wellbeing (a question on life satisfaction), eudaemonic wellbeing (a worthwhile question on sense of purpose and meaning in life) and hedonic wellbeing (two questions on positive and negative affect in terms of happiness and anxiety) (Benson et al., 2019).

Wellbeing is a complex multidimensional concept, which bundles together different psychosocial components and positive human experiences that are unlikely to be accurately and adequately measured by a single-item question about life satisfaction or happiness, which has been done in generations of economic and social surveys (Huppert & Cooper, 2014; Huppert & So, 2013; Mguni et al., 2012a; Seligman et al., 2011). Furthermore, studies illustrate that subjective wellbeing encompasses three different aspects: cognitive evaluations of one's life, positive emotions (joy, pride) and negative emotions (pain, anger, worry) (Linley et al., 2009; Organisation for Economic Coperation Development, 2013), and the ONS4 questions cover all three domains mentioned here. Research suggests that all three aspects of subjective wellbeing should be measured separately to get a satisfactory appreciation of people's lives.

The definition of wellbeing takes into account common responses to the following variables: Happiness, Life satisfaction, Worthwhile and (lower) Anxiety, which are associated with responses to the four ONS questions used to measure wellbeing. The four specific items in the ONS4 approach capture a range of conceptualisations of wellbeing, which is recognised as a contested notion (Dalingwater, 2019). Many use 'happiness' and/or 'satisfaction' interchangeably with 'wellbeing' (Organisation for Economic Coperation Development, 2013). The single-item happiness and satisfaction questions are often used on their own as an evaluation of wellbeing and are considered reliable, valid, and viable across a range of cultural contexts. Happiness and anxiety cover emotional experiences, which is just the 'hedonic' part of wellbeing and therefore only partially represents subjective wellbeing (Raibley, 2012), since it represents only temporal affective dimension/emotional states that are transient in nature and more prone to fluctuate (Delle Fave et al., 2011; Huppert & Cooper, 2014; McMahan & Estes, 2011). 'Wellbeing' refers to a more sustainable experience which includes functioning well in terms of engagement, competence, ability to handle shock, community contribution, and having good relationships (Huppert & Cooper, 2014).

Traditionally, satisfaction is considered as a more stable indicator as it entails the realisation of one's potential, and therefore involves an evaluative component of one's wellbeing (Raibley, 2012). However, happiness and life satisfaction are strongly related to mental health; they are not equivalent (Campion & Nurse, 2007b). Besides,

studies by (Friedman & Kern, 2014); Headey et al. (1993); (Huppert & So, 2013) also indicate that happiness, satisfaction and anxiety appear as relatively distinct dimensions and are not correlated with each other, except happiness which is only modestly correlated with satisfaction and anxiety, therefore making it possible to use them together. Furthermore, both the single-item Happiness and Satisfaction scales are claimed to be highly and positively correlated with optimism hope, self-esteem, and self-ratings of both physical and mental health, making it more reliable to use as a representation of mental health and wellbeing (Abdel-Khalek, 2006). Single-item happiness and satisfaction questions are a standard module already used in many psychosociological surveys (Diener & Suh, 2003). However, wellbeing is best characterised by multiple domains beyond a simple positive or negative feeling measured by a single factor (Forgeard et al., 2011; Frey & Stutzer, 2010; Keyes, 2007). Hence, the strength of ONS is that it brings together different questions already used by many surveys as a single item, and those four questions cover multiple broader domains of wellbeing.

The ONS4 tool has not been used previously in Nepal and has not been validated for use there. The use of a tool designed in a very different cultural context, the UK for example, is clearly not ideal but in the absence of locally developed instruments, the ONS offered a very positive option. The first reason is in the section in FGD where participants were asked about their perceptions of what positive state of mental health mean to them, they used various terms like: *khusi* – 'happy', *man halka/ananda* – 'heart feeling light'/'satisfaction', and 'being able to do something' to express their good state of mental health post-disaster. As described in section 2.10 on the local culture of understanding of mental health, they relate it more to the heart than the brain to make it less stigmatising, which is reflected they in the way they express a positive mental state as emotion and feeling light (see FGD M05). Problems or illnesses related to *dimaag* or brain result in the individual being labelled as crazy or mad in medical terms, and often considered incurable, which is a reason for stigmatisation in the Nepali culture Kohrt and Harper (2008). Hence, the term *man* is used in everyday discourse to refers to desires, likes, and wants and these idioms are related to feelings, emotional states, and mental health (Ibid).

> *For us being mentally well means being happy, heart feeling light, relaxed, less stress or fear and being able to perform our duty. (FGD M05)*

The discussion above has highlighted the conceptual overlap and ability to translate the ONS product into something meaningful locally in the Nepali context. I have also argued that the broad dimensions of the ONS instrument have relevance to the Nepali context and can be justifiably applied. However, this depends on attention in the translation process to make it applicable culturally and expressed with sensitivity. It is vital to translate instruments developed for very different contexts before using them. The simplicity and straightforward nature of the tool and 'broad base' of ONS4 questions particularly facilitate the ability to translate. Though the understanding of wellbeing may be variable in different contexts, one of the benefits of this simple and broad approach is that, with careful translation, the questions don't drill down too far beyond a broad overview while still covering different dimensions of wellbeing. Nepali colleagues at Durham University supported in the translation and back-translation of the tool to maintain consistency. Drawing on a working group of my friends, I used the translated version of questions in Nepali for piloting. Piloting was conducted to ensure that the questions were usable and meaningful in the Nepali context and there was no difficulty responding to these questions during the pilot study.

Piloting

The survey tool was developed in Nepali, and went through several iterations to ensure questions were clear and analytically useful. Piloting was done to refine the quality of the questionnaire and to finalise with almost 10 percent of the total study sample (n=65) in part of the study community, Bhimeshwor municipality. The purpose of the pre-test specifically in this study was to test the research instrument, as a major section of it was developed by me and the global measure ONS4 used has not yet been used in Nepal. Pilot testing was essential to make sure it works for the Nepali context. Piloting can give advance warning if instruments are inappropriate or too complicated (Van Teijlingen & Hundley, 2001). Pilot work helped to ensure that questions and/or response categories were meaningful to research participants. It also ensured that the participants were comfortable with all the questions being asked. Piloting was conducted for two weeks. Flaws identified in the daily review were discussed every night, and the questionnaire was amended, and the new version piloted the next day. Most of the error diagnosed in the pilot related to the sequence of the questions, duplication of the questions, and selection of appropriate words to make it understandable locally. It also helped to reflect on whether the questions were

perceived by the interviewees as being respectful and culturally sensitive, which was crucial to assure the quality of the tool.

Apart from piloting, particular care was taken to develop a guideline for every question and the respondents' options, to make clear the exact meaning of every word in the questionnaire or say the conceptual definition of each option to make sure all my research assistants understood it in the same way. The main aim of developing guidelines was to try and ensure that the questions in the survey were measuring what they said they were measuring (that they had construct validity). Although optional answers were given for most questions to make them as close-ended as possible, the options were not supposed to be read out by the interviewer, so that the respondents gave an authentic response. The options included were mostly guided by a qualitative study, so they are the most likely answers. The purpose of including options was to make the survey more organised and easier to conduct with the most probable answers already listed and one open option left to add if something else not included in the option was given as an answer.

Research assistant selection and orientation

The criteria I used to select research assistants were that they be residents of the selected ward, who already had some experience of conducting surveys, and were well known at the ward level. After meeting FCHVs in the respective wards, they suggested appropriate people for my data collection – those who were formally educated and had prior experience working for other surveys. In most cases, they suggested social mobilisers appointed at the ward office as the most appropriate ones to assist me with my data collection, and they helped me to reach them. After meeting with social mobilisers, some of them agreed to help in data collection and others helped me to appoint reliable research assistants as they themselves were busy at that time. I followed all these processes to select research assistants for data collection to find out the trusted local residents who could conduct the survey smoothly. As they already had a good rapport with participants, so that they felt comfortable in taking part in the survey, this hopefully minimised risks around respondent bias.

I conducted a day-long orientation with the appointed research assistants (RA). We went through each question in detail along with the guideline. I then let them practise with each other. I joined each RA for at least one day to support them, to clarify

queries as they emerged, and to ensure the survey was being correctly administered. I also reviewed a sample of the completed surveys with the RAs to ensure that all questions were completed correctly, providing feedback as required.

Recruiting residents as enumerators helped with the smooth roll-out of the surveys. As most of the research assistants were employees in the ward office, they were paid on a per-questionnaire basis so that they agreed to work out of office hours and on weekends. Hence, it took a month to complete the data collection as they were working part-time for my study. I employed two RAs at Bhimeshwor municipality and four RAs in Chilankha due to the size of the ward, the number of housholds surveyed, and the scattered rural population. In the third one, Malu, Tamakoshi, I appointed two RAs. Therefore, in total, eight RAs supported me to collect data for the survey.

Analytical strategy: Data analysis

Data sorting and cleaning

The process of data cleaning involved checking the dataset for any inconsistencies, addressing the missing data, and sorting the variables in a logical order. Inconsistencies, for example related to skipped questions, were rectified by appropriately coding the responses. Responses to open-ended questions were recoded to relevant groups. Missing data were managed with two key strategies: coding them as missing data (99 in my SPSS dataset); removing the entire respondent if there were too many variables with missing data (more than 5 incomplete responses). In total 42 cases were excluded from the dataset because they had missing data for a large number of variables, either because the researcher aborted the interview midway, or they skipped particular sections. This resulted in a usable sample size of 633 from 675. The cases with missing data were not specific to any section of the questionnaire or specific to any population group. In other words, missing data were random. The missing data were not dependent on any other variables in the data which is called Missing Completely at Random (MCAR) (Allison, 2001). In my case, the data were missing mostly due to the failure in the observations or failure in recording them.

Anticipating the potential for some missing data, oversampling was done in advance and nearly 3 percent additional data was collected, making the sample 675 households

before removing missing data, while the sample size suggested by the formula was 657 (see sample size calculation in Appendix B).

Descriptive analysis of the independent and dependent variables

The first step in analysing data involved the descriptive exploration of both dependent and independent variables. Simple measures such as proportions and mean were calculated to see the distribution and pattern of the variables retained in the final dataset. This approach further fed into the data cleaning process as those variables with less frequency were merged with other relevant categories. Within a variable, if the response to a certain option was considerably less, they were merged to the closer option, or a new comprehensive option was created to address the fewer observations. For example, different caste groups were merged into broader ethnic groups. Cross-tabulation of the key independent and dependent variables was performed to explore the general variation of the health outcome among different groups of respondents.

Outcome variables or dependant variables

Choosing appropriate indicators is crucial in measuring and interpreting mental health and wellbeing, be it at the individual or community level. The outcome variables of the study are post-disaster mental health and wellbeing, measured in terms of happiness, satisfaction, the degree to which the respondent feels their life is worthwhile and lower anxiety (through ONS4 questions).

Explanatory variables or independent variables

There are different individual, community and wider-level variables included in the study which might have direct or indirect impacts on the wellbeing of women in the aftermath of a disaster and which are assessed in this study. There were different categories of exploratory variables including demographic characteristics, pre-disaster life, and trauma exposure, earthquake-related exposure, access to social support in the community and post-disaster recovery and reconstruction. The justification for the use of these variables is discussed in the literature review section. Demographic variables included age, sex, ethnicity, education, marital status, number of dependents, socio-economic status, source(s) of income, and head of household.

Steps of Regression Analysis

This section describes the various steps followed during the analysis process.

Creation of dummy variables

As my dataset comprised both continuous and categorical data, performing linear regression required the creation of dummy variables (with the option of 0 and 1) for the categorical variables. Even for yes/no questions, dummy variables were created with yes as 1 and no as 0. For variables with multiple options, each option was transformed into separate dummy variables, with 0 and 1. For variables with multiple options, one dummy variable, which was considered as the reference category, was not included in the regression (both simple and multiple) analyses.

Building the final multiple regression model

Including all dependent variables of the study in the final analysis made it difficult to manage the result. Therefore, several steps were followed to remove the redundant variables. First, simple linear regression was performed. The process involved looking at the one-to-one association between independent variables and the outcome variable, which was wellbeing. A list of significant independent variables at a 95 percent confidence interval (at p=0.05) was produced for each outcome variable with the aim of removing less important variables from the model-building process. Of the total 83 dependent variables tested with four outcome variables, only about 2/3rd showed an association with the outcome indicators (see Table 5).

Table 5: The total number of variables significant (P value <0.05) to each outcome variable in simple regression analysis

	Happiness	Satisfaction	Worthwhile	Anxiety
Step 1, all significant	54/83	49/83	49/83	29/83

In the second step, to screen the collinearity among variables that were significant in simple regression, a multicollinearity test using correlation coefficient was applied to check the relationship among the independent variables to minimise redundancy and find the best-fitting model to make predictions about the dependent variables. Any pair of variables with a 'high' correlation coefficient (with 0.7 considered as the cut-off point) were re-assessed and then one out of that pair was removed from the

analysis. In doing so, variables with the broader meaning were left in the model. For example, urban/rural was kept instead of the name of local authorities when they were identified as collinear. Higher values of the correlation coefficient would indicate that the variables in the pair are measuring the same thing or there is a significant overlap between them. In addition, tolerance, and variance inflation factor (VIF) were used to test collinearity for each indicator. Examples of correlated independent variables identified by this process in my dataset were:

1. Locality of the respondent (urban/rural) and the name of their local authority
2. Chronic disease and currently taking medicine
3. Quality of life before the earthquake and self-assessed economic status
4. Positive community change and increased employability and opportunity of 'building back better'
5. Help offered in the aftermath and involvement in group activities.

Once the list of independent variables had been reduced using simple regression and the internally correlated variables had been identified, a list of potential predictive variables was produced. These variables were then subjected to multiple regression using the stepwise regression method, which is often considered an ideal procedure to determine the 'best' multiple regression model from a set of statistically significant variables obtained from a larger pool of independent variables (Stevens, 2002). The whole process of stepwise regression can be carried out using two approaches – the backward method or forward method. With the backward method, all the potential predictive variables are fed into the model in the beginning and, in multiple steps, variables that are not significant are removed until only the significant ones are left at the end. Similarly, with forward method, the model-building process starts with one variable and more are added to it in steps while removing the less significant variables at the same time. This process continues until the last variable is fed into the model. With the stepwise reduction, once a set of independent variables is entered into the model, the R^2 value of the model, as well as the change it brought, is compared to the previous model. The stepwise reduction method helps in the removal of insignificant and redundant variables from the model (Sharma & Jin, 2015). The process continues until the whole list of variables is subjected to the model. Throughout the process, the R^2 and its change is evaluated as a large drop in adjusted R^2 with the introduction of

a new variable in the model indicates overfitting or too many variables in the model which do not contribute to the model. The rule of thumb is that the value of R^2 over 0.3 for the final model indicates a good model (Henseler et al., 2009). The adjusted R^2 value of the four outcome variables with the final sets of independent variables left in the final multilinear regression models is presented in Table 6:

Table 6: Adjusted R^2 value for the final models for each dependent variable

	Happiness	Worthwhile	Satisfaction	Anxiety
Adjusted R^2	50	47	40	32

4.9 Positionality of the researcher

The issue of reflexivity is important to consider, particularly in the qualitative part of the research, given that the researcher is intimately involved in both the process and product of the research. The researcher needs to carefully minimise the impact of their biases, beliefs, personal experience and maintain neutrality to reduce the potential personal effect upon the findings of research (Horsburgh, 2003). Reflexivity is a major strategy for quality control in qualitative research where researchers are conscious about the impact that their social position, the effect of own experience and professional knowledge may have on the research process (Berger, 2015). In this section, I aim to present my own reflections on the research process.

In many instances, the content of the interviews had an emotional impact on me when I listened to what the interviewees went through in the aftermath of the earthquake. Although the content of the interviews was emotional at times, I was overwhelmed to see the willingness to share their emotional and traumatic journey of the earthquake and aftermath without any hesitation. Seeing their strength helped me convince myself to make me feel stronger. They expressed that getting a chance to share those stories and re-visiting those memories in-group made them feel even lighter, instead of feeling any pain. The positive attitude the women exhibited while taking part in my study made the discussion flow openly and smoothly and most of the discussions went on for almost an hour. The plight of disaster victims was shared through heartbreaking stories and they told about their disaster experiences. I sometimes faced an ethical dilemma in that I was tempted to help some of the women financially to help them fix the problems they were facing, but I had to refrain from doing so

because helping only some would be partial and preferential. Considering the ethical position of the researcher, it is better to adopt the stance of detachment rather than involvement to maintain a neutral or impartial stance (Stallings, 2007). But in practice this is a hard to do, so I was empathetic towards the community while still engaged and focused on the research process.

I was also aware of the power dynamics between myself and the research participants. I am a well-educated Newari woman from Kathmandu and studying overseas. But in my study areas, Newars are one of the dominant ethnic groups in the urban part of the district and Newar respondents were present as participants in a few focus groups. Therefore, from an ethnic perspective people did not show hesitation or discomfort talking to me. And the other point is I am a woman talking to all the other women in focus groups, so they were very comfortable and more than happy to be part of my discussions. Although I was an 'outsider' to the community, my study participants treated me very well and were willing to talk to me. My previous experience of working and living in rural communities helped me to gain their trust. I tried to blend myself with the local culture as much as possible by choosing the appropriate dress women usually wear in the communities and interacting and building bonds with participants informally before beginning the formal discussions. In most of the communities, I visited a couple of times before interviews while doing preparatory organising work so a few participants got to know me and little about what I was doing before the formal data collection sessions. By the end of the discussion, many women invited me to visit them in the future and shared their contact numbers. I was overwhelmed by the support and response they have shown to me.

During the focus group discussions, to ensure the discussion took the form of more of a mutual exchange rather than me asking questions and participants responding, I tried sharing the experience of my family during the earthquake whenever appropriate to show how everyone is affected not only them. However, in one of the focus groups, one participant expressed her frustration at being asked to participate in various studies without them being of any direct benefit to the participants. That particular case happened as that participant joined in the middle of the conversation and didn't understand the context. I had an explicit talk with her about me and my context, after which she understood that I was a student and agreed to participate. She shared that her main grievances were with I/NGOs who conduct research and use

these data only for their own benefit without contributing anything in return to the community. At the end of the discussion, I tried to reassure her that if my research becomes successful, I will try to advocate for the betterment of women as far as possible from my level. The grievance expressed by the participant is not unexpected considering that the amount of research conducted in post-disaster communities makes the communities feel exhausted. However, to avoid exhaustion I excluded the over-researched study districts during the selection process. A paper by Gomez et al. (2013) highlights a sharp increase in post-disaster extractive research publications which lack proper local cultural knowledge of victim communities and that can misinform disaster mitigation strategies.

4.10 Ethical considerations

The study was approved by the Ethics Advisory Committee in the Department of Geography at Durham University and the Nepal Health Research Council in Kathmandu, in line with the requirements for all health-related research. Informed consent was obtained orally from participants. Written consent was not taken for this study as not all of the targeted respondents were literate and therefore able to read the form that they were being asked to sign or thumb print. However, my contact card was given in case participants wanted to contact me to discuss the study further or if any questions emerged once they had discussed the information sheet about the study with other family members.

The participants in the research were women survivors of the earthquake whose mental health status was not known in advance. Although the study and interviews undertaken take a positive and empowering approach to mental wellbeing, recounting traumatic events can cause understandable distress particularly when discussing issues such as loss of life of a family member or the loss of livelihood. Participants were given the right to withdraw from the research at any point of the research. The decision to participate or not was respected and so was any decision taken to withdraw during the interview process. The research team approached topics related to trauma and loss with care and respect. Considering that some participants may request help or support such as psychological counselling or assistance with other health-related issues, the contact information of local NGOs providing counselling and wider mental health support was shared with participants. Post-disaster research may require

special concerns or protections as participants may have experienced direct trauma (McFarlane & Norris, 2006). Emotional distress caused by remembering events is one of the common risks to participants involved in disaster research (Ibid). At the same time, research may not necessarily cause emotional distress as talking and sharing memories about the disaster event may be beneficial to reduce their trauma and post-disaster awareness and counselling activities can aid participants with the awareness of distress (Newman & Kaloupek, 2004).

Interviews were conducted in a place that the respondent identified, and felt comfortable. This was usually the porch at the front of their house. We were, however, mindful that some participants may prefer to speak in a more private setting, away from other villagers who sometimes joined the discussion. The research team were also mindful of the fact that the participants were busy with daily chores, work, and reconstruction following the earthquake, and that participating in the research may be viewed as an additional burden. If people were too busy to participate, their decision was respected, and interviews were conducted at a convenient time that they suggested. This was possible in the survey as the research assistants engaged in data collection were local residents of that community and they were flexible to do interviews in the time they were given by the participants.

For both the interviews and the questionnaire survey, I recruited mostly female research assistants (6/9) as most study participants were women and I felt that they would feel more comfortable talking to other women. Most of the research assistants selected were originally from the case study areas, as they have local knowledge, knowledge of the local language and will be viewed less as outsiders. The research team wore appropriate clothing, acted sensitively, and did their best to put the participants at ease.

The names of the respondents were not recorded, with each respondent given a unique identifier to ensure anonymity. All interview and focus group transcripts were anonymised, with pseudonyms used in the thesis. The anonymity of the data was strictly maintained. All data and information were coded (using anonymous numeric identifiers) during the data entry. The personal and community identifiers were saved separately. Data were stored in securely locked rooms in hard copy form and in

password-protected files on password-protected computers. I made sure that only I had access to the collected data.

4.11 Summary

In this chapter I have presented my methodological approach to my study. I began by outlining my research aims and research questions. Then I presented my argument for using a mixed-methods research design – exploratory sequential mixed method in particular – and discussed how qualitative and quantitative methods if presented together become much stronger. The brief theoretical section introduces critical realism which offers an alternative epistemological standpoint which brings together two different methods with different types of philosophies into the same fold in mixed methods.

The research was conducted sequentially in two phases ; first the qualitative study, followed by the quantitative study in the second round. The reason for following this sequence is that findings of the qualitative study guided in choosing variables for survey tools and understanding the concept of wellbeing in the community. The validated tool for measuring wellbeing was not available for Nepal, therefore the qualitative study guided me to choose ONS, with simple questions like happiness, satisfaction and anxiety which were commonly expressed by the participants. Hence, the purpose of the qualitative study was to explore the experience of pre, during, and post-earthquake life, to explore local understandings of wellbeing and to generate the main themes as determinants of wellbeing that community members expressed most commonly in those communities. These themes were then used to inform and adapt the variables to include in the quantitative survey. In the second phase, a large-scale survey was conducted to intensify the results of the qualitative study and make data generalisable to the wider similar communities. I then explained in detail the research methodology, including a systematic selection of study area with a brief introduction to the selected communities, sample size calculation, different qualitative and quantitative methods used, study tool, piloting of tools and data management and analysis strategies applied in the study.

Chapter 5 Exploring the everyday lives and wellbeing of women in Dolakha

5.1 Introduction

The impact of disaster events never solely depends on the nature of the hazard but the social, political and most importantly the social composition of the affected population (Linog, 2005; Wisner et al., 2004). Therefore, in this chapter, I introduce the study population, their everyday lives, their experiences of the Gorkha earthquake and its impact, including post-disaster recovery and reconstruction by using both survey data and qualitative data from the study. I begin the chapter with a descriptive overview of the rural and urban wards in which the study was undertaken. The urban/rural context has been an important factor for consideration in the study.

In the second section, I present the demographic, socio-economic, and household characteristics of the study participants. The third section further helps to understand the life of women before, during, and after the earthquake which was found to vary between urban and rural settings. It explores the impact of the earthquake and aftershocks, the opportunities created by the earthquake for the women interviewed and surveyed, their households and communities, and the roles different organisations played in post-disaster recovery and post-earthquake reconstruction issues in the communities. Finally, I conclude the chapter with a summary of the results along with key questions that this chapter raises.

The survey analysis is conducted in three layers. First, I offer a descriptive analysis or frequency to explore the demographic, and socio-economic characteristics of study participants and the life of participants' pre, during, and post-earthquake experiences between two areas. The finding in this chapter explains the general scenario and no relationship is shown here with outcome variable wellbeing. Second, I use simple regression analysis to assess the associations between the individual explanatory variables and mental health and wellbeing outcomes. Finally, I use a multiple linear regression equation to identify the major contributing factors among many to most powerfully impact mental health and wellbeing. In this chapter 5, I present descriptive findings only which is the first part of the analysis. I use qualitative findings to support

or contrast and unpack the findings from the survey. In the following analytical chapter 6, I aim to unpack some of the central arguments of my thesis in detail.

In particular, this chapter seeks to address the following questions:

1) What are the characteristics of the case study areas, respondent women and study households? (see sections 52, 5.3 and 5.4)
2) What are the life experiences of women before, during and post-earthquake and what impacts the earthquake has caused at the household and community level? (see sections 5.5 to 5.7)
3) What is the status of post-earthquake reconstruction and what issues were faced during reconstruction? (see section 5.7.2)
4) What is the pattern of wellbeing distribution among respondent women? (see section 5.8)

5.2 Characteristics of the study areas

The place we live affects health and the opportunities for lives to flourish (World Health Organisation, 2012). The everyday living of people is determined by where we live, our culture, identity, and access to resources, and the daily conditions which have a strong influence on health equity (World Health Organisation, 2010). A sense of place identity derives from the multiple ways in which place functions to provide a sense of belonging, construct meaning, foster attachments, and mediate change (Massey, 2010). Similarly, the ethnic composition varies widely according to the geographical location in Nepal (Asian Development Bank, 2010). This section provides an overview of the Dolakha district with specific locations/villages of the municipalities where the study was conducted. This section will help to understand the local geographical scenario of the study area and the way it might play a role in post-earthquake recovery activities.

Table 7 gives an overview of the difference in remoteness between rural and urban study areas. The table shows the differences in access to a road, markets and other services like banking, government offices and hospitals in urban and rural areas. For the majority of surveyed households, grocery shops are accessible less than 30 minutes' walk from the participant's home, with almost 77 percent of households in

rural areas having access to those shops. Small retail stores played an important role in post-disaster response through the provision of basic food items (see Figure 21).

Table 7: Access to amenities in study municipalities in percent (number)

Sn		Urban Municipality	Rural Municipalities
1	Distance to a motorable road on foot		
	Less than 30 minutes	94(173)	76.8(345)
	30-60 minutes	4.9(9)	19.4(87)
	More than an hour	1.1(2)	3.8(17)
2	Distance to a big market on a bus		
	Less than 30 minutes	47(87)	9.8(44)
	30-60 minutes	53(97)	6(27)
	Hour to two	0	21.6(97)
	More than 2 hours	0	62.6(281)
3	Distance to retail stores on foot		
	Less than 30 minutes	97.3(179)	79.7(358)
	30-60 minutes	2.7(5)	14.9(67)
	More than an hour	0	5.4(24)
4	Distance to HQ on bus		
	Less than 30 minutes	55.4(102)	5.3(24)
	1-2 hrs	44.6(82)	11.6(52)
	>2hrs	0	83.1(373)

For four percent of rural households, retail stores are more than an hour's walking distance. Meanwhile, the big markets where you can buy more than the grocery and everyday shopping including reconstruction materials, electronic devices, clothes etc., are less accessible for almost two-third of rural households who were more than two hours from the market centre by bus, whereas for almost half of the urban households, the big market is in a distance of less than half an hour bus travel. Big markets have a role post-disaster in recovery and reconstruction activities. Having less access to a bigger market exacerbates the post-earthquake reconstruction cost due to the higher transportation cost of materials in difficult terrain (Sharma et al., 2018b).

Figure 21: Picture representative of grocery stores in rural areas

The table shows that the road network is reasonably accessible in rural areas, as at the current time having the road network has been a priority infrastructure of the government and has been extending rapidly (Pande, 2017). Increased access to infrastructures directly benefits households to reduce costs of the services and improve the quality of life of people by increasing their level of income, and better access to health, and education (Ali & Pernia, 2003). But the main problem with the road is with the quality of the road and the limited availability of public bus services making the rural area less accessible as expressed in group discussions. The roads are little more than newly dug tracks which are inaccessible in monsoon season as seen in Figure 5 in section 2.3. The poor road quality in rural terrain hinders the reconstruction work as many rural areas are cut-off due to monsoon rain challenging transportation services (Sharma et al., 2018a).

In addition, the public bus services on which people rely are limited. According to residents, there are only two buses in the morning passing through the villages and two in the evening returning from Kathmandu via Charikot which are long-route buses and very hard for locals to get on for short distances due to overcrowding. The importance of road is evident from the interview extract below. Even within rural areas, households with closer access to motorable roads faced challenges in accessing immediate relief provided by different organisations as they mostly choose distribution centres near the roadside. Hence, those households who live nearby the

roadside received relief aid easily, whereas women from the hill villages struggled to receive support due to long-distance walks and difficulty in carrying back the aid received. In addition, they faced a higher risk of being affected by the landslides and rock falls caused by recurring aftershocks on their way and back to collect aid.

> *"We felt fortunate to have a road in our village when we heard about the struggle people from remote places like Tasinam uphill faced in collecting aid. People who live up in the remote hills said they walked 4 hours and more to come here and collect relief materials. After they arrive here, they have to stay in a long queue as they arrive late. It gets darker staying in a queue and receiving their aid, then they have to walk back home carrying all those loads with the help of torchlight. Such hard work for them. But with us, it was so easy. When relief material arrives here, we just rush first and collect ours and get back home immediately. We neither needed to carry and walk in the dark nor needed to fear falling in the dark. So, access to road and transport matters a lot and geography too. The road has made the health services and markets in headquarter accessible too. Whereas with those women living uphill, they have to leave their small children behind for a whole day with someone else to look after them, so it matters a lot living on the top of the hill to the base nearby roads.*
>
> *(FGD, S01)*

The district headquarters is where most of the government offices are located and people from all over the district have to travel for most of the administrative services from the district development office, police office, court, health office, and essential services like market, hospital, banks are located for the whole district is more than two hours of bus journey for more than 83 percent of rural study households. While more than 55 percent of urban households are less than half an hour's distance from the district headquarters. The relief aid provided by the government of Nepal was given through a bank account. In Dolakha, banks are located in the district headquarters. Hence, to get that amount all households needed to travel to the district. The district headquarter is more than 2 hours distance via bus for most rural households with scant bus services. The situation was made worst by the earthquake-induced landslides that disrupted local bus services for a while.

Geographical inequalities contributed to disparities in access to relief aid mostly to women-headed households due to gendered roles and norms in the community. One

of the prominent examples is the case where women suffered to get the monetary aid from the government in the absence of a male which is distributed via a bank account created specifically for that purpose. In households with no active men, women had to travel to the district headquarters to get a grant from the authorised banks. Women had a hard time managing transportation, logistics and technical work to get the fund (see KII, W1). Often these technical tasks are not traditionally managed by women so they faced difficulty in doing that (Limbu et al., 2019b). According to the statement expressed by one of the representatives from the Women's Development Office in Charikot, the challenges women faced in the disaster recovery process as a result of poor transportation service, complex headquarter-centred disaster relief process which is not user-friendly technically and logistically, especially for the household with an absent male.

> *"Let me give an example of one of the cases I have witnessed myself. I know one lady who has a toddler and whose husband is abroad. After her house collapsed in the earthquake, I could see her carrying her child when she had to do all the processes to receive the relief fund. I could see many women accompanied by their little ones when they come to the district headquarter from villages to make necessary documents for collecting their relief fund. They got to queue for many days, some of their children got ill at that time, and it was hard to get rooms in a hotel. Those women who have their husbands in the village with them, the husband did all these tasks, and they didn't have to worry about it at all. It is quite easy for men; they can stay anywhere. But those women whose men were away, along with their recovery work, they need to look after their old in-laws, and children and manage their households. They seriously suffered a lot of destitution to manage that all."* *(KII, W1)*

5.3 Baseline characteristics of respondent women: Individual attributes

The first stage of the results process involved exploring the baseline characteristics of the sample, looking at general characteristics and differences between women from urban and rural municipalities, and getting an overall feel for the data. Baseline characteristics included an exploration of socio-demographic factors, economic factors, and household factors which will be described in the section below. In this

first section of baseline characteristics, individual attributes such as socio-demographic factors will be explored.

5.3.1 Characteristics of the study population: Age

The age of the sample is outlined in Table 8. Age is one of the crucial components determining the impact of disaster and recovery. The extreme spectrum of age affects movement out of harm's way making those groups less resilient due to mobility constraints and in addition, getting lesser geriatric care they get in the aftermath due to diverted concern of caretaker more to livelihoods and other issues (Cutter et al., 2000; O'Brien & Mileti, 1992).

Table 8: Age of the respondents in percent (number)

Age group	Urban M	Rural M	District Total	Census 2011
19-24	10.3(19)	5.8(26)	7.1(45)	14.3
25-44	58.7(108)	43.9(197)	48.2 (305)	42.1
45-54	16.3(30)	25.2(113)	22.6 (143)	16.9
55-64	9.8(18)	14.9(67)	13.4 (85)	12.5
65 above	4.9(9)	10.2(46)	8.7 (55)	14.2

There is a noticeable difference between the urban and rural areas in terms of the difference in population composition according to the age group which applies true to both study sample and census data (Census, 2011). In the urban area, the sampled urban population was younger with more than 85% of women aged 19-44 years. This is compared to nearly half of the age group in rural areas below 44 and half above. It reflects a higher concentration of middle and old-age participants in rural areas. As one participant from a rural municipality explained:

> *"Most of the men are away from home either abroad or in other cities of Nepal for employment. People left behind in the village nowadays are only female, elderly, or single women and disabled who can't work."* *(FGD, M05)*

The qualitative interview from one of the participants in FGD M05 reveals that due to the high rate of youth outmigration, the rural population comprises mainly old and single women left behind. The village with the majority of households of Brahmin and Sherpa ethnicity shared that most of the youth and working-age men are either in Kathmandu for education or employment, or abroad. Similarly, many Sherpa women expressed their pain of being alone at home as their daughters and sons are settled in

cities but they are left behind in the villages making them feel helpless after the disaster.

5.3.2 Characteristics of the study population: Ethnicity

As discussed in Section 2.5, the caste system, which is deeply rooted in Nepali society is a primary determinant of identity and social status, class, and hierarchy (Bennett et al., 2008) and has been a major force for driving disparities between the ethnic groups. Moreover, ethnic/caste stratification is an essential cross-cutting dimension to be considered to better understand issues to respond more effectively to the legitimate needs and demands of Nepal's diverse population.

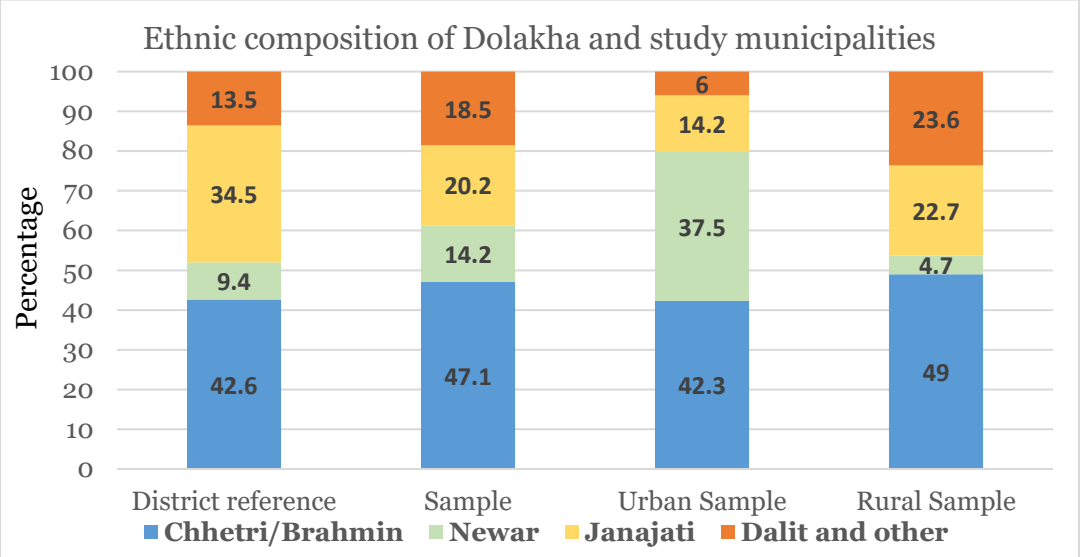


Figure 22: The ethnic composition of Dolakha according to Census 2011 versus the total sample population and also sample distribution in an urban and rural area of the study in percent

As discussed in chapter 4, the sampling procedure of the study has tried to achieve ethnic representation which is reflected in the bar diagram Figure 22 as sample and district data on ethnic composition do not have much variation in proportion. The major share of the sample population according to ethnicity shows that of high caste Chhetri/Brahmin which is 47 percent followed by Janajati (indigenous ethnic groups) 20.2 percent, Dalits/other minority ethnic group 18.5 percent, and Newar 14 percent (see Figure 22). The sample composition of Janajati is somehow lower than that of the census district composition. The census data came from a higher level of geography whereas my data came from only three selected municipalities which is the reason for the underlying variation although I tried my best to achieve proportional

representativeness. The census data do not take into account the variations that exist in urban/rural distributions.

In the urban municipality, 80 percent of the sample population is composed of Chhetri/Brahmin and Newar. Newars are historically considered a business class group and are highly concentrated in the urban areas which is also reflected in data as being one the dominant groups sampled in the urban municipality (37.5%) after Chhetri/Brahmin compared to less than five percent of Newar in the sample of other two rural municipalities. Whereas in rural municipalities, although the majority of the population share is composed of Chhetri/Bhramin, the rest is covered mostly by Janajati/indigenous ethnic groups such as Tamangs, Thami, Sherpa, Magar and low caste, excluded ethnic group, Dalits making them more concentrated in rural municipalities. A report by Asian Development Bank (2010) informs that often Janajatis/indigenous groups and Dalits are commonly settled in remote and isolated areas of the community. Similarly, Tamang (2009) mentioned that Tamangs live in the hilly areas around the Kathmandu Valley and Dolakha is one of them.

5.3.3 Characteristics of study population: Religion

The proportion of Hindu respondents in my sample is higher than that of census data for Dolakha (see Table 9). In Nepal, religion is strongly linked to ethnicity (See, section 2.4 in chapter 2). In this study, Janajati ethnicity mainly consists of caste groups; Tamang and Sherpa, who are followers of Buddhism (see Table 2 in Appendix C).

Table 9: Distribution of respondents according to their religion in percent (number)

Religion	**Urban M**	**Rural M**	**Total**	**Census 2011**
Hindu	92.8 (169)	84.8(381)	86.9 (550)	67.8
Buddhist	4.4(8)	12.5(56)	10.1(64)	22.3
Others	3.8(7)	2.7(12)	3.0(19)	9.9

5.3.4 Characteristics of study population: educational status

When it comes to education, the literacy rate of survey participants is nearly 10 percent higher at 63 percent (see Table 10) compared to female literacy rate in Dolakha as a whole which is 54 percent (District Development Committee Office, 2015a). However, inequalities are existing in the level of educational attainment between rural and urban municipalities as the urban representative in the survey has

the highest literacy rank in the district and two rural municipalities, Tamakoshi and Bigu RM come in fifth and the lowest in the ranking respectively (District Development Committee Office, 2015a). The illiteracy rate of study participants from the urban municipality is slightly higher than that of the rural municipalities. Yet the attainment of secondary or above level education from the urban area is much higher compared to rural areas, whereas almost half of the sample women in the rural municipalities have only attained simple literacy classes or primary level education.

Table 10: Educational attainment of respondents in percent (number)

Level of education completed	**Urban M**	**Rural M**	**District total**	**Census 2011**
Non-literate	39.6(71)	36.5(164)	37.1 (235)	46.3
Primary	32.1(59)	49.9(224)	44.7 (283)	30.1
Secondary	15.2(28)	7.8(35)	10.0(63)	19.9
12 or above	14.1(26)	5.8(26)	8.2(52)	2.8

5.3.5 Characteristics of the study population: Occupation

Nepal is an agrarian country with 67 percent of the workforce engaged in agriculture for livelihood (World Bank Group, 2018). A vast majority of respondents (84%) are engaged in non-economic domestic and agricultural work (see Table 11) which is a little lower compared to the 90 percent engagement of women in agriculture in district data (District profile, 2015). Surprisingly, slightly fewer women in rural municipalities refer to agriculture as the main occupation in urban. The reason for this is described in detail in FGD S04 below that women in rural areas are getting more employment opportunities post-earthquake in the construction sector to work as day-wage labour which they have taken as a main occupation at that time.

Table 11 Distribution of respondents according to their occupation in percentage (number)

Occupation	**Urban M**	**Rural M**	**District total**	**Census 2011**
Agriculture & Housewife	89.1(164)	82.2(369)	84.2 (533)	90
Contracted service/Job	2.2(4)	4.5(20)	3.8 (24)	6.2
Day-wage labour	3.3(6)	7.1(32)	6.0(38)	0.6
Self-employed	4.9(9)	3.8(17)	4.1(26)	3.2
Unemployed & Student	0.5 (1)	2.4(11)	1.9(12)	-

The data shows that the percentage of women with jobs and those engaged in labour work are higher in rural municipalities, possibly reflecting the trend of change in

women's occupation in rural areas after the earthquake. Formal service categories include teaching, health worker, other government jobs, and private employment in NGOs etc. This is because more women in rural areas work as day-wage labour in private households reconstruction e.g. for carrying construction materials, perhaps revealing job opportunities opened by post-earthquake reconstruction (see FGD, S04). The high male migration in rural parts caused a shortage of labour in different sectors leading to a rise in non-farm wages like in the construction sector, which has become an attraction for women in many households to participate in the labour force (World Bank Group, 2018). Further, the attraction toward cash-oriented work is more than agricultural work in Nepal (Tamang, 24 April 2017) which is also reflected in the statement from a focus group participant expressed below:

> *"Still a few families have left their field fallow. Now, we go to work as construction labourers and earn. There is a high demand for construction workers. Even though we work hard in the field, the yield from agriculture is enough to eat only for about six months. Whereas, working as a labourer is hard work too but we get paid a good amount at the end of the day. As the daily wages of construction labour have risen high but the agricultural work is only getting tougher since the earthquake. So, we rather prefer to work as construction labour now than to work on our farms. Who will not choose a better way to earn when there is one?" (FGD, S04)*

The above statement from one of the focus group discussions (FGDs) with Tamang, Thami and Dalit women revealed an increase in the number of women working in construction-labours over agricultural work due to much better pay for the same amount of hard work than farming. One of the Thami women mentioned that nowadays if they work two days as construction labour, they get paid enough to buy rice for their family for a whole month, which is why they lack the motivation to exert extra effort in their farming tasks. The distribution of Tamang and Thami ethnic groups who are traditionally in the labour profession are concentrated in rural municipalities making labourers women more than double in rural compared to the urban municipality. Another reason participants mentioned for many households abandoned farming after the earthquake in the villages is due to cracks made by the earthquake in their farming land making it hard to hold rain-water for farming as well as difficult to use oxen for ploughing due to cracks.

Figure 23: Pictures of women working on the farm

Looking at the total respondents, only 14 percent of women work in the sector where they will have direct access to cash such as business, labour, and service. Further, only four percent of women are engaged in formal employment and they are mostly Chhetri/Brahmin. Women in daily labour as an occupation is higher among Dalit followed by Janajati women; self-employed women are mostly Chherti/Brahmin and Newar women (see Table 3 in Appendix C). Self-employed women are mostly engaged in small retail shops and tea shops.

Figure 24: Picture of woman managing her livestock

5.3.6 Characteristics of the sample: Marital status and household headship

The majority of survey participants were married (83%) with less than 3 percent unmarried and 14 percent divorced, widowed, or separated (see Table 12). The reason for the majority of participants being married in this study is that it specifically targets women who are married, and potentially serve as household heads (see chapter 4, section 4.5). Hence the proportion of married women in the study is much higher than in the census.

Table 12 Marital status and household headship of respondents in percent (number)

Marital Status	**Urban**	**Rural**	**Sample Total**	**Census (%)**
Married	87.0 (160)	82.0 (368)	83.4 (528)	61.2
Unmarried	1.6 (3)	3.1 (14)	2.7 (17)	33.6
Other single	11.4 (21)	14.9 (67)	13.9 (88)	5.2
Household head				
Self	50.5 (93)	35(157)	39.5(250)	34.4
Others	49.5 (91)	65(292)	60.5(383)	65.6

According to the district profile of Dolakha, over 34 percent of households are headed by women (District Development Committee Office, 2015a). The report defines the household head as the member responsible for decision-making on family matters, and in my survey, nearly 40% of women assume this role. In patriarchal Nepalese communities, men typically serve as the primary earners and seek economic opportunities in cities or abroad, leaving women to shoulder the additional responsibilities of managing the entire family due to the cycle of poverty. (Jetley, 1987). Since migration is male-dominated, its implications at the community level is significant as gender roles and responsibilities change. A study by Gartaula et al. (2012) on women left behind in Nepalese communities after male migration has clearly illustrated the overwhelming burden they face in managing households, agriculture, and community affairs alone. Despite the increased workload and responsibilities, these women have not experienced a corresponding increase in control over assets and resources, nor have they gained executive decision-making positions. (Adhikari & Hobley, 2015; Hunzal et al., 2011; Maharjan et al., 2012; Pant & Standing, 2011; Sugden et al., 2014). On the other hand, migration brings economic benefits to the family and empowers women, enhancing their autonomy and confidence as they fulfil their responsibilities, including active participation in local-

level meetings (Gartaula et al., 2012). Additionally, migration has influenced households' capacity to cope with and adapt to the recent earthquake's effects.

Household headship plays a crucial role in determining the unequal distribution of post-earthquake relief and recovery, as highlighted in FGD S01. Women-headed households faced numerous challenges, particularly due to the lack of family support. In the aftermath of house collapses, with a scarcity of young, working-age men, women were burdened with the additional responsibility of initiating reconstruction efforts. They had to rely heavily on neighbours and other assisting individuals to cope with the situation. Furthermore, the earthquake's devastation substantially increased their workload, forcing women to face numerous hardships in the absence of their husbands, as mentioned in FGD S01.

> *"Workload has increased a lot due to additional work of recovery and reconstruction. Like, initially, we built temporary houses. Later, to rebuild permanent houses, we had to throw out the remaining the old house, search for construction labours, and carry corrugated sheets, wood and construction materials along with all other regular domestic works. Not only that, earlier the daily wages for the construction and supportive labour were Rs.200-300 but after the earthquake, it went higher up to Rs.1000 Nepali rupees so they are no more affordable and very hard to get one. So, we worked ourselves instead of hiring supportive labour to save costs for works like construction materials."*
> *(FGD, S01)*

The loss of homes, farmland, and crops, as well as the depletion of water sources, has placed significant burdens on women, who now struggle to meet their everyday needs. Following the collapse of houses, women, in the absence of male household members, have shouldered the additional responsibility of reconstruction. They have endured strenuous physical labour, such as carrying construction materials like bundles of galvanized sheets and chopping trees to gather logs from the jungle for temporary reconstruction during the initial phase. Moreover, they have taken on extra burdens by engaging in manual labour themselves to reduce construction costs.

Gendered norms significantly impacted women who assumed the role of de facto household heads during the relief process, particularly in relation to receiving reconstruction grants. In Nepal, the government distributed cash installments for

immediate shelter and reconstruction to all affected households. To be eligible for the reconstruction grant, households were required to obtain a Housing Reconstruction Grant Agreement Card by signing the Participation Agreement (PA) at local administrative offices (Limbu et al., 2019b). The PA card was issued to the head of the household, who needed to submit their citizenship and land ownership certificates (Ibid).

However, many women faced challenges in meeting the land ownership certificate requirement, as most families had not transferred land titles for several generations or had properties registered in the name of male members. In Nepal, less than 11 percent of women legally own fixed assets such as land and houses, with the majority of properties being held in the names of men, despite women assuming the de facto role of household heads (Rijal, 2018). Consequently, fulfiling the documentation requirements posed a pressing issue for women during the reconstruction process (Limbu et al., 2019b). This highlights the disproportionate impact of humanitarian crises on women (Enarson et al., 2007).

5.4 Household level characteristics

After conducting a descriptive analysis of individual factors, the subsequent section focuses on the household-level characteristics of the participants, as described below.

5.4.1 Family structure

Family connectedness serves as a crucial protective factor, enabling individuals to navigate stressful situations and mitigate negative outcomes (Fergus & Zimmerman, 2005; Kingon & O'Sullivan, 2001). Strong family support has proven to be a reliable predictor of positive health and a safeguard for mental wellbeing. Nevertheless, households burdened with a high number of dependents often face financial constraints, time limitations, and limited opportunities to balance work responsibilities with caregiving roles, thereby hampering resilience and recovery in the aftermath of disasters (Cutter et al., 2003; Oven et al., 2019).

In the case study communities, nuclear families dominate the family structure, representing 63 percent of selected households. Additionally, approximately 9.5 percent of households consist of women living alone, suggesting that they are likely widowed (see Table 13). The proportion of households with women living alone is

nearly four times higher in rural areas. Previously, the traditional structure of Hindu households in Nepal was a large joint family system, with the father as the head, and other members including sons, daughters-in-law, and grandchildren jointly working on the family's farmland (Goldstein & Beall, 1986). However, the census report indicates a visible breakdown of the extended family system, being rapidly replaced by the nuclear family system, where sons, upon marriage, initiate a separate family life away from their parents (Census, 2011).

Table 13: Family structure of sample households in percent (number)

Family Structure	**Urban**	**Rural**	**Sample total**	**Census (%)**
Nuclear	60.9 (112)	64.1(288)	63.2(400)	51.4
Extended	35.9 (66)	23.8(107)	27.3(173)	39.6
Living alone	3.3 (6)	12(54)	9.5(60)	9

Apart from two common family compositions, the proportion of individuals living alone in rural municipalities is nearly four times higher compared to urban municipalities (see Table 13). In rural areas, the presence of households led by widowed women is notably higher due to the lasting impact of the past civil conflict. For instance, a Sherpa widow from Mali village shared her poignant story of being left all alone after her husband and son were tragically killed during the civil conflict (See section 2.3.2). Nepal has a history of a decade-long civil war that began in 1996 as a response to escalating inequalities, particularly between rural and urban areas, as well as among different socio-economic groups. The conflict predominantly involved disadvantaged youth from rural and remote areas mobilizing against the political system n certain villages, the traumatic legacy of the civil conflict has resulted in a significant number of widows, with many men having gone missing during that period, their fate still uncertain, as highlighted in focus group discussions. Numerous deaths and unlawful killings occurred during the political insurgency in Dolakha district involving Maoists, security forces, and civilians (Amnesty International, 2002).

Another significant reason for single households is the high outmigration trend, as highlighted in a focus group discussion with participants from one of the rural villages in the case study. Several widowed women from the same village mentioned that their sons and daughters are living in Kathmandu with their own families while leaving

their elderly mothers behind in the village. These mothers receive occasional visits from their children, but they receive minimal financial support from them.

> *"Nowadays, a common trend in the village is, the son is in one of the countries, another son in another country, the daughter in Kathmandu and only women and elderly people are left behind here. So, the biggest worry of old people these days is that they will be all alone at the last moment of their life." (FGD, M05)*

In terms of ethnicity, approximately three-fourths of marginalized Janjati ethnic groups, such as Thami (85%), Tamang (75%), Dalit (73%), and Sherpa (75%), predominantly adhere to the nuclear family structure, which is significantly higher compared to other ethnic groups. Conversely, a notable proportion of Newar (42%) and Chhetri/Brahmin (31%) individuals adhere to the extended family tradition (refer to the cross-tabulation table on ethnicity and family structure in Appendix C). This indicates that higher caste groups tend to favour the extended family system, while marginalized groups tend to follow the nuclear family tradition.

5.4.2 Economic status of households

Economic status significantly influences health and wellbeing by determining access to essential resources and reducing exposure to psychosocial stress (World Health Organisation, 2012). Conversely, living in poverty and facing daily uncertainty worsens the impact of disasters, leaving individuals in despair (Bankoff & Frerks, 2013).

Regarding the primary source of household income, approximately 57 percent of surveyed households rely on subsistence and small-scale agriculture (see Table 14), which is significantly lower than the district average of 81 percent (District Profile, 2015). This data reflects a shift away from agriculture as the main income source following the earthquake. Respondents also mentioned other sources of income, such as daily wage labour, remittances, formal employment in private and government sectors (e.g., teaching, working in NGOs, administration), self-employment (e.g., running businesses, small retail shops, poultry farms), and social welfare funds including allowances for the elderly and widows.

Table 14: Economic Characteristics of the sample households in percent (number)

The main source of income	**Urban**	**Rural**	**Sample Total**	**District Census**
Agriculture	58.7(108)	55.9(251)	56.7 (359)	81.12
Daily Wage Labour	4.3(8)	20.3(91)	15.6 (99)	-
Foreign Remittance	21.7(40)	7.8(35)	11.8 (75)	30
Formal Service/Job	9.8(18)	7.3(33)	8.1(51)	-
Self-employment	3.8(7)	6(27)	5.4 (34)	-
Social welfare fund	1.6(3)	2.7(12)	2.4 (15)	-
Sources of income				
Single income source	45.7(84)	30.1(135)	34.6 (219)	-
Multiple income sources	54.3(100)	69.9(314)	65.4 (414)	-
Self-assessed economic status				
Relatively poor	29.9(55)	35.9(161)	34.1(216)	-
Middle income	58.1(107)	47.4(213)	50.6(320)	-
Relatively rich	12(22)	16.7(75)	15.3(97)	-

Apart from agriculture, daily wages from labour contribute to the income of over 20 percent of households in rural municipalities, followed by remittances. In urban municipalities, foreign remittances account for almost 22 percent of household income. Nepal had one of the highest shares of remittance contribution to GDP, reaching 30 percent in 2015 (World Bank Group, 2018). In this study, remittance refers specifically to earnings from foreign employment. The prevalent type of migration in these communities is temporary seasonal migration of men to India. The proportion of households relying on labour wages as the primary source of income is nearly five times higher in the rural case study areas, reflecting the ethnic composition of the labour force and increased opportunities in the construction sector.

Regarding ethnicity, agriculture is the main source of income for most ethnic groups, except for Dalit households, where it accounted for only 37 percent (see table 5 in appendix C) of household income compared to over half in other ethnic groups, indicating smaller landholdings. Among Dalit households, agriculture and daily wages each contributes 37 percent as the main source of family income. Further analysis within the Janajati ethnic group reveals that only 25 percent of Sherpa households rely on agriculture as the primary income source, while 42 percent depend on remittances. In contrast, 65 percent of Tamang households in the same group rely

on agriculture, followed by 18 percent relying on daily wages, and only three percent depend on remittances, indicating disparities among different castes within the ethnic group. During the focus group discussion in Laduk village with Sherpa and Tamang women, it was mentioned that remittances and daily wages are the two main additional sources of income after agriculture:

> *"We lack employment opportunities here. As residents who are not well educated and financially constrained, men are compelled to seek work elsewhere to meet our basic needs. Many of them are employed in labour-intensive jobs in India, some in Middle Eastern countries, and others work in brick factories in different cities within Nepal. Meanwhile, we women remain at home, taking care of our households. In our village, neither men nor women have jobs, making us reliant on daily wages for survival."*
>
> *(FGD, Lo2)*

In most of the focus group discussions (FGDs), women consistently expressed the lack of employment opportunities in their villages, leaving them unable to earn a cash income. As a result, there is a growing trend of male outmigration to cities where they find work as daily labourers in brick factories, hotels, and other industrial settings. Some men even migrate to countries like India in search of survival. Meanwhile, women back home are left to manage domestic and agricultural tasks. Consequently, rural families heavily rely on daily labour wages as their main source of cash income. Going abroad for work requires a significant investment, which many poor families cannot afford. Thus, they choose to work in Nepalese cities instead (Rigg et al., 2016).

Furthermore, a substantial majority of households in the study communities rely on multiple sources of income to sustain their livelihoods. Over two-thirds of surveyed households in rural areas depend on more than one source of income, while nearly half of the households in urban municipalities do the same. Although agriculture is a primary means of subsistence for most families, the agricultural yield is predominantly used for household consumption rather than for sale. Staple crops and vegetables are grown to meet daily needs. In addition to farming, families require cash to purchase essential goods and services such as healthcare and education. Hence, they engage in other professions based on their literacy levels and economic backgrounds. These alternate occupations can include business, labour, or regular service. As one Tamang woman interviewed mentioned, men commonly seek work

outside their villages in other cities of Nepal or even overseas if they can afford to do so. Although this practice is observed in the study communities as a response to post-disaster economic hardships, another study conducted in rural Nepal highlighted livelihood diversification as a commonly employed strategy for coping with economic and environmental shocks, which also plays a crucial role in poverty reduction. (Gautam & Andersen, 2016).

Over one-third of the total sample households in this study self-identified as poor, a higher proportion compared to the estimated twenty-six percent of households living under the poverty line in Dolakha as a whole (District Development Committee Office, 2015a). According to the District Development Committee Office (2015a), in terms of rural and urban areas, only 7.8 percent of households in Bhimeswor municipality live below the poverty line, while the figure rises significantly to 28-29.7 percent for the two rural municipalities. However, the self-assessed economic level in this study does not exhibit such significant variation as recorded in the district profile.

5.5 Everyday life of women before the earthquake

In this subsection, I will describe the pre-earthquake life for women in the case study municipalities in Dolakha, aiming to offer an overview of the changes in their everyday lives caused by the earthquake.

5.5.1 Self-assessed quality of life before the earthquake

The aftermath of a disaster can have a profound impact on quality of life. Although this study is cross-sectional in nature, a specific subsection delves into a more intricate aspect by asking participants to recall information from their past experiences, falling within the purview of a cross-sectional cohort design(Hudson et al., 2005). This subsection focuses on participants' retrospective self-assessment of their lives before the earthquake, as no alternative method or data source exists for this purpose.

Table 15 reveals that a significant majority of participants (approximately 84%) perceived their lives before the earthquake as either good or fair. This perception was often attributed to having a well-built house with ample space, capable of withstanding typical seasonal weather conditions, in contrast to the temporary shelters they occupied during the survey. The women surveyed frequently acknowledged the pivotal role of housing in improved living conditions, particularly

after losing their own homes to the earthquake. They indirectly expressed that their lives before the disaster were superior, as they did not bear the additional burdens of reconstruction or the need to earn extra income for it. Among the women who reported their pre-earthquake lives as unsatisfactory, more than 83.3 percent attributed their dissatisfaction to the struggle for basic necessities such as food and shelter.

Table 15: Self-assessed past quality of life and reasons in percent (number)

Sn	Life before the earthquake	Sample total	Urban	Rural
1	Self-assessed quality of life before the earthquake (N=633)			
	Not good	16.2(103)	4.9(9)	20.9(94)
	Fair	15.2(96)	20.1(37)	13.1(59)
	Good	68.6(434)	75(138)	65.9(296)
2	Reasons for life being good before the earthquake MCQ (N=434)			
	Better house	91.2(396)	-	-
	Good income	36.9(160)	-	-
	No added burden of work	43.3(188)	-	-
3	Reasons for life being hard before the earthquake, MCQ (N=103)			
	Inadequate food and water	83.5(86)		-
	Poor housing	37.9(39)	-	-
	Lack of good income	85.4(88)	-	-

The FGD S02 extract serves as an illustrative example of the sentiments expressed by women in nearly all focus group discussions regarding their daily routines. Women, serving as unpaid family workers, bear the significant burden of agricultural labour and household chores, which consume the majority of their time. In Nepal, being married entails grappling with the daily domestic challenges that come with customary responsibilities for managing the house, children, and farm work. The interviewed women unanimously agreed that life in rural parts of Nepal was never easy, given the labour-intensive household tasks and outdated farming practices. Women endure a demanding day that commences before dawn, and they are typically the last ones to conclude their domestic duties, which include cleaning, fetching water and fodder for livestock, tending to cooking needs, caring for livestock, children, and elderly family members, and engaging in farming activities, while also striving to allocate time for community engagements.

"What else could be our task, apart from domestic and agricultural work? Almost all of us are engaged in our labour-intensive agricultural activities throughout the day. Our expertise lies predominantly in cutting grass and tending to the farm. Learning how to cut grass or accurately estimating the amount of seed needed for varying land sizes is not something we need to acquire; we are already proficient and confident in these skills."

(FGD participant, S02)

In patriarchal communities, men are traditionally expected to be the primary earners while women take on domestic responsibilities. Economic pressures often lead men to seek opportunities outside of their homes, typically in urban areas where rural opportunities are limited. This exclusive focus on earning places the burden of household management solely on women. Male migration further exacerbates the workload for women, encompassing various tasks within the household such as farming, non-farm work, religious and ritual activities, as well as social and public works (Adhikari & Hobley, 2015). Even when men are present at home, they often do not participate in domestic chores due to the gendered division of roles. Nepalese women bear a significantly higher workload compared to the global average (Government of Nepal, 2014).

However, the lives of women in urban areas are relatively less labour-intensive compared to those in rural areas. They have access to conveniences such as cooking with gasoline, piped water supply in most homes, and fewer or no cattle. This is evident in the data, which indicates that approximately 75 percent of women in urban municipalities reported a good quality of life before the earthquake, compared to nearly 66 percent in rural areas (Table 15).

5.5.2 History of traumatic events

Past traumatic events significantly influence the wellbeing of women, particularly in Dolakha, one of the districts heavily affected by the recent civil war (refer to section 2.3.2 on civil war in chapter 2). The consequences of this conflict include forced male migration (Adhikari, 2012; ICIMOD, 2015; Singh, 2004), neglect and sexual abuse faced by women left behind, as well as their assumption of unfamiliar roles, with rural areas experiencing a greater impact (Basnet et al., 2018; ICIMOD, 2015; Pettigrew & Shneiderman, 2004; Rai, 2016; Tol et al., 2010). As a result of the trauma faced during the conflict, Nepal has witnessed a gradual increase in mental illness and suicide rates

in conflict-affected areas (Luitel et al., 2012) (see section 2.3.3 in chapter 2 for detail information).

Approximately one in three women reported experiencing at least one unforgettable adverse life event in the past, with a majority of these women belonging to rural municipalities (see Table 16). The most commonly mentioned traumatic life event was the loss of loved ones and the enduring impact of the civil conflict. The civil war, as described in section 2.3.2 of chapter 2, represents one of the most recent tragedies that has profoundly affected rural communities in Nepal. An article highlighting the consequences of the civil war on rural women (Silwal, 2013) sheds light on the long-term trauma experienced by these women. It illustrates how an entire household, including women, suffers from financial burdens, emotional trauma, and increased social responsibilities due to the presence of a disabled family member who became a victim of the civil war. This long-term impact is reflected in various ways, such as older children discontinuing their education and other family members taking on additional jobs to alleviate financial burdens.

Table 16: History of traumatic life events in women's life in percent (number)

Sn		District total	Urban	Rural
1	Experience of traumatic unforgettable life events in the past (N=633)	32.9 (208)	8.2(17)	91.8(191)
2	Unforgettable life events, MCQ (N=208)			
	Civil Conflict	36.5(76)	9.2(7)	90.8(69)
	Loss of loved ones	49(102)	4.9(5)	95.1(97)
	Serious incidents (violence/accident)	19.7(41)	17.1(7)	82.9(34)
	Other life events	6.7 (14)	28.6(4)	71.4(10)

5.6 The Changing Geographies of Risk and Vulnerabilities: Adverse impacts of Gorkha-Dolakha earthquake in the communities

The 2015 earthquakes in Nepal had a significant impact on various districts, including Dolkaha, as discussed in Chapter 2, Section 2.7. Developing nations face a high risk of devastation due to factors such as a fragile economy, socio-economic stress, inadequate infrastructure, lack of disaster education and preparedness, and limited economic resources for effective response, mitigation, and recovery (Henderson,

2004). This section focuses on the impact of the earthquake at the household and community levels within the study communities.

5.6.1 Household-level impact

Table 17 provides an overview of the extent of loss experienced by households. Almost all surveyed households (99.4%) reported some form of damage to their houses resulting from the earthquake. The proportion of households experiencing complete collapse was significantly higher in rural areas, reaching 91 percent, compared to 76 percent in urban areas. The earthquake rendered nearly all residents in remote parts of the district homeless, as their homes, constructed using stone, mudbricks, and straw, were unable to withstand the magnitude of the quake originating within the district. However, the impact of the earthquake was comparatively less severe in urban areas, due to the presence of well-constructed new houses.

Table 17: Adverse impact caused by the earthquake at household and community level in percentage (number)

Sn	Type of damage caused (N=633)		Total	Urban	Rural
1	Damage caused to houses	Yes	99.4(629)	98.4 (181)	99.8 (448)
	The extent of damage caused to houses (N=629)	Partial	8.5(54)	22.6(41)	2.9(13)
		Complete	91.4(575)	76.4(141)	97.1(435)
2	Damage caused to Farmland	Yes	15 (95)	1.6(3)	19.8 (92)
3	Faced injury	Yes	7.4 (47)	9.8(18)	6.5(29)
4	Lost close family and friends or suffered a serious injury	Yes	11.1 (70)	12(22)	48(10.7)

The earthquake not only devastated people's homes but also inflicted damage on farmland, drinking water sources, and vital public infrastructures such as schools, health centres, and roads. Approximately one in five households in rural areas reported damage to their farmland, while urban households experienced negligible damage (1.6%). In rural Dolakha, where manual labour and oxen are used for farming and ploughing terraced fields, participants disclosed that the earthquake's substantial cracks made oxen ploughing difficult. Moreover, these cracks prevented the retention of rainwater for farming, as the water seeped through them, significantly impacting agriculture.

"We felt fortunate enough that the quake was at noon, if it would have been at night, none of us might have been alive today." (FGD participant, L05)

There were fewer deaths (177) and injuries (662) reported in Dolakha compared to the neighbouring district, Sindhupalchowk (District Development Committee Office, 2015a). Similarly, the percentage of participants reporting any form of injury or death is relatively low (7% and 11% respectively) in comparison to the extent of physical property loss (see Table 17). Both the Gorkha and Dolakha earthquakes occurred in the afternoon when most people were outdoors, allowing them to quickly seek safer spaces and resulting in a reduced number of casualties (FGD L05). Furthermore, in Dolakha, the first earthquake caused damage rather than destruction of houses. Participants mentioned that they were aware of the likelihood of aftershocks following major earthquakes. As a result, many families were already camping outside their houses when the second major earthquake, centred in Dolakha, occurred, further reducing the number of casualties.

5.6.2 Earthquake loss at the community level

The documented impact of the earthquakes primarily focuses on the visible physical damage. However, there exist numerous unquantified, invisible indirect losses that significantly affect post-disaster life (Anttila-Hughes & Hsiang, 2013). In this section, I will explore the direct and indirect losses and new risks created by the earthquake in the surveyed communities.

There was a significant difference in the level of damage to community infrastructure, such as schools, road networks, and electricity supply, between rural and urban areas (Table 18). This indicates the poor condition of infrastructure in rural areas prior to the earthquake. The impact of the earthquake was particularly severe in rural areas, where people faced challenges such as limited access to transportation, communication, and struggles for food and shelter in the aftermath. Notably, the Gorkha earthquake caused more structural damage to buildings in areas outside the capital, Kathmandu, highlighting weaker structures in rural areas (Paul, 2005).

Table 18: Loss suffered, and risk generated by the earthquake in the surveyed communities in percent (number)

Sn	Particulars	Total	Urban	Rural
1	Community losses suffered, MCQ (N=633)			
	Damaged infrastructures	77.9 (493)	42.9(79)	92.2(449)
	Dried previous water sources	67.0 (425)	62.5(115)	69(310)
	Increased out-migration	11.7 (74)	9.8(18)	12.5(56)
2	Priority shifted from subsistent agriculture to labour work (N=633)			
	Yes	14.4 (91)	4.3(8)	18.5 (83)
3	Families impacted by secondary hazards created as a result of the earthquake (N=633)			
	Yes	10.0 (63)	14.1(26)	8.2(37)
4	Secondary hazards (N=63)			
	Landslide nearby house	31.7 (20)	55 (11)	45(9)
	Cracks in the land nearby house	68.3 (43)	34.9(15)	65.1 (28)

Migration is often considered a primary response to disasters, with studies showing that population mobility serves as an important coping strategy (Kreutzmann, 2012). However, in the case of Dolakha, the extent of out-migration within the country following the earthquake was not very high. Only 10 percent of urban households and 12 percent of rural households reported earthquake-induced out-migration, whereas immigration was higher than out-migration. As mentioned earlier, the availability of employment opportunities resulting from the earthquake played a significant role in attracting people to the area.

The study communities experienced a significant impact on their existing drinking and irrigation water sources, with over two-thirds of households reporting their loss. Among women surveyed, 67 percent mentioned facing the immediate aftermath of losing drinking water sources, resulting in a severe scarcity of drinking water after the earthquake. This added a further challenge for women in managing their water needs, as highlighted in FGD L07. The drying up of water sources directly affects the daily lives of rural women in Nepal, who are then compelled to travel long distances to fetch water for household use when communal taps run dry. Another study conducted in Dolakha after the earthquake reported an even higher impact on water sources, with 86 percent of households experiencing reduced access to drinking water due to earthquake damage (Epstein et al., 2018). The impact on water sources is relatively higher in rural areas compared to urban areas.

"After the earthquake, our water sources dried up, possibly due to changes in the routes caused by cracks in the land. Previously, we had 24-hour running taps and access to sufficient water in a canal near our farmland for irrigation purposes. However, now we are left without any drinking water or water to irrigate our farms. We are facing a severe scarcity of drinking water."

(FGD participant, L07)

Nearly all groups in FGD L07 expressed concerns about water scarcity following the earthquake. Initially, the first earthquake caused water sources to overflow, but subsequent earthquakes led to the drying up of these sources. Soon after, most taps stopped functioning, and the few that remained operational supplied muddy water. As time passed, even the drinking water sources dried up, prompting people to search for alternative options. In addition to drinking water, irrigation canals also dried up, posing challenges for farming in the post-earthquake period.

Despite the difficulties, the majority of respondents in the study sites remained committed to maintaining subsistence cropping after the earthquake. However, a small proportion of households (14.4%) shifted away from agriculture towards off-farm work (see Table 18). Farmers in both study sites reported significant decreases in the total acreage planted due to damaged terraces and canals, scarcity and high cost of labour, and reduced seed stocks. A broader study revealed that the projected crop output for the 2016 growing season was well below pre-earthquake levels, estimated to be around 30-50 percent in Dolakha (Epstein et al., 2018).

Various reasons were reported across all study communities to explain the reduction in agriculture. These reasons include damage to farms, loss of seed stocks, issues with irrigation and ploughing, and a shift towards cash-oriented employment instead of farming. The earthquake and subsequent aftershocks occurred during the peak harvest season for maize and millet, impacting harvesting activities, and also disrupted the preparation of rice paddies for planting. Fear of aftershocks prevented people from harvesting their crops, and many reported damage to seed stocks stored in collapsed houses. Some families even consumed the seeds they had set aside for planting to meet immediate food demands and ensure survival, rather than considering future planting activities, as described in FGD S02.

"We felt such hopelessness in our own lives that farming became inconsequential to us that year. We consumed whatever food we had in stock, including our livestock, as we feared the possibility of being killed by aftershocks at any moment. We decided to indulge in whatever pleasures we could while we were still alive." (FGD participant, S02)

Another reason is that some families abandoned cultivation in certain areas due to substantial damage to field terraces caused by the earthquake. Table 19 indicates that 10 percent of respondents were impacted by secondary hazards such as ground cracks and landslides. In rural farming, rainwater is primarily relied upon, but the limited number of small temporary canals, which were also damaged, resulted in water scarcity and disrupted rice production. Approximately 67 percent of survey participants mentioned the loss of water supply, encompassing both drinking water and irrigation canals for farming, as discussed in FGD L05. Consequently, people were compelled to explore alternative farming practices that require less water, such as maize and millet, to replace rice, as described in FGD L05. The presence of large holes and cracks in the fields made cultivating rice or wheat more challenging, as the terraces could no longer retain rainwater. Furthermore, institutions provided technical agricultural training and incentives in the affected communities following the earthquake, promoting the cultivation of market-oriented cash crops like ginger, cardamom, and kiwi. These crops can be grown on damaged terraces and require less water. A similar result was reported in another study conducted in Nepal after the earthquake, where several farmers shifted to alternative cash crops that necessitate minimal water (Epstein et al., 2018).

"Agricultural yield is much less than before as we could not irrigate field as water in small canals surged deep inside due to cracks caused by the earthquake. We have no irrigation channel. We used to cultivate rice as we had abundant water before. The source we used for paddy planting no longer exists. Now, we cultivate maize and millet that require less water instead of rice relying upon rainwater. But it also does not yield well because of a lack of water. In many places, farms have big cracks so we can't use Oxen anymore there to plough the field. So how can we do farming? Hence, many people have stopped cultivating now." (FGD participant, L05)

Food aid during the initial six months after the earthquake diverted attention from farming, and fear of aftershocks hindered farming for almost a year. Surviving took priority, leading to neglected and unproductive land. In the following year, ploughing became difficult due to damaged terraces, rendering oxen unusable.

Many communities reported alternative sources of cash income in the construction sector, which emerged as a result of the earthquake (refer to section 5.9.1 for further details). The increased wage rates (up to 50%) for post-earthquake reconstruction attracted people to this sector, leading to the diversification of livelihood strategies away from farming. Thus, the combination of these factors diverted people from relying on farming as their primary occupation.

5.6.3 Life Experiences in the Immediate Aftermath

In the immediate aftermath, the community experienced extensive devastation, including flattened houses, loss of belongings, the death of loved ones, and the destruction of schools, health centres, and temples. Women expressed profound distress due to the scarcity of food, water, and shelter. While surviving such a catastrophic event was considered fortunate, the constant threat of aftershocks caused anxiety for almost all women (98%). Table 19 illustrates that during the immediate aftermath, their own lives and the wellbeing of their loved ones took precedence over concerns about basic needs and property losses.

> *"Oh!! That time. It is inexpressible in words how we felt and survived. All of us nearly died. Everything changed in the blink of an eye. Suddenly, there was water all over the ground. All electricity poles fell so there was no light to ground wheat to eat. There was nothing to eat and we starved for days until relief aid arrived. When we remember those days, we still tremble. We felt like we were granted a new life."* *(FGD, S02)*

Over 40 percent of women experienced persistent fear and distress for more than a year after the event, as frequent aftershocks continued to occur (refer Table 19). Earthquakes have been found to potentially lead to longer-term mental health issues compared to other hazardous events, primarily due to the prolonged occurrence of aftershocks (Bland et al., 1996; Chen et al., 2007).

Table 19: Anxiety faced as a result of the earthquake in percent (number)

Sn	Particulars	Total
1	Level of stress faced during the time of the earthquake (N=633)	
	Little anxious	1(6)
	Anxious	99(627)
2	Reasons for their anxiety during the immediate aftermath, MCQ (N=633)	
	Aftershocks pose a threat to lives	97.9(616)
	Concerns of other family members	83.9(528)
	Lack of shelter	61.8(391)
	Lack of food	45.7(289)
	Loss of property and damage caused to the house	38.5(242)
3	Duration fear of the earthquake and aftershocks sustained (N=633)	
	Up-to 6 months	13(82)
	6 months to a year	46.1(292)
	More than a year	40.9(259)

After their houses were flattened, people resided in open spaces under the sky. The shortage of food and shelter was significantly more severe in rural areas, where access to markets for purchasing food and materials to construct temporary shelters was limited. Additionally, the delivery of aid was delayed due to poor road networks that were further hampered by the earthquake. The shortage of food in rural households was over six times greater, while the lack of shelter was more than four times higher compared to urban households (see Table 20). These statistics highlight the profound hardships experienced by rural communities as a result of the earthquake. Everyday life became an immense struggle, with individuals forced to cope without a roof over their heads, sufficient food to eat, or clean water to drink. Initially, the primary source of stress within the first year was the fear of repeated aftershocks. However, as time went on, people's greatest concern shifted towards reconstruction efforts and housing-related problems.

Table 20: Lack of food and shelter in the aftermath in percentage (number)

Sn	Problems	Urban	Rural
1	Lack of food in the immediate aftermath		
	Yes	9.2(17)	60.6(272)
	No	90.8(167)	39.4(177)
2	Lack of shelter		
	Yes	18.5(34)	79.5(357)
	No	81.5(150)	20.5(92)

Earthquake, health risks, and current health status

The earthquake inflicted severe devastation on entire communities, destroying both residential structures and a significant number of health centres in rural villages. Despite the widespread destruction and the fact that health workers themselves were victims of the disaster, the affected communities demonstrated remarkable resilience. They utilised their knowledge and expertise to assist those in need, before the arrival of external aid. Temporary health services were set up under tarpaulins (see Figure 25) in numerous locations, sustaining operations for over a year. Subsequently, with the support of national and international aid, health centres were reconstructed to higher standards, as confirmed through key informant interviews with community health workers.

Figure 25: Picture of temporary health centre post-earthquake

During the earthquake, people commonly experienced physical injuries such as lacerations, broken limbs, and head injuries. Despite the challenges of accessing clean drinking water and sanitation, there was no outbreak of communicable diseases, as confirmed by the district health office during the key informant interview. In addition to these physical injuries, individuals expressed symptoms such as anxiety, loss of appetite, forgetfulness, palpitation, lack of sleep, and loss of enthusiasm, as identified through focus group discussions. Anxiety was particularly prevalent among women and children, which is not an uncommon phenomenon considering that women and

children are disproportionately affected by disasters and experience more psychological effects in the aftermath (Bonanno & Gupta, 2009; Corrarino, 2008; Curtis et al., 2007; Goldmann & Galea, 2014; Gruebner et al., 2015; Kuwabara et al., 2008; Fran H Norris et al., 2002; Rodriguez-Llanes et al., 2013).

The District Health Office (DHO) collaborated with international organisations to conduct awareness programs aimed at preventing waterborne disease outbreaks. In addition, they facilitated the provision of essential medicines in the aftermath of the disaster. Various NGOs operating in the mental health sector offered counselling services, identified individuals requiring medication, and provided referrals. The key informant highlighted that health workers at both district and grassroots levels received training in psychosocial counselling, case identification, and referral within the entire district:

> *"We arranged the visit of a psychiatrist in the health facilities, trained all level health workers from the district level to Female community health volunteers to identify mental health-related and psychosocial related issues using various tools and also launched community sensitisation programme."* *(KII, T1)*

Other enduring health issues reported by the participants included persistent itchy rashes on the body and sore eyes, which are primarily linked to inadequate living conditions. Furthermore, during the later phase, the communities frequently experienced frustration and chronic stress due to delays in reconstruction.

Substance abuse

Anthropological studies in Nepal have established a connection between ethnicity and alcohol use (Parajuli et al., 2015). Certain ethnic groups in Nepal consider themselves culturally permitted to consume alcohol, while others adhere to restrictions based on their cultural beliefs. This distinction is illustrated in the caste and ethnicity hierarchy diagram presented in Chapter Two, where ethnic groups are broadly categorized into two groups based on their benchmark of alcohol consumption for purity (Bennett, 2005). Disadvantaged ethnic groups, such as Dalit, Tamang, Thami, and Sherpa, exhibit a higher prevalence of alcohol consumption, while Brahmin, Chhetri, and Thakuri groups strive to abstain from it.

The Table 21 indicates that 11 percent of survey participants developed new habits of substance consumption, including cigarettes and alcohol, following the earthquake. Urban participants demonstrate a higher proportion of initiation compared to rural areas, likely due to limited availability of these substances in rural regions resulting from poor market access. Other studies have similarly highlighted the significant influence of retail availability on substance consumption, including alcohol and cigarettes (Richardson et al., 2015). However, alcohol consumption remains more prevalent in rural areas, as several ethnic groups produce their own alcohol at home for personal consumption, whereas access to shops is necessary for cigarette consumption, thus resulting in higher rates in urban areas.

Table 21: Initiation of substance abuse among participants post-earthquake in percentage (number)

Sn	Particulars	Total	Urban	Rural
1	Initiated consumption of substances (N=633)			
	Yes	11.1 (70)	15.2(28)	9.4(42)
2	Substance consumed (N=70)			
	Cigarette smoking	50 (35)	65.7(23)	34.5(12)
	Drinking alcohol	50 (35)	14.3(5)	85.7(30)

Participants mentioned various reasons for initiating alcohol consumption, including suppressing their fear of aftershocks and fulfiling their desires before potential demise, driven by the uncertainty caused by recurrent aftershocks. This sentiment is illustrated in an extract from the Focus Group Discussion (FGD) M05. Furthermore, during the later phases of recovery, Thami and Tamang women reported an increase in men's alcohol intake. These ethnic groups had a higher propensity for alcohol consumption before the disaster, which continued due to their desire to alleviate worries about reconstruction and increased disposable income.

> *"Yes, we do consume alcohol, why not? We were surrounded by the uncertainty of our own life. Many people lost their life in a single event. We feel that when we are alive, we will have to fulfil our desires for drinking and smoking. And it also helped us to suppress our worry."* *(FGD Participant, M05)*

5.6.4 Managing the crisis: Household and Community Response to the Immediate Aftermath

The extensive destruction caused by the earthquake devastated communities, yet they persevered. People employed various coping strategies to combat their fear and navigate the crisis situation in the immediate aftermath. Given the widespread impact of the earthquake within the community, a primary coping mechanism individuals employed to alleviate their initial distress involved reassuring themselves by relating their condition to that of others in the community, as highlighted in the following extract from an in-depth interview. As most individuals lost their homes, they sought solace in the shared experience, believing that everyone was enduring similar hardships and facing comparable challenges. They hoped to rebuild and recover collectively, aligning their progress with that of their fellow community members (see Table 22). However, this self-reassurance strategy was less prevalent among urban households due to the varied impact of the earthquake in those areas. Not all residents in urban areas experienced house loss, thus discouraging the practice of communal coping.

Table 22: Ways of coping people adapted in the immediate aftermath in percent (number)

Ways of coping, MCQs	**Total**	**Urban**	**Rural**
Reassurance (self)	62.5(392)	13(24)	82(368)
Coming together and living collectively	42.3(265)	31(57)	46.3(208)
Spending time with friends outdoor during the day	50.7(318)	56.3(103)	47.9(215)

Another common coping strategy employed by individuals in the immediate aftermath was living collectively in large groups, a method utilised by over 42 percent of surveyed households. A study in post-earthquake Chile observe that social cohesion is increased after a big earthquake which slowly erodes over the period when the environmental conditions became less adverse(Calo-Blanco et al., 2017). Simlarly, a study suggest disaster improve social cohesion for coping with disruption caused by disasters (Fan et al., 2020). The earthquake triggered traditional recovery approaches that relied on neighbours and local communities supporting one another before any government or external organisation could assist. Living together under the same roof to manage the immediate aftermath was an exemplification of this phenomenon. In rural areas, nearly half of the respondents indicated adopting the strategy of collective living to navigate the crisis, whereas this proportion was less than one-third in urban

areas. As previously mentioned in the participant extract from the in-depth interview and illustrated in Table 22, the entire community experienced substantial housing losses. Rural households lacked the immediate resources to construct temporary shelters, and they refrained from salvaging belongings from the collapsed houses for weeks due to ongoing aftershocks. The scale of destruction caused by the earthquake left people feeling helpless. Recognising the need to overcome their fears of aftershocks together, communities embraced the strategy of living collectively, temporarily setting aside caste/ethnic discrimination and sharing the limited available resources until aid arrived, as indicated in the extract below from FGD S02. Conversely, urban dwellers had convenient access to purchase materials for temporary shelters and readily accessed relief aid, which likely contributed to the lower prevalence of collective living compared to rural areas, where obtaining even basic provisions took weeks of struggle.

> *"We all lived collectively in the village for weeks without any initial access to tents. Once we received tents through relief aid, we pooled them together to create a shared roof for everyone. Despite the roof being insufficient to accommodate all 60-70 of us, we prioritised children and the elderly to stay indoors and protect them from the rain, especially since the earthquake occurred near the rainy season. Living together as a group provided us with much-needed emotional support. Words cannot adequately describe the dire conditions we faced during that time. Our livestock, tied nearby our tents, were left exposed to the rain and became a nuisance. As they were vital for our survival, we had no choice but to keep them close." (FGD participant, S02)*

The earthquake played a role in breaking down entrenched cultural barriers, such as class and caste divisions. Participants explained that they set aside their backgrounds and conflicts within the neighbourhood, coming together to cope with the situation wihch they considered as positive change as result of the earthquake which will be elaborated further in section 5.7.1.

I will now provide examples of how the community organised themselves to deal with the crisis. It was interesting to learn that many communities shared livestock during the food crisis that followed the earthquake. They lived collectively and consumed the livestock together, aiming to stretch their resources further. This approach was adopted because managing livestock became challenging for them as they were also

struggling to secure shelter. Additionally, fear of aftershocks prevented them from venturing out individually to gather fodder for the cattle. One of the focus group discussions (FGD M06) mentioned that consuming the livestock was seen as a survival feast. In rural Nepal, livestock serves as a significant source of income through agriculture and is also part of their culture, providing milk, meat, and eggs. While slaughtering and consuming the animals at that time was the only way they could manage their livestock, living collectively proved to be an effective way of maximising their resources.

> *"After a few days of us living together collectively, slaughtering goats, and chicken and eating them was a common phenomenon. We were happy to be alive, so we slaughtered them and ate them up. Tears were rolling out of our eyes looking around, but we were enjoying a feast at the same time, Laughs… We were so uncertain about our own life due to frequent aftershocks. We were like, if we are alive, we can buy them later. We didn't spare any chickens or goats in our group but ate them up." (FGD, M06)*

After more than a month, people gradually began constructing makeshift shelters for their families using materials salvaged from their collapsed houses, as well as tarpaulins, blankets, and CGI (corrugated galvanised iron) sheets received as relief supplies (Limbu et al., 2019b). The government's cash relief of NPR 15,000 for temporary shelters also played a role in initiating shelter construction. However, due to frequent aftershocks persisting for a year, individuals were still hesitant to spend extended periods of time inside their own shelters. They often had to run outside multiple times a day, as mentioned by more than half of the households in Table 22 and FGD L02. To cope with this fear, they would primarily spend their nights inside the shelter, while during the day, they would gather in communal spaces with neighbours and friends in groups. This coping strategy was more prevalent in urban areas, as indicated by over 56 percent of respondents practising it, compared to less than half of the women participants from rural areas. This difference may reflect the higher risk of building collapses in urban areas, where heavy concrete structures were already partially damaged by the earthquake. In contrast, rural areas experienced complete house collapses, and the lightweight corrugated sheet shelters they constructed were deemed relatively safe.

"Until many months after the earthquake, most of the daytime, we women gathered in a group in common space and chatted which engaged our heart and mind, and it helped us to oversee the problem and felt lighter."

(FGD participant, L02)

Women expressed that after the incident, they found solace in the company of their friends rather than their family. Within the family, discussions mainly revolved around the loss and rebuilding process, whereas with friends, they could engage in more casual conversations and gossip, helping to temporarily set aside their fears. Consequently, after finishing their lunch, they would join their friends in groups, finding comfort in the knowledge that they had someone who cared for them beyond their immediate family.

Access to social capital

Determining factors that impact people's health, such as protective or risk factors, have been extensively studied (Fischhoff et al., 2001; Morgan, 2011). The social context plays a significant role in fostering resilience and reducing adversity, enabling individuals to maintain stability and a coherent identity despite uncontrollable life events (Zoe Hildon, 2008). When facing a disaster, the subjective perception of stress, individual coping mechanisms, and access to social support become crucial in determining mental health outcomes (R. Wind et al., 2011). Evidence suggests that accumulated protective mechanisms can enhance the ability to cope with adverse situations and counterbalance the impact of structural inequalities, such as poverty and deprivation (World Health Organisation, 2008). In this sub-section, I examine the various forms of social capital available to women in the study communities following the earthquake.

Table 23: Access to social capital in the aftermath in percent (number)

Sn	Particulars	Total	Urban	Rural
1	Good friends in the neighbourhood (N = 633)			
	Yes	92.6 (586)	93 (171)	92.4(415)
	No	7.4 (47)	7(13)	7.6 (34)
2	Level of comfort in seeking help during the immediate aftermath (N = 633)			
	Not comfortable at all	8.1 (51)	9.2(17)	7.6(51)
	Neither comfortable nor uncomfortable	29.1 (184)	26.6(49)	30.1(184)
	Comfortable	62.9 (398)	64.1(118)	62.4(389)

3	Help received in the immediate aftermath, MCQ (N = 633)			
	Overall community	54(334)	62(114)	49(220)
	Neighbours	38.7(245)	14.1(26)	48.8(219)
	Same caste people	49.6(307)	24.6(45)	58.4(262)
	Other caste people	14.5(90)	7(13)	17(77)
	Relatives	25.2(156)	20(37)	26.5(119)

The findings from Table 23 indicate that the majority of respondents reported having good friends in their neighbourhood, indicating a high level of social connectedness. When examining the ethnic distribution of women with close friends in their neighbourhood, it is observed that Janajati (97%) and Dalit (95%) ethnic groups exhibit the strongest ties.

A mental health specialist working in the central mental hospital and working as a consultant visited the district and explained the importance of social networks below:

> *"The social network is very strong in Nepal. The main thing is, we have more than enough time with us, and nobody is busy. We have enough time, to listen to others' pain, we are good at sharing and enjoy informal gossip, we shout, we cry, do social gatherings often. What can be better ventilation for every issue than that? It is a very good way to vent out the problem." (KII, M1)*

In terms of seeking necessary assistance post-earthquake, 63% of the surveyed women expressed comfort in seeking help from individuals outside their social circles during the recovery period. More than half of the respondents (54%) reported receiving support from various sources within their communities, including organisations, politicians, neighbours, and friends, following the earthquake. The proportion of participants who reported receiving such assistance was slightly below two-thirds in urban areas, whereas less than half of the women in rural areas received similar support, possibly indicating limited access to resources and influence. Examining support based on ethnicity, the overall support was highest among the Newar community (63.3%), followed by Janajati (60.2%), and lowest among Dalit (42%) households (refer to cross-tabulation table in Appendix C). However, support received from the same caste group was highest among Dalit households (67.5%), underscoring their marginalised position within the community, followed by Janajati (53%) and Newar (21%) communities (see table 9 in Appendix C).

During group discussions, it was observed that some individuals acknowledged certain improvements in caste relations following the earthquake. However, despite these perceived changes, the practical experiences of marginalised ethnic groups, particularly Dalit women, indicated ongoing challenges while seeking help from individuals outside their immediate networks. This suggests that cultural norms and behaviours still influenced interactions and support-seeking behaviours in the post-earthquake context. Despite the potential for positive shifts, deeply entrenched societal dynamics persisted, hindering the comfort and willingness of Dalit women and other marginalised groups to seek assistance beyond their established networks. This highlights the need for further examination of cultural factors and social norms to address the underlying issues and promote more inclusive support systems in post-disaster contexts. Almost half of the surveyed women reported receiving support from individuals belonging to the same caste in the community following the event.

In terms of support received from the neighbourhood, 39 percent of women stated that they had received assistance for recovery and reconstruction activities in the aftermath. Notably, in rural areas, nearly half of the women surveyed (49%) reported receiving neighbourhood support, while this figure was only 14 percent in urban areas, highlighting the strong social connections prevalent in rural communities. The statement of one in-depth participant exemplifies the highly social nature of village life in Nepal, where individuals share meals, provide mutual aid, and look after one another's households, even when they are not physically present in the village. This participant's account underscores the depth of intimacy and support within the neighbourhood. Furthermore, the women emphasised the value they place on their neighbourhood network, which they regard as more significant than their family network. Thus, the presence of a strong and supportive neighbourhood holds great importance to them.

> *"When I come back to my house from India for a few months, I cultivate my plots although I will have to leave back for India soon and I don't get to harvest. I let my neighbour harvest them and eat them. I feel happy even if neighbours enjoy the vegetables I have grown as I can't contribute anything else to my community here. That's what neighbours are meant for; eat, share whatever we have, share the pain and share joys."* *(In-depth Tamang Participant)*

Role of Relief Aid Efforts

During the severe food and shelter crisis following the earthquake, early assistance provided by government and non-governmental organisations partially alleviated people's suffering, and communities expressed profound gratitude for the support that helped them survive. As aid began to reach the communities, local leaders were enlisted to coordinate and distribute it. At that time, tents were highly valued as the primary form of aid since people desperately needed shelter, while managing food to some extent. Initially, various NGOs supplied limited amounts of food and tents, which were sufficient to sustain the population. Subsequently, both national and international non-profit organisations inundated the affected areas with relief materials, including clothing, sanitary products, and even solar panels in certain locations. These aid provisions trickled in for approximately six months. In many villages, the arrival of regular aid established a daily routine of queuing up to receive assistance. However, urban communities and recently merged Village Development Committees (VDCs) under the new federal system complained about receiving less aid compared to neighbouring rural villages, as the focus of aid distribution was primarily on rural areas.

Some NGOs even provided cash assistance to elderly individuals and single women, facilitating livelihood programs such as purchasing livestock. In later stages, aside from general relief aid, mental health training and counselling services emerged as a common priority program organised by various local, national, and international organisations. People expressed their observations that communities with better access to politicians and higher authorities in the district received a higher influx of relief aid. For instance, a key informant highlighted how politicians felt pressured when their opposition managed to secure aid channels.

> *"Politics do influence the amount of relief flow and distribution. If one party bring in some relief materials, a politician from another party feels an obligation to do so too."* *(KII, S1)*

5.7 Aftermath: Post-earthquake life

Three years after the devastating earthquake, more than half of the women surveyed, both in urban and rural areas, reported a positive perception of their life at the time

of the survey (refer to Table 24). Women in rural areas attributed this to improved earnings and better housing conditions, which contributed to an overall enhanced quality of life. A detailed explanation regarding the factors influencing their improved financial situation and living conditions will be provided below. Notably, among various caste/ethnic groups, the Janajati ethnic group had the highest proportion (73%) reporting a good self-assessed quality of life post-earthquake, compared to their assessment of the pre-earthquake period (67%) (refer to table 15 in Appendix C). The remaining groups generally rated their pre-earthquake life as good by a higher proportion, except for the Janajati group.

Table 24: Self-assessed quality of current life in percentage (number)

Sn	Current life		Total	Urban	Rural
1	Self-assessed current quality of life (N=633)	Not good	17.2(109)	11.4(21)	19.6(88)
		Fair	29.4(186)	32.6(60)	28.1(126)
		Good	53.4(338)	56(103)	52.3(235)
2	Reasons for good and fair current life, Mcq (N=524)				
	Better earning	Yes	26.4(167)	17.2(28)	38.5(139)
	Better housing	Yes	67.5(427)	70.6(115)	86.4(312)

5.7.1 Disaster as a driver of change: changes induced by the earthquake in the case study communities

Although, the term disaster itself reflects devastation and create major human suffering, losses, and damages, they can also induce certain opportunities (Rigg, Lawt, et al., 2005). Disaster can open up windows of opportunities to physical, social, political, and environmental development during post-disaster recovery and reconstruction (Asgary et al., 2006). A post-conflict study of women in Nepal reveals that the role of women in the family and communities have changed, they have started engaging more outside the house and have been empowered in some respects (Pant & Standing, 2011; Yadav, 2016). In this section, I will explain in detail about direct and indirect, positive, and negative changes women reported as a result of the earthquake within the household and the wider community.

Table 25 reveals a notable finding: the majority of respondents (81%) believe that the earthquake-induced positive changes in the community, despite the extensive destruction and trauma caused. Women observed various social and economic benefits in the aftermath of the earthquake, including the return of male family

members from other cities in Nepal or India to aid in house reconstruction, increased social cohesion as neighbours united to tackle the crisis, opportunities for learning new skills such as opening bank accounts to receive reconstruction and relief funds, acquiring earthquake-resistant building techniques, and advanced agricultural skills. Additionally, community groups involving women, such as mother's groups and water management groups, were reactivated, and there was a surge in employment opportunities and income due to heightened demand for reconstruction-related workers.

Table 25: Positive changes induced by the earthquake in the community in percent (number)

Sn	Respondent's Perception (N = 633)		Total	Urban	Rural
1	Positive changes induced by the earthquake	Yes	80.6 (510)	47.3(87)	94.2(423)
		No	19.4 (123)	52.7(97)	5.8(26)
2	**Positive changes noticed in the communities, MCQs**		**(N = 510)**	**(N = 87)**	**(N = 423)**
	Increased employability	Yes	91.2 (465)	74.7(65)	94.6(400)
	Rise in income	Yes	73.1 (373)	41.4 (36)	79.7 (337)
	Return of male migrant	Yes	27.8 (142)	13.8(12)	30.7(130)
	Improved social cohesion	Yes	41.2(210)	35.6(31)	42.3(179)
	Learning opportunities	Yes	72.2 (368)	68.9(27)	80.6(341)
	Built back better	Yes	87.6 (447)	69.1(60)	91.5(387)
3	Any of the above-mentioned changes experienced in respondents? HH (N = 510)	Yes	68.4 (349)	46(40)	73(309)
		No	31.6 (161)	54(47)	27(114)
4	**Opportunities respondent's household received, MCQs**		**(N = 349)**	**(N= 40)**	**(N = 309)**
	Economic opportunities	Yes	58.7 (205)	7.0(28)	57.3(177)
	Return of family members	Yes	14.3 (50)	15 (6)	14.2 (44)
	Improved social cohesion	Yes	38.7 (135)	3(12)	39.8(123)
	Learning opportunities	Yes	63.6 (222)	47.5(19)	65.7(203)

Among the respondents who acknowledged community benefits resulting from the earthquake, the majority (94%) were from rural areas, while less than half of the urban participants claimed to have observed such changes. However, regarding their households benefiting from positive earthquake-induced changes, just over two-thirds of respondents asserted that their households had experienced at least one benefit. Notably, there was a significant disparity in the prevalence of these benefits between urban and rural locations, with 73% of village respondents reporting household benefits compared to 46% of urban respondents. This disparity reflects the

demographic composition variations, with higher male migration and returns in rural areas. Moreover, women in urban areas, who generally have higher education levels, may already possess knowledge about using bank accounts, resulting in them perceiving fewer learning opportunities. Ethnic variation also played a role in the opportunities received by households. Janajati households recorded the highest agreement (76%) in benefiting from earthquake-related opportunities, followed by Dalit households (69%), while high caste groups reported the lowest (refer to Table 10 in the appendix for details). The reasons behind marginalised ethnic groups benefiting more from different opportunities are explained in subsequent subsections below.

Economic opportunities

Based on the survey, a significant majority of women respondents (91%) reported an increase in employment opportunities in the study areas following the earthquake. Additionally, 73% believed that household earnings had also risen as a result (Table 25). However, when assessing the actual employment and economic opportunities received by the respondents' households, only 68% claimed direct benefits. The impact was more significant in rural areas, where 57% of households reported benefiting, compared to a mere 7% in urban areas. This discrepancy suggests that rural households were more involved in labour-intensive construction work, which was more prevalent due to higher destruction in those regions.

Ethnicity-wise analysis revealed that 80% of Dalit households reported receiving employment opportunities, compared to 50% among other groups (refer to Table 11 in Appendix C). Both qualitative and quantitative data indicated that post-earthquake recovery and reconstruction activities generated employment opportunities. Group discussions with women participants revealed that the construction sector saw the most significant surge in job availability, specifically in roles such as housing contractors, masons, carpenters, and labourers. Some women also had the chance to work in various health, education, and livelihood projects. Many women emphasised the importance of benefiting from the increase in labour costs. Reported wages for semi-skilled construction labourers rose from NPR 500 (USD 5) to NPR 800 (USD 8) per day in recent years (Randolph and Agarwal, 2017; Maharjan et al., 2016; The Asia Foundation, 2016). In community discussions, it was noted that the labour rate in

construction had nearly tripled, increasing from NPR 300 to NPR 1000 per day (refer to FGD, S01 in section 5.4.3).

These opportunities have partially transformed women's livelihoods. Previously, their primary focus was on domestic and agricultural tasks. However, they now have broader prospects and face the need to participate in reconstruction efforts, both voluntarily and as paid construction labourers (Figure 26). While they express happiness about earning more income through their work, they also experience stress due to the increased workload. As a result, women acknowledge that they allocate less priority to agricultural activities compared to before, given the monetary benefits derived from their labour.

Figure 26: Picture of engagement of women in pos-earthquake reconstruction

Return of male migrants

Approximately 28% of respondents believed that the earthquake played a role in attracting working-aged men back to their communities. Rural areas reported a

higher percentage of returnee migrants among women surveyed (31%) compared to urban respondents (14%). Both areas recorded an almost equal proportion of male returnees in the study households (around 14%) (refer to the table in appendix C). Existing literature indicates a rise in out-migration from affected areas following large-scale disasters, as observed in Jamaica after Hurricane Gilbert in 1989 (Wisner et al., 2004) and in Haiti after the 2010 earthquake (Le De et. al. 2015). However, in the context of the Gorkha earthquake, in-migration exceeds outmigration in the affected communities, as indicated in the following in-depth interview. Notably, a study in El Salvador offered similar evidence of disaster-induced migrant return in affected communities (Timothy Halliday, 2006).

> *"Before the earthquake, most of the men from the village were working either in Charikot, Kathmandu, Bhaktapur and fewer abroad. But now earthquake has created many opportunities in villages, so most of the men who came to reconstruct their houses are retained in a village. Now, they work as construction labour locally as there is a high demand for construction workers and daily wages of construction labour has risen dramatically."*
>
> *(In-Depth interview)*

The construction sector has witnessed an opening in the market following the earthquake, leading to an increase in internal male migrants returning to their communities. Additionally, individuals who initially returned for their own reconstruction purposes have decided to stay due to the emergence of new opportunities, particularly in the construction sector, where potential earnings match or surpass those of labour migrants within the country. Pre-earthquake migration patterns were common among marginalised caste/ethnic groups such as Thami, Tamang, and Dalit communities, who were predominantly recognised as wage labourers due to their lower caste status. These marginalised groups are prevalent in most of the study communities, indicating the availability of local labour resources for reconstruction. Consequently, post-earthquake reconstruction serves as a partial incentive for in-migration, benefiting specific ethnic groups through the creation of new employment opportunities. While these new rural opportunities contribute to the welfare and food security of their families, the long-term sustainability of this livelihood source remains uncertain once reconstruction activities conclude.

"Male migrating to India as labour workers had reduced rapidly than before because there are a lot of job opportunities here now. As there is a very high demand for construction workers and masons within the villages. So, males with those skills do not go away or India for earning anymore."

(FGD participant, L02)

Improved Social Cohesion

The statement presented by the FGD participant S07 expressed how people in earthquake-affected communities exhibited a high level of solidarity and cooperation in the time of disaster and also explained in section 5.6.4. More than 41 percent of respondent women claimed that the earthquake has brought people in the community much closer. And the proportion of respondents who have experienced social cohesion themselves were also nearly 39 percent. A study by Yamamura (2016) had similar claim that disaster seems to provide an opportunity to enhance interpersonal relationships as people come together to tackle unpredicted exogenous events. The proportion of households who experienced social cohesion is much lesser in urban households (3%), whereas much higher of 40 percent from rural respondents with, collective living, showing care for each other, reduction in caste discrimination and a greater sense of a safer community. In terms of ethnicity, almost all ethnic groups except Newar experienced improved social cohesion by nearly 41 percent (see Table 13 in appendix C). The rural communities spontaneously rural communities spontaneously united together as a unified community, fostering closer bonds and leaving behind past rivalries as it was critical to survival post-disaster.

"In our community, there was no feeling of yours and mine that time. We lived together and were not concerned about what will happen in future. That time, we lived harmoniously, collectively in a group even if we were enemies before. We overlooked our past rivalry if we had any. There weren't any cases of burglary. Our cattle were set free. We lived together and were not concerned about what will happen in the future. Our only concern was how to survive that crisis and get through the crisis." *(FGD participant, S07)*

Even three years after the earthquake, many families were still residing in temporary shelters. However, 77% of women expressed feeling safe in their communities (see table 26). More than half attributed this sense of safety to the strong social cohesion they experienced, while others credited the robust social capital within their

neighbourhood. This perception indicates the presence of significant social capital in the community. Initially, in the immediate aftermath of the earthquake, everyone felt safe and relied on each other for support during the uncertain period, as described in the earlier section. Even in the subsequent phase, residents did not fear any harm from fellow community members, despite living in fragile houses. Respondents mentioned that the close-knit nature of the community fostered a sense of safety, as there were no human threats within the neighbourhood. This likely helped to minimise other possible negative impacts of a disaster such as sexual violence, robbery, similar to what is suggested by Kawachi et.al.,(2006).

Table 26: Feeling of safety in the post-earthquake communities and reasons in percent (number)

1	**Feeling of safety in the place where she lives (N=633)**	**Total**
	Unsafe	10.3 (65)
	Neither safe nor unsafe	12.8 (81)
	Safe	77(487)
2	**Reasons for feeling safe in current place (N=568)**	
	Community cohesion	58.3 (331)
	Good neighbour	30 (170)
	Other reasons	11.7 (67)

Learning opportunities

Following the earthquake, approximately 75 percent of the respondents reported having access to various learning opportunities. These opportunities encompassed recovery activities such as mental health training, hygiene and sanitation counselling, and opening bank accounts to receive relief funds. Additionally, rehabilitation efforts included training in livelihood development and constructing earthquake-resistant buildings.

Out of all kinds of learnings women mentioned, learning of creating and using bank accounts during the process of relief funds in the aftermath is significantly high compared to other learning opportunities. This was crucial because the government had established an emergency relief fund and a reconstruction fund, both of which required bank transfers. In the earthquake aftermath, the government declared an emergency relief fund and secondly, a reconstruction fund allowance for each

household (Limbu et al., 2019a). However, many households, particularly those in rural areas and with husbands abroad, faced difficulties in setting up their own bank accounts due to limited literacy. Nonetheless, they managed to overcome this obstacle with the assistance of neighbours, friends, teachers, or relatives who were able to help. For these women, this learning opportunity was seen as invaluable.

Furthermore, women expressed appreciation for the training programs conducted after the earthquake, particularly those focused on cash crop farming and masonry for building earthquake-resistant houses. However, only a few women were able to take advantage of skilled training, such as masonry, even though it was open to women. During discussions, women mentioned that they were often denied the opportunity to attend such training due to domestic priorities or lack of confidence resulting from illiteracy. This was exemplified by a comment made by one Tamang woman during a focus group discussion:

> *"What is the use of attending Mason training by the women who got to stay at home? We won't be able to manage time for our house works, kids, and all if we start working as Mason."* *(FGD, Lo2)*

This example highlights the gendered division of labour in these communities. Women's household responsibilities hindered their ability to acquire new skills and discouraged them from engaging in paid work. A similar post-disaster study conducted after Hurricane Mitch also emphasised how gendered household roles affected women's learning and employment opportunities (Cupples, 2007). Consequently, the only opportunity for women to earn income was often through unskilled manual labour, resulting in significantly lower wages compared to skilled male workers and further widening gender inequality in the communities.

Building back better

Over 87 percent of surveyed women acknowledge that the earthquake has significantly transformed the landscape of villages in terms of reconstructing both public and private infrastructures. *Simlar, to what* Nakagawa and Shaw (2004) *suggest that r*he recovery process after a disaster should be viewed as a chance for growth and progress through the improvement of local economy, enhancement of livelihoods, and upgrade of living standards. Public facilities such as schools and

health centres are being rebuilt with greater strength and quality, thanks to national and international funding. This opportunity to construct in a more advanced manner was highly valued by the villagers, who otherwise would have faced considerable delays in such development. Individual houses, which were predominantly constructed using mud, bricks, or stone in the past, are now being rebuilt using cement and reinforced rods, despite the challenges encountered during the reconstruction process. However, it is important to note that not everyone is satisfied with the rebuilding efforts, as individuals were not granted complete freedom to construct according to their desired specifications and sizes. This dissatisfaction is further explored in the reconstruction section and supported by the findings of (Limbu et al., 2019b). Notably, a greater proportion of women in rural villages believe that the reconstruction has resulted in improved structures, potentially because the pre-existing infrastructure in these areas was in a significantly worse state compared to urban settings (refer to Table 25).

Figure 27: Picture of the old and new structure (post-earthquake) of the health centre in Sunkhani

5.7.2 Home, homelessness, and Reconstruction

The earthquake's devastation left nearly all residents of the villages homeless, as presented in Figure 28. Some villages had to relocate due to landslides triggered by the earthquake. The entire community experienced the hardship of homelessness and had to reside in temporary shelters. After about a month or more following the earthquake, communities gradually began constructing houses using galvanized sheets provided as aid. This process was primarily initiated by households with capable male members, as it involved strenuous labour and some technical skills. In addition to galvanized sheets, logs were necessary to create the house frames.

The government offered emergency assistance and an initial round of reconstruction funding, which many families utilised to construct these temporary shelters. It took the majority of families up to six months to complete the construction of their makeshift/temporary shelters. These structures were entirely composed of galvanized sheets, serving as the roof, walls, doors, and windows (refer to Figure 28).

Figure 28: Make-shift shelter where people lived for 3 years or more

Although they had a temporary house people were not happy as they did not have a feeling of home in it. The following expressions given by women reflect how much poor living condition impacted their life as mentioned in the quote below by FGD S07:

> *"Life was not easy before, but it has been much harder now. How could it be the same after the earthquake? It is very different, very harsh; I would say worse now. We don't have our home. When we come back home in the evening from a tiring long day at work on the farms, we don't feel relaxed at all being back home. Bugs and caterpillars commonly accompany us in our beddings and sometimes snakes appear too. When we turn on the light in the dusk; moths start to gather around the light and fall on our dinner plate. When it rains, all the drainage gets in-home, the noise of rain at night makes us feel anxious. We live*

in constant fear of death by an electric short circuit during rainy days as our huts are made of corrugated sheets and wire and are just hung naked, which has already been the case with one of our friends. Lots of changes. We feel so unsafe. We realised that without a house life is so pathetic. We are fed up living in these huts." *(FGD participant, S07)*

The makeshift houses constructed were extremely small and dimly lit, posing numerous challenges for women (see picture 29). During winter, the houses were excessively cold, while in summer, they became unbearably hot due to their small size, corrugated sheet material, and inadequate windows. The use of smoky firewood stoves for cooking exacerbated the situation, as these houses lacked proper ventilation. Moreover, the families had to share a single or two-roomed space, leading to further complications. Common problems reported included infestations of moths, insects, rodents, and bugs, including incidents of snakes found during focus group discussions (FGDs). Rainfall amplified the noise due to the zinc sheets, rendering the houses too noisy to stay in. Additionally, the houses were prone to shaking during windy conditions, confusing with aftershocks, and roofs were occasionally blown away. Consequently, the issue of homelessness emerged as a significant long-term concern for women.

Figure 29: Picture of poor living condition of women in makeshift shelters

The primary concern for women without adequate housing is the lack of privacy for both themselves and their teenage daughters. Temporary shelters, initially built for short-term purposes, often consisted of a single room. However, due to the slow pace

of reconstruction, these shelters ended up serving as homes for three or more years. Consequently, the sole room within these shelters had to accommodate multiple functions, acting as the kitchen, dining area, guest room, and bedroom. In the following extract from participant S01 in Suspachhyemawati village, she recounts her recent experience of how everyone in the household, including a newlywed couple, shares the same room:

> *"My son is newly married but in the current situation, we all have to sleep together in the same room, a newlywed couple, other family members and guests. In past, we had separate rooms for all. But now we are compelled to share the same room. Even the kitchen room, dining room all is same. After we finish our dinner, in the same place we roll out the mattress and sleep. Laughs…."* *(FGD participant, S01)*

Another challenge faced by women residing in impoverished households is the management of guests. In Nepal, there is a cultural expectation of extending high levels of hospitality to guests. However, following the earthquake, women encountered difficulties in accommodating guests due to limited space at home. Hosting guests, particularly during festivals, is considered an honourable responsibility for women. Since women are primarily responsible for domestic tasks, the burden of managing guests falls upon them. Consequently, when a guest visits, it is the women who experience the stress of being unable to adequately host them.

Delayed reconstruction

Approximately three years after the earthquake, only 59% of private houses had been reconstructed (see Table 27). The remaining houses were either under construction or yet to be started. Interestingly, rural areas showed a slightly higher proportion of reconstructed houses, while nearly half of the urban houses remained only partially rebuilt, indicating a slower pace of reconstruction. Focus groups revealed that rural residents were able to rebuild their houses using their own construction skills and through informal labour exchange networks, particularly among the Janajati community (41%), followed by 36% Dalit households (see table 16.1 in appendix C). Among all groups, Janajati households were also leading in terms of completed house reconstruction, with 70% of Janajati households needing reconstruction having finished the process (See table 16 in Appendix C).

Table 27: Status of reconstruction

1	**Reconstruction Completed (N=575)**	**Total**	**Urban**	**Rural**
	Yes	58.8(372)	53.6(75)	68.3(297)
	No	32.1(203)	46.4(65)	31.7(138)
	NA	9.1(58)	(48)	(10)
2	**Reasons for not completing reconstruction, MCQs (N=203)**			
	Lack of mason	62(126)	61.5(40)	62.3(86)
	Lack of constriction materials	50.2(102)	21.5(14)	63.8(88)
	Lack of enough money	63.5(129)	50.8(33)	69.6(96)
	Absence of male member at house	30(61)	18.5(12)	35.5(49)
	Lack of confidence of women to handle money	30(61)	6.2(4)	41.3(57)
	Waiting for the government fund	58.1(118)	46.2(30)	63.8(88)

The study uncovered various obstacles inherent in post-earthquake reconstruction. A year after the earthquake, only a few households initiated reconstruction due to social and economic barriers. Initially, people refrained from starting reconstruction due to ongoing aftershocks, opting for single-storied lightweight houses made of corrugated sheets, which they considered a safer option even if the shelter collapsed. This sentiment was echoed by participant KII H4.

> *"Two years after the earthquake] not many have started reconstruction. Despite many disadvantages of temporary huts made of corrugated sheets, people are feeling quite safe in them as it is less likely that people will get killed in them during aftershocks due to their lightweight. "* *(KII, H4)*

Aside from safety concerns related to aftershocks, another reason for delayed reconstruction was the lack of economic sustainability. People were worried that their new houses would be damaged by recurring high-magnitude aftershocks, thus jeopardizing their investments. Other challenges included economic constraints, a shortage of male members in the household to lead the reconstruction efforts (as expressed by participant S02), high demand for masons and construction labour coupled with limited availability, insufficient knowledge of reconstruction codes, delayed release of government grants for reconstruction support, increased transportation costs for construction materials in remote areas, and higher prices of construction materials due to high demand. These were the reasons revealed by respondents for being reluctant to speed up for reconstruction in the early year post-earthquake. People gradually started reconstruction from the 2nd year.

"To be honest, we can't start reconstruction when men are away as it will be tough for us to handle everything on our own. For reconstruction, we need to handle a big amount of money, and manage labours. We non-literate women are not confident enough to handle that amount of money on our own and we won't be able to monitor labours constantly while carrying on other domestic tasks along. If we do not monitor labours properly, they will cheat us with quality. So, we decided to continue living in this temporary shelter until men are back." (FGD participant, S02)

The verbatim from the FGD clearly illustrates the gendered division of domestic roles, leading to women lacking confidence in undertaking such work. The literacy and confidence levels of women further hinder household reconstruction in the absence of male members. This indicates a direct impact of male migration on the reconstruction process, as observed in a previous study (Sijapati et al., 2015).

Moreover, there are additional critical factors indirectly affecting reconstruction. These include broader political transition (Hutt, 2020a; Yadav et al., 2021b), the absence of local government, lack of coordination, and bureaucratic burdens such as delayed technical support from local authorities . These factors contribute to setbacks in the reconstruction efforts.

Furthermore, households engaged in reconstruction face technical challenges imposed by the government to ensure safer buildings. Instances of changing guidelines, inadequate monitoring by technicians, and delayed guidance create significant financial and mental stress for families. The fear of not complying with national guidelines and not receiving further financial support adds to the burden of debt. A detailed case study (Case Study 1) presents the challenges faced by these families, which in turn discourages other households from initiating reconstruction early, as they prefer to adopt a wait-and-see approach.

Case Study 1: Problems women faced in the Process of Reconstruction

I am Maili Tamang from Thami village, Suspachhemawati. I started reconstruction after a year and a half after the earthquake knocked my house down. I didn't have enough money to reconstruct my house back at all none of us have. But I decided to take a step forward to move on with the help of friends and

family. We met and discussed a strategy to rebuild the community and came out with the promising help offered by friends and neighbours. We decided to start the reconstruction of a few houses in our neighbourhood first by borrowing the first instalment of NPR 50,000 given by the government among many friends, and relatives and taking a loan from the local lender (merchant) for the rest of the deficit amount. In addition, our agreed strategy was to engage many families in one reconstruction to complete it swiftly. Once one of them is complete, the house will receive a complete reconstruction grant from the government which then will be used to rebuild another house from our group. But later what happened is the government is not releasing the fund and we are in trouble. Local moneylenders come and knock at our door every morning and shout at us for not returning the loan we have taken for reconstruction on time which we expected to return once we get the grant from the government.

Some houses we built; it was not approved for grant showing a lack of compliance with the government's reconstruction guideline. When we asked the technicians to come and monitor our houses repeatedly in different phases of reconstruction, they didn't come and later they are creating trouble for us which has added so much stress in our life now. Now, our houses are not approved, and we are drowned in a loan-added burden of paying interest. Maybe by the time we get that complete reconstruction grant, we will already be spending more money to pay interest than what we will be getting from the government. That's why we are worried. Before, we assumed that the government would provide 3 lakhs and we will manage 2 lakhs somehow but in reality, we ended up spending 9 lakhs, which made our burden of loan heavier and heavier.

Despite the presence of rich social capital in certain ethnic groups, such as informal labour exchange groups, which enabled them to work together for reconstruction in the absence of adequate support from the government or donors, their efforts were significantly hindered by government regulations. Specifically, the case study highlighted how households faced the risk of not receiving government grants if they failed to comply with the allocated building codes. Moreover, due to the remote locations of many communities in the mountainous terrain, the government faced challenges in recruiting and deploying technicians in a timely and effective manner to monitor the reconstruction process. Consequently, individuals who initiated reconstruction projects lacked the necessary technical support and were unable to proceed to the second stage without the presence of government officials for monitoring and approval (Sharma et al., 2018b).

5.8 Distribution of Wellbeing Measures

The personal wellbeing of the sampled women was evaluated using four questions about happiness, satisfaction, the worthiness of life, and levels of anxiety. The survey was, therefore, a self-assessment of wellbeing as is widely used internationally. The questions asked were:

> *Overall, how satisfied are you with your life nowadays? (evaluative)*
> *Overall, to what extent do you feel the things you do in your life are worthwhile? (eudemonic)*
> *Overall, how happy did you feel yesterday? (Experience – positive affect)*
> *Overall, how anxious did you feel yesterday? (Experience – negative affect)*

These questions, which were assessed on an eleven-point scale, allow individuals to make self-assessments regarding their overall life and daily emotions. As noted in ONS (2018), happiness and anxiety ratings from the previous day provide insights into current positive and negative affect, while satisfaction inquiries encourage respondents to reflect on their overall life satisfaction. The worthiness question adopts a eudemonic approach, measuring psychological wellbeing and how individuals perceive the value of their lives (Office of National Statistics, 2018a). Higher scores indicate greater wellbeing for happiness, satisfaction, and worthiness, while for anxiety, lower scores indicate better wellbeing (Office of National Statistics, 2018b). In this study, responses were categorized into three thresholds based on ONS guidelines: 4 or less as "poor/low level," 5-8 as "medium," and 9-10 as "high" levels of wellbeing for happiness, satisfaction, and worthiness. For anxiety, scores of 1 or below indicate the lowest level, 2-5 as medium, and 6 or more as "poor/higher" anxiety (Office for National Statistics, 2018b). It is important to note that the four questions measure distinct aspects of wellbeing—evaluative, eudemonic, and affective—and combining them into a single composite measure is not recommended, as each aspect contributes to a balanced understanding of mental health and wellbeing (Office of National Statistics, 2018a).

The following section presents a descriptive analysis of the four wellbeing measures, including locality and ethnicity. For a comprehensive analysis of wellbeing measures and other variables in the study, please refer to the tables in Appendix C. Among the total participants, approximately 40-50% expressed low levels of satisfaction,

happiness, and a sense of life's worthiness, as shown in Figure 30. Just over one-third of participants scored the highest levels of wellbeing across the three positive scales at the time of the survey. However, nearly 50% of participants reported the highest level of anxiety during the survey.

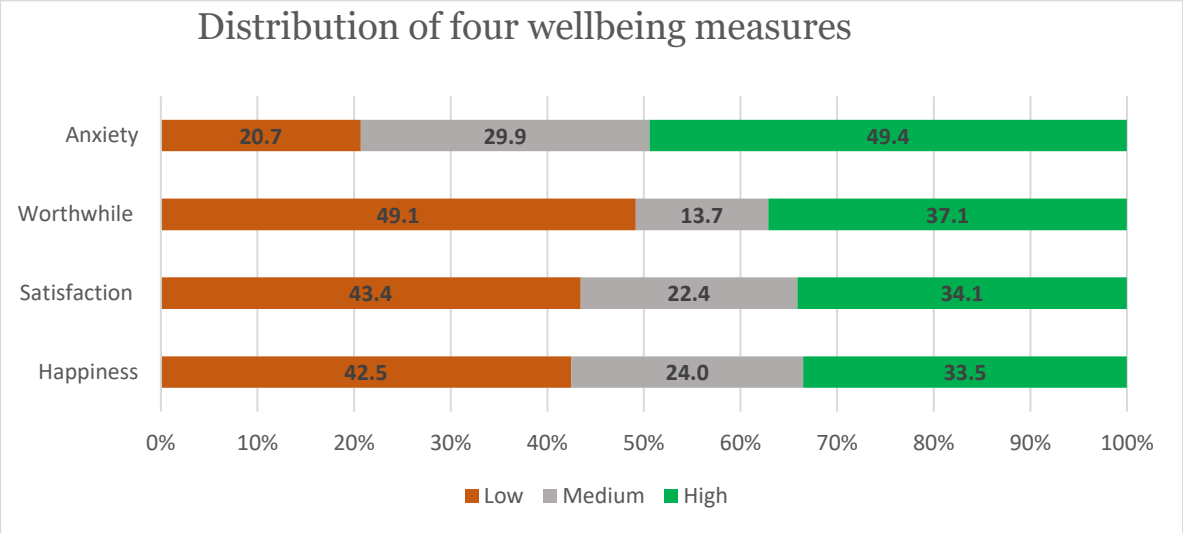


Figure 30: Distribution of Wellbeing measures among study participants

5.8.1 Urban and rural variation in wellbeing of women

Figure 31 revealed differences in how women in urban and rural areas assessed their wellbeing after the earthquake, highlighting geographical variations. The figure categorises wellbeing into three scales: high (depicted in green), medium (in grey), and low (in brown). The data revealed significant geographical variations in women's assessment of their own wellbeing. Notably, urban areas exhibit a higher level of wellbeing, as evidenced by three positive wellbeing measures, indicating that women in urban settings generally experience better overall wellbeing than their rural counterparts. Despite this, it is noteworthy that anxiety remains more prevalent among urban women. Specifically, 25-37 percent of women in urban reported the highest wellbeing, contrasting with less than 10 percent of rural women. In summary, while a majority of rural women assessed their wellbeing at lower levels (54-61%), reflecting a general post-disaster decline, women in urban areas reported comparatively higher levels of wellbeing.

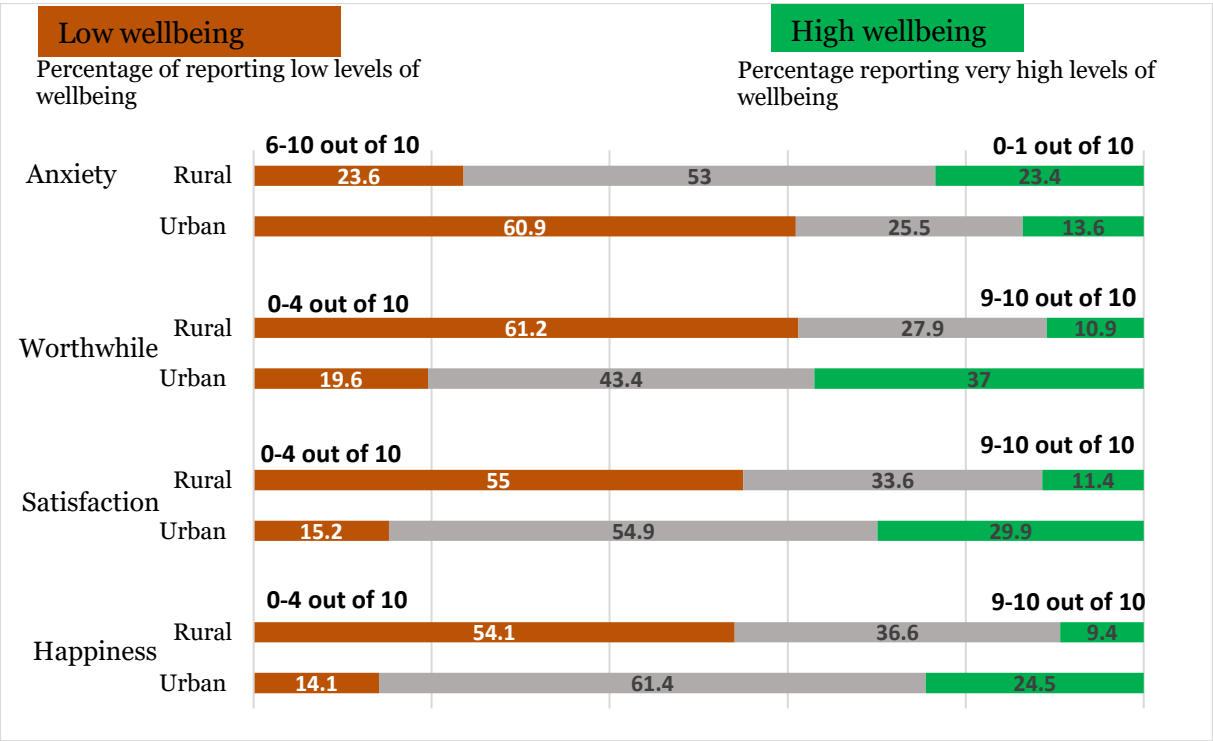


Figure 31: Percentage of wellbeing in urban and rural municipalities

Evidence from high-income countries suggested that people in the cities are not only richer but are also happier and healthier (Glaeser, 2011). A study of subjective wellbeing concluded that in the least developed and rapidly urbanising Asia, wellbeing was higher in larger cities than elsewhere (Wang & Wang, 2016), whereas in Northern and Western European countries it was lowest in large cities (Berry & Okulicz-Kozaryn, 2011; Veenhoven, 1994). The vulnerability of rural residents has been related to lower incomes and more dependency on locally-based resources and economies (Cutter et al., 2000). Similarly, a study on earthquake vulnerability in rural Kazakhstan noted that rural communities were often disconnected from decision-making powers and overlooked in terms of DRR (Oven & Bankoff, 2020).

Similar to urban/rural variation in the self-reported wellbeing of women, is the mean distribution of wellbeing. Figure 32, illustrates that women living in the urban municipality have average wellbeing scores that are almost two points higher in all three positive domains of wellbeing. Nonetheless, the pattern for lower anxiety rating is quite different to the other responses as in the urban area average score of women is above six points compared to only four points in rural areas making women in the urban highly anxious. Other studies have recorded a similar trend of higher ratings of anxiety within happiness situations (Schwartz & Weinberger, 1980). For example, a

study by Headey et al. (1993) found that happiness and life satisfaction are less strongly correlated with anxiety, meaning that people can be both happy/satisfied and anxious at the same time.

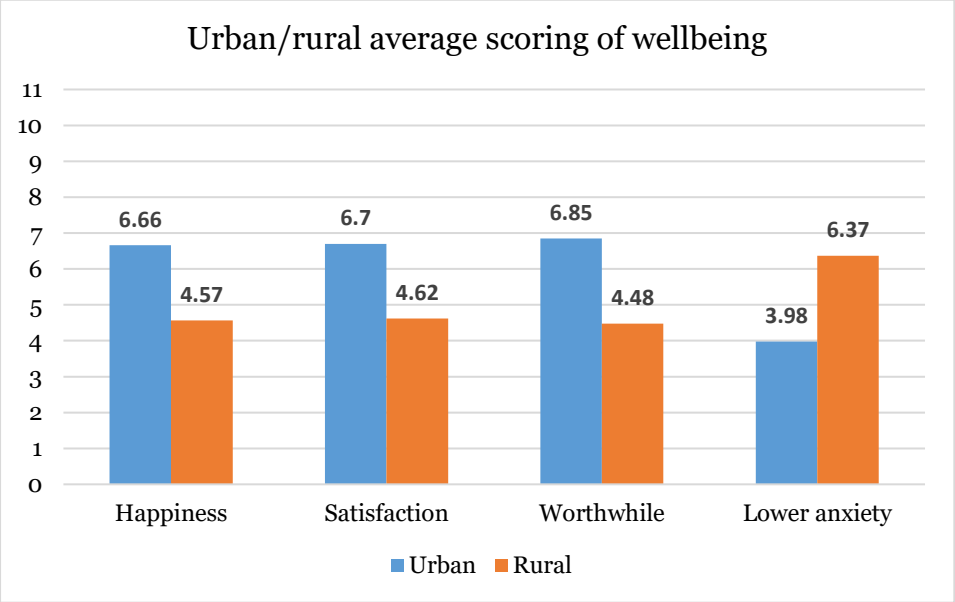


Figure 32. Urban/rural average scoring of wellbeing

5.8.2 Ethnicity wise variation in wellbeing

Table 28 Distribution of average scores of four wellbeing measures with ethnicity

Ethnicity	Happiness	Satisfaction	Worthwhile	Anxiety
Chhetri/ Brahmin	4.82(2.7)	4.83(2.8)	4.71(2.9)	4.3(2.9)
Newar	6.0(2.6)	6.18(2.7)	6.6(2.9)	5.4(3.5)
Janajati	6.19(2.6)	6.26(2.7)	6.15(2.6)	4.5(2.9)
Dalit	4.36(2.4)	4.35(2.8)	4.16(2.9)	3.4(2.8)

The table 29 shows that the Janajati women surveyed had higher overall wellbeing at the time of the study, with nearly half of the Janajati respondents reporting higher scores for the three positive measures of wellbeing. In contrast, more than half of the Dalit and Chhetri/Brahmin women surveyed, had self-reported wellbeing scores on the lower end of the scale.

5.9 Summary

This chapter highlights the disparities in post-earthquake wellbeing between urban and rural areas, reflecting variations in earthquake experiences and recovery processes. Access to essential services such as government offices, banks, and hospitals is challenging for rural communities, with over 83 percent of rural

participants requiring a journey of over two hours by bus. While rural road infrastructure has improved, the quality remains poor, with limited public transportation and impassable roads during the monsoon season. Urban areas have better access to markets crucial for post-disaster recovery and reconstruction. Age and class distribution also differ, with a higher proportion of older women and business-class individuals in rural areas.

The majority of respondents were married, engaged in unpaid domestic or agricultural work, and part of nuclear families. Agriculture was the primary source of income for over half of the households, while foreign remittances and daily wage labour played significant roles in urban and rural areas, respectively. Extensive damage to private houses and public infrastructure was observed, particularly in rural areas. Rural communities reported a higher impact on water sources and changes in subsistence agricultural livelihood patterns. Coping mechanisms varied across different phases post-earthquake, including reassurance, collective living, and support from same-caste individuals and neighbours. While the earthquake brought some opportunities, such as increased employability and improved relationships, the reconstruction process was slow, with only 58 percent of households completing reconstruction three years later.

Just over one third of respondents had high levels of positive wellbeing while more than half reported high levels of anxiety. There was a prominent urban-rural variation in wellbeing, with women in urban locations reporting higher wellbeing scores than those in rural areas, but also having the highest anxiety scores which can be linked to repeated aftershocks and the high chance of losing their partially damaged homes.In conclusion, this chapter demonstrates the unequal impact of earthquakes on urban and rural areas, with rural women experiencing the greatest suffering. The gendered impact of disaster relief and recovery is evident, with rural areas facing greater challenges. While urban women had higher wellbeing scores, they also reported higher anxiety levels, possibly due to the risk of aftershocks and living in partly damaged houses.

Chapter 6 Determinants of Post-earthquake Wellbeing of Women

6.1 Introduction

This analytical chapter presents the results of simple and multiple linear regression analyses, integrating them with qualitative interview evidence. The experiences of the participants vary significantly based on their locality and ethnicity, as observed in the descriptive analysis in Chapter 5. Rural women in Nepal face greater challenges than their urban counterparts in terms of work patterns, decision-making roles, and lack of access to basic infrastructure. The devastating impact of the Gorkha earthquake worsened the already difficult lives of the affected individuals. This chapter aims to explore the key variables that directly and indirectly influence the mental health and wellbeing of women in the post-earthquake scenario.

The investigation in this chapter focuses on pre-to-post-disaster factors that determine the wellbeing of women affected by the Gorkha earthquake. Initially, simple linear regression is performed to examine the association between each independent/predictive variable and a continuous dependent variable. This analysis evaluates the impact of individual independent variables on four measures of wellbeing, which informs the subsequent development of multiple linear regression models for each measure. The analysis considers a range of socio-demographic factors previously identified as important for wellbeing, along with earthquake-related factors. The selection of variables is also guided by insights from the qualitative component of the study.

As simple linear regression only assesses one-to-one associations between variables without accounting for confounders, multiple linear regression is employed to evaluate the interactions and combined effects of predictors on each wellbeing measure. Multiple regression considers several predictor variables simultaneously while holding potential confounding variables and their effects constant (Cohen & Cohen, 2009). The stepwise backward method, as explained in section 4.7.7, is used to construct the final multiple linear models. The adjusted R2 values indicate the predictive power of the models: 49.8% for happiness scores, 47.1% for satisfaction scores, 39.8% for feeling worthwhile, and 32.2% for anxiety scores (refer to Table 6).

This chapter presents the results from both types of regression analyses, focusing on factors that show a significant association (P-value < 0.05) with women's wellbeing in the long-term aftermath of the Gorkha earthquake. A P-value below 0.05 is commonly used as a sensible standard cutoff in statistical practice, indicating a low probability (5% or 1 in 20) of obtaining a random sample with no real effect in the population (Gelman, 2013).

The standardised beta coefficients and their standard errors for significant variables are presented in Appendix B. These coefficients indicate the effect of each variable on the measure of wellbeing. In this chapter, only statistically significant beta coefficients are explained within the final multiple regression models. When interpreting the findings, the coefficient size represents and compares the difference between two groups: the reference group and other groups defined by a given independent variable. It is important to note that the comparisons are made between individuals identical in every aspect except for the characteristic under consideration. Positive and negative coefficients indicate the positive and negative relationships, respectively, between the independent variable and the dependent variable. A positive coefficient suggests that as the independent variable increases, so does the dependent variable. The standardized regression coefficients (beta coefficients) describe the expected change in the value of the dependent variable (i.e., wellbeing measures) (refer to Table 33-Table 36). Beta coefficients range from -1 to +1 and are ideal when independent variables use different units of measurement, such as income and education. Using beta coefficients (β) facilitates the comparison and identification of variables with greater impact on the equation. Variables with larger beta coefficients have a higher predictive contribution to the dependent variables. The figures in parentheses in the tables represent the standard error (SE) measurements. The SE for the regression coefficient represents the average deviation of observed values of the independent variable from the regression line (Darlington & Hayes, 2017).

First, the summary of key predictors for four wellbeing measures are provided. Then the subsequent sections explore one to one variables such as contribution of structural factors, including access to infrastructure and services based on geographical location, followed by demographic and socio-cultural factors. Then, the focus shifts to life before the earthquake and its impact on wellbeing. The final section investigates the

experiences during and after the earthquake, as well as their impact on women's wellbeing.

6.2 Key predictors of the four wellbeing measures

Before going into the detailed models of the four wellbeing measures, which will present results from both types of regression analyses, this section will focus on the findings from multiple regression analyses. The emphasis will be on key factors demonstrating a significant association (P-value < 0.001, denoted as ***) with women's wellbeing in the long-term aftermath of the Gorkha earthquake.

In this preliminary presentation, I have specifically chosen factors with the highest B coefficient and those highly significant (***), while excluding negatively associated variables. This approach aims to highlight the most impactful and positively associated variables that play a substantial role in influencing women's wellbeing post-earthquake. The subsequent detailed models will provide a comprehensive examination of these factors and their nuanced impact on the different dimensions of women's wellbeing in the aftermath of the Gorkha earthquake.

6.2.1 Key predictors of happiness

The key variables with a higher predictive contribution to the post-disaster happiness of women include living in a nuclear family, the absence of a history of adverse events in the past before the earthquake, comfort in seeking help from the overall community during the immediate aftermath of the earthquake, reporting better post-disaster life, and experiencing no significant stress in the current life (see Table 33).

Table 29. Key predictors of happiness from multiple linear regressions, presented in the table is the value of β Coefficient (Standard Error)

Predictors	**Categories**	**Happiness**
Current QoL (ref: not good)	Good	0.27 (0.23)***
Comfortable in seeking help (ref: Not at all)	Yes	0.26 (0.29)***
Adverse life events, (ref: yes)	No	0.16 (0.19)***
Family composition (ref: extended)	Nuclear	0.11 (0.16)***
Current stress (ref: stressed)	Not stressed	0.11 (0.23)***

Specifically, women who self-assess their current quality of life (life after the earthquake) as better are expected to have a higher happiness score by 0.27 post-earthquake compared to those women who self-assessed their overall life as not good. Participants who were comfortable seeking necessary help from the overall community in the aftermath of the earthquake are likely to contribute to a better happiness score compared to those without easy access to overall community help. Women without a history of adverse events before the earthquake are anticipated to have a higher happiness score post-disaster compared to those with any past adverse history.

Moreover, women living in nuclear families are expected to have higher happiness scores compared to women living in joint families post-earthquake. Finally, the absence of stress in the current life is identified as a significant predictor of higher happiness among women in the post-disaster period.

These findings emphasise the importance of various factors, such as family structure, past experiences, community support, post-disaster life quality, and stress levels, in influencing the post-disaster happiness of women.

6.2.2 Key predictors of Satisfaction

The primary variables showing a significant impact on the post-disaster satisfaction of women include the current quality of self-assessed life, the primary source of family income being remittance, contentment with the post-earthquake reconstruction of private houses, ease in seeking help from the overall community in the aftermath of the earthquake, and the absence of stress in post-earthquake life (see Table 30).

Table 30. Key predictors of satisfaction from multiple linear regressions, presented in the table is the value of β Coefficient (Standard Error)

Predictors	**Categories**	**Satisfaction**
Current QoL (ref: not good)	Good	0.18 (0.19)***
The main source of income (ref: agriculture)	Remittance	0.16 (0.27)***
Happy with reconstruction (ref: no)	Yes	0.16 (0.19)***
Comfortable in seeking help (ref: Not at all)	Yes	0.15 (0.18)***
Current stress (ref: stressed)	Not stressed	0.12 (0.25)***

Women who rate their overall quality of life as good are anticipated to exhibit higher satisfaction scores in post-earthquake life compared to those who assess their overall post-earthquake life as not good. Additionally, women residing in families where remittance serves as the main source of income tend to report higher satisfaction scores than those in families relying on agriculture. Interestingly, not all families completing the reconstruction of their private houses contribute to better satisfaction scores; only women who are pleased with the reconstruction outcome are predictive of post-disaster satisfaction compared to those unhappy with the reconstruction.

Furthermore, women comfortable seeking necessary help from the overall community in the aftermath of the earthquake are likely to have better satisfaction scores compared to those without easy access to community support. Finally, women who perceive themselves as not stress in post-earthquake life are expected to report better satisfaction scores compared to those who acknowledge experiencing stress in their post-earthquake life.

These findings underscore the importance of various factors, including life quality, income sources, satisfaction with reconstruction efforts, community support, and stress levels, in influencing the post-disaster satisfaction of women.

6.2.3 Key predictors of feeling Worthwhile

The factors significantly predicting the feeling of worthiness among women post-earthquake include the current self-assessed life quality, urban residence, absence of pre-earthquake adverse life events, support received from the overall community post-earthquake, and the absence of chronic illness history (see Table 31).

Table 31. Key predictors of worthwhile from multiple linear regressions, presented in the table is the value of β Coefficient (Standard Error)

Predictors	**Categories**	**Worthwhile**
Current QoL (ref: not good)	Good	0.27 (0.2)***
Geography (ref: rural)	Urban	0.23 (0.25)***
Adverse life events, (ref: yes)	No	0.21 (0.21)***
Support received post-earthquake (ref: relatives)	Community	0.12 (0.19)***
Chronic disease (ref: yes)	No	0.10 (0.22)***

Women who perceive their post-earthquake quality of life as good are anticipated to exhibit higher scores in the feeling of worthiness compared to those who assess their overall post-earthquake life as not good. Similarly, women residing in urban locations are expected to report a better feeling of worthiness in their post-earthquake life than their counterparts in rural areas. Those without a history of adverse life events before the earthquake are likely to have higher scores in the feeling of worthiness post-disaster compared to those with such a history. Additionally, women without a history of chronic illness are expected to experience a better feeling of worthiness compared to those reporting a history of chronic illness.

These findings highlight the significance of current life quality, urban residence, absence of pre-earthquake adverse events, community support, and the absence of chronic illness as crucial factors contributing to the feeling of worthiness among women in the aftermath of an earthquake.

6.2.4 Key predictors of Anxiety

The presence of anxiety as a negative measure of wellbeing implies that factors negatively correlate with anxiety levels, indicating their role in reducing anxiety (Table 32). Among the factors studied, only three exhibited a significant negative association with anxiety, with a P-value of less than 0.001. These factors include having family together during the earthquake and its immediate aftermath, receiving support from the same caste groups in the immediate aftermath of the earthquake, and perceiving positive changes in the community post-earthquake.

Table 32. Key predictors of anxiety from multiple linear regressions, presented in the table is the value of β Coefficient (Standard Error)

Predictors	**Categories**	**Anxiety**
Coping having family together (ref: no)	Yes	-0.13 (0.21)***
Support from same caste (ref: no)	Yes	-0.11 (0.21)***
Positive community change (ref: yes)	No	-0.18 (0.33)***

Specifically, women who had their families together to cope with the immediate aftermath of the earthquake were likely to have lower anxiety levels compared to those without family support. Similarly, women who received support from their same caste groups in the neighbourhood expected to lower anxiety levels compared to those

lacking such support. Furthermore, women who perceived positive changes in the community post-earthquake were associated with lower anxiety levels compared to those who did not observe positive changes.

These findings highlight the importance of familial, caste-based, and community-related support in mitigating anxiety levels among women in the aftermath of an earthquake.

In the following section, a detailed discussion of the four measures of wellbeing will be presented, highlighting each significant factor in-depth.

6.3 Geographical landscape and wellbeing

The regression analyses reveal a clear geographic pattern in the post-disaster wellbeing of women. Women living in urban areas demonstrate significantly higher average scores for happiness, satisfaction, and feeling of worth compared to their rural counterparts ($p < 0.001$, 0.35 points higher on average) (see Table 33 to Table 35). Conversely, anxiety levels were higher among women in urban areas compared to those in rural areas (see Table 36).

Place is recognised as a key determinant of welfare and income worldwide (World Bank, 2013), particularly in lower-income countries (World Bank, 2009). Urban areas consistently exhibit better development outcomes than rural areas (UNDP, 2014; World Bank, 2013). In Nepal, for instance, there is a notable disparity in the Human Development Index (HDI) scores, with urban areas scoring 0.65 compared to 0.56 in rural areas due to variations in access to services and per capita income (UNDP, 2020). However, disparities also exist within different groups in urban areas of Nepal (Bakrania, 2015).

Table 33. Predictors of happiness from simple and multiple linear regressions, presented in the table is the value of β Coefficient (Standard Error)

Predictors	**Categories**	**Simple**	**Multiple**
Adjusted R^2		-	0.498
Geography (ref: rural)	Urban	0.35 (0.22)***	0.11 (0.21)**
Socioeconomic			
Ethnicity (ref: Chhetri)	Janajati	0.2 (0.27)***	0.09 (0.2)**
Occupation (ref: unpaid domestic work)	Self-employment	0.18 (0.53)***	0.09 (0.39)**
The main source of income (ref: agriculture)	Remittance	0.12 (0.33)**	0.1 (0.25)**
	Service	0.03(0.39)	0.08 (0.29)**
Family composition (ref: extended)	Nuclear	0.16 (0.24)***	0.11 (0.16)***
Life before the earthquake			
Adverse life events, (ref: yes)	No	0.41 (0.2)***	0.16 (0.19)***
Chronic disease (ref: yes)	No	0.13 (0.24)***	0.07 (0.18)*
Stress before (ref: no)	Yes	0.40 (0.24)***	0.11 (0.18)**
Experience during the earthquake			
Social capital			
Help received from same caste (ref: no)	Yes	-0.23 (0.2)***	-0.11 (0.17)***
Comfortable in seeking help (ref: Not at all)	Yes	0.35 (0.39)***	0.26 (0.29)***
Perceived changes attributed to the earthquake			
Learning opportunities (ref: no)	Yes	-0.38 (0.2)***	-0.13 (0.19)***
Increased male return (ref: no)	Yes	-0.31 (0.2)***	-0.08(0.18)***
Current life			
Current QoL (ref: not good)	Good	0.46 (0.28)***	0.27 (0.23)***
	Fair	0.23 (0.3)***	0.13 (0.24)***
Current stress (ref: stressed)	Not stressed	0.32 (0.28)***	0.11 (0.23)***
Happy with reconstruction (ref: no)	Yes	0.13 (0.22)**	0.1 (0.18)**

[Note: * p<0.05 ** p<0.01 ***p<0.001]

Table 34. Predictors of satisfaction from simple and multiple linear regressions, presented in the table value of β Coefficient (Standard Error)

Predictors	**Categories**	**Simple**	**Multiple**
Adjusted R2		-	0.471
Geography (ref: rural)	Urban	0.33 (0.24)***	0.09 (0.23)**
Socioeconomic			
Ethnicity (ref: Chhetri)	Janajati	0.2 (0.29)***	0.07 (0.22)*
Occupation (ref: Unpaid domestic work)	Self-employment	0.18 (0.57)***	0.09 (0.43)**
	Service	0.02 (0.59)	0.07 (0.44)*
The main source of income (ref: agriculture)	Remittance	0.18 (0.36)***	0.16 (0.27)***
Family composition (ref: Extended)	Nuclear	0.14 (0.26)***	0.09 (0.18)**
Life before the earthquake			
Adverse life events, (ref: yes)	No	0.35 (0.22)***	0.11 (0.2)**
Chronic disease (ref: yes)	No	0.13 (0.26)***	0.06 (0.2)*
Stress before (ref: no)	Yes	0.34 (0.25)***	0.12 (0.2)***
Experience during the earthquake			
Social capital			
Help received from same caste (ref: no)	Yes	-0.32 (0.21)***	-0.16 (0.18)***
Comfortable in seeking help (ref: Not at all)	Yes	0.27 (0.42)***	0.15 (0.18)***
Perceived changes attributed to the earthquake			
Learning opportunities (ref: no)	Yes	-0.27(0.23)***	-0.17 (0.2)***
Increased male return (ref: no)	Yes	-0.31 (0.22)***	-0.12 (0.19)***
Current life			
Current QoL (ref: not good)	Good	0.44 (0.3)***	0.18 (0.19)***
Current stress (ref: stressed)	Not stressed	0.43 (0.36)***	0.12 (0.25)***
Happy with reconstruction (ref: no)	Yes	0.18 (0.23)***	0.16 (0.19)***

[Note * p<0.05 ** p<0.01 ***p<0.001]

Table 35. Predictors of feeling worthwhile from simple and multiple linear regressions, presented in the table are value of the standardised β Coefficient (Standard Error)

Predictors	**Categories**	**Simple**	**Multiple**
Adjusted R2		-	0.398
Geography (ref: rural)	Urban	0.36 (0.24)***	0.23 (0.25)***
Socioeconomic			
Ethnicity (ref: Chhetri)	Janajati	0.19 (0.3)***	0.06 (0.33)***
Occupation (ref: Unpaid domestic work)	Labour	0.03 (0.5)	0.06 (0.39)*
	Self-employed	0.09 (0.24)*	
	Service	0.06 (0.62)	0.12 (0.52)***
Life before the earthquake			
Adverse life events, (ref: yes)	No	0.4 (0.23)***	0.21 (0.21)***
Chronic disease (ref: yes)	No	0.16 (0.27)***	0.1 (0.22)***
Experience during the earthquake			
Social capital			
Support received post-earthquake (ref: relatives)	Community	0.18 (0.23)***	0.12 (0.19)***
	Friends		0.08 (0.31)**
Perceived changes attributed to the earthquake			
Improved social cohesion (ref: no)	Yes	0.10 (0.25)**	0.12 (0.22)***
Learning opportunities (ref: no)	Yes	-0.27(0.24)***	-0.18 (0.22)**
Current QoL (ref: not good)	Good	0.18 (0.34)***	0.27 (0.2)***

Note [* p<0.05 ** p<0.01 ***p<0.001]

Table 36. Predictors of anxiety from simple and multiple linear regressions, presented in the table is value of β Coefficient (Standard Error)

Predictors	**Categories**	**Simple**	**Multiple**
Adjusted R2		-	0.32
Socioeconomic			
Ethnicity (ref: Chhetri)	Janajati	0.03 (0.3)	0.07 (0.27)*
Main source of income (ref: agriculture)	Labour	-0.18 (0.34)***	-0.08 (0.28)*
	Service	-0.12 (0.45)**	-0.09 (0.37)**
Multiple sources of income (ref: no)	Yes	-0.19 (0.25)***	-0.08 (0.22)*
Experience during the earthquake			
Social capital			
Coping having family together (ref: no)	Yes	-0.26 (0.23)***	-0.13 (0.21)***
Support from same caste (ref: no)	Yes	-0.3 (0.23)***	-0.11 (0.21)***
Perceived changes attributed to the earthquake			
Positive community change (ref: yes)	No	-0.4 (0.28)***	-0.18 (0.33)***
Learning opportunities (ref: no)	Yes	-0.36 (0.24)***	-0.21 (0.42)**

[Note: * p<0.05 ** p<0.01 ***p<0.001]

The geographic diversity of Nepal exacerbates inequality and exclusion. A study conducted in rural Nepal highlights the heightened vulnerability of rural populations to various hazards and their economic, social, political, and environmental repercussions (Rigg et al., 2016). Rigg et al. (2016) further assert that vulnerability has long been an inherent aspect of life in rural Nepal, shaped by social, political, economic, and environmental factors such as the caste system, gender divisions, feudalism, small landholdings, and poor-quality land, as well as the impact of overarching "big D" Development. In Nepal, poverty reduction and human development progress are unevenly distributed across the country (DFID, 2017). The Human Development Index is 0.63 in urban areas, 0.48 in rural areas, and averages 0.43 in the mountain belt (CBS, 2004). This not only reflects the urban-centric nature of national growth in Nepal but also suggests that reliance on agriculture, which dominates rural livelihoods, plays a crucial role in determining poverty levels. Inequities persist between urban and rural areas in Nepal, affecting access to markets, services, information, employment opportunities, safe drinking water, sanitation, and proximity to healthcare facilities (Bennett, 2005; World Bank, 2013). The lack of access to basic services and amenities is a significant contributor to poverty (Hunzal et al., 2011), acting as the primary constraint on the development of the agricultural sector and its workforce (Asian Development Bank, 2002). The absence of planned urbanisation is often cited as a factor contributing to poverty, marginalisation, and socioeconomic inequality (Watson, 2009). However, urbanisation can also play a vital role in poverty reduction, as cities have the potential to generate higher living standards for all residents through the non-farm economy (World Bank, 2013). Rural growth hinges on adequate access to (urban) markets and the promotion of vibrant farm and non-farm activities (Ibid).

The finding suggest life of women and the prospects they face in everyday life is radically different between women in rural households and women in urban households in the same district. There is noticeable inequality existing between the lives of women in these two settings which goes beyond income inequalities to health, access to basic amenities, exposure to economic opportunities, quality of life, and ability to deal with crisis, all of which can have a major impact on the health and wellbeing of women. Life in rural Nepal has never been a straightforward one. Nepalese women bear a much higher workload in comparison to the global average

(UNDP, 2004). Women in rural communities are facing a triple role in the production, reproduction and social sphere putting them in an excessive workload and harming their health (Dechenla Sherpa, 2007; Dechenla Sherpa, 2007). The economic contribution of women through domestic duties and subsistent farming is substantial but their contribution goes largely unnoticed and taken for granted.

The lifestyles of women in urban and rural areas differ significantly. While women in urban areas face challenges, their workload tends to be lower compared to women in rural areas (Adhikari & Hobley, 2015). Urban women increasingly participate in paid work, while rural women primarily engage in subsistence farming and labour (Cultural Atlas, 2019). Urban women have better access to basic infrastructure, such as gas for cooking instead of firewood, reduced livestock keeping, and focus more on running businesses and childcare rather than agriculture (Ibid).

Additionally, cities possess institutional and physical infrastructures that contribute to their resilience and ability to recover from hazards (Amin, 2013). Generally, urban residents tend to be wealthier, more productive, happier, healthier, and live longer (Glaeser, 2011). Access to infrastructure has been identified as a key factor in rural Nepal for promoting wellbeing (Sapkota, 2018). Various factors, including access to amenities and facilities, ethnic composition, neighbourhood dynamics, socio-cultural aspects, and variation in earthquake damage, can influence wellbeing. The urban area, being the district capital, enjoys more affluence in terms of facilities, government institutions, and NGOs compared to rural areas, which may aid in post-disaster recovery. Additionally, urban dwellings are often better constructed and reflect higher economic capacity, enabling better coping with disaster losses in comparison to rural areas.

6.4 Socio-cultural factors and post-disaster wellbeing

6.4.1 Ethnicity and wellbeing

The earlier section provided a detailed explanation of Nepal's caste system, highlighting its role in establishing social hierarchy. Brahmins and Chhetris occupy the top positions, followed by the Newar merchant caste, which enjoys greater advantages compared to the lower Tamang and Thami labourer groups (Bennett et al., 2008). Low social status is a significant factor contributing to poverty in Nepal

(DFID, 2017). Consequently, certain ethnic and caste groups have endured generations of poverty due to limited access to resources and livelihood opportunities, with the Dalit and Indigenous peoples being up to twice as likely to experience poverty compared to the Newar, Brahmin, and Chhetri groups (Ibid).

The analysis indicates that Janajati women exhibit higher scores for mental wellbeing compared to the highest-ranking ethnic group, Chhetri/Brahmin. The ethnic classification contributes predictively to health outcomes by 0.06 (worthwhile), 0.07 (satisfaction), and 0.09 (happiness) (see Table 35, Table 34 and Table 33). The lower workforce participation among higher caste women, specifically Chhetri and Brahmin, can be attributed to religious and cultural practices that impose various restrictions, including limitations within the domestic sphere (Cultural Atlas, 2019; Lynn Bennett, 2008). For instance, agricultural tasks such as ploughing and roofing are considered forbidden for women, as it is believed to bring misfortune to the village if they engage in such activities (Jaquet et al., 2016). On the other hand, Newari and women of Tibetan origin, such as Sherpa, Rai, Limbu, and Tamang, are generally perceived as more active in public and business domains, with greater involvement in decision-making both inside and outside the home (Cultural Atlas, 2019). Additionally, Janajati women often marry within their community, resulting in a strong community network that provides support around their maternal home, which is not typically the case for Brahmin-Chhetri communities (Holmberg, 2018).

In Nepal, Hinduism is the dominant religion, followed by 9% Buddhist (CBS, 2011). Religion strongly correlates with ethnicity, as Hinduism is predominantly followed by Indo-Aryan ethnicities across the country, while Buddhism is more concentrated among Tibeto-Burman ethnicities in the northern regions (Cultural Atlas, 2019; Pradhan & Shrestha, 2005). Consequently, cultural values, religious beliefs, and social hierarchies vary based on ethnicity. However, it should be noted that the relationship between ethnicity and religion is not absolute (Cultural Atlas, 2019).

The simple regression findings reveal a significant link between respondents' belief system and their wellbeing. The dominant Hindu religion is used as the reference group for comparison. Buddhism emerges as a notable alternative, with women following this faith reporting significantly higher levels of happiness, satisfaction, and overall perceived worthiness, scoring approximately 2 points higher on average

compared to Hindu women. However, no significant association between religion and anxiety was observed among women. Notably, a strong correlation between ethnicity and religion was found, with 86% of Buddhist participants belonging to the Janajati ethnic group, indicating the close relationship between the two factors as previously described. This correlation led to multicollinearity concerns in the multilinear regression model, prompting the removal of religion as a predictor. Nevertheless, given the existing literature, qualitative data, and the inseparable nature of religion and ethnicity, the inclusion of religion in the discussion of mental wellbeing is warranted.

In many post-disaster contexts, religion is not simply interpreted through established doctrine to understand disasters. Instead, it is placed within society as a fundamental way to comprehend the causes of disasters and to identify strategies for immediate relief and long-term societal transformation. In Nepal, for instance, both Hindu and Buddhist communities attribute tragedies such as earthquakes and landslides to divine punishment for past sins (Welton-Mitchell et al., 2016). Similarly, Buddhists in Sri Lanka affected by the 2004 tsunami expressed fatalistic and pessimistic views, linking the disaster to the concept of karma, which holds that one's intentions shape their destiny across lifetimes (Levy et al., 2009). Research conducted in post-tsunami Aceh highlighted the cultural and religious influences on reconstruction processes (Daly, 2012). Notably, Muslim communities in Indonesia responded to the 2004 Aceh tsunami as an "opportunity" for peace, considering the devastation as a catalyst to resolve the long-standing conflict in the country. The disaster response also resulted in the relaxation of curfews, allowing people to engage in religious activities more freely, contributing to social stability (Levy et al., 2009). Harris (2013) has emphasised significant transformations in modern Buddhist contexts, particularly in terms of religious giving, where Buddhist temples in Malaysia and Sri Lanka played crucial roles in post-tsunami recovery efforts. Hence, religious values can have varying impacts on disaster vulnerability (Gillard & Paton, 1999), community recovery, and resilience during post-disaster adaptation (Kafle, 2012; Meril, 2012; Ostadtaghizadeh et al., 2016). The involvement of religion in the context of disasters extends beyond mere group membership and regular attendance in public displays of faith. It encompasses practices such as informal gatherings, cultural support systems, and providing financial, material, and manual assistance during times of crisis

(Gillard & Paton, 1999). Recognising the growing significance of religion, it is essential to consider its role in post-disaster reconstruction projects and the subsequent social transformations they entail (Bankoff, 2003). Thus, religion plays a crucial role in overall wellbeing beyond faith-based systems, influencing everyday social processes that shape individuals' life chances (Bennett, 2005; Devine et al., 2019).

In Nepal, religion significantly influences daily cultural life and can differentially impact post-disaster experiences. The economic ethics of Buddhism promote a strong emphasis on giving to the Sangha (*daana*) as the most beneficial "investment" for one's future (Ornatowski, 1996). Buddhism incorporates unique psychological analyses and adaptive practices, which can help alleviate certain psychological issues. Buddha's teachings provide a range of mental training methods tailored to individual needs and capabilities (Thera, 2001).

A recent study in Sri Lanka found that Buddhist women often engage in religious adaptation methods, such as "*sharmadana*" (volunteer activities to restore religious buildings), as a coping mechanism in highly stressful circumstances. Religion can activate an established system of social support and economic ethics, motivating members to offer financial, material, and manual assistance following a disaster, thereby aiding in coping efforts (Rao, 2013). Hence, Buddhist lay ethics likely played a role in providing support, which mediated the higher levels of wellbeing observed among individuals practising this cultural tradition.

Nepal's Buddhist culture and values of collectivism are evident in the community's shared responsibility during crises or significant events like weddings, funerals, and illnesses, as supported by various examples (Hall, 1982). For instance, during weddings, guests from each household not only give gifts to the bride but also contribute cash to help cover the party costs for the bride's family, reflecting their generosity. Similarly, in the event of a death, mourners contribute money and labour to build the funeral pyre, prepare the funeral meal (*ropsa*), offer sympathy, and join the funeral procession. These actions reinforce communal bonds beyond kinship or affinity, acknowledging mutual interdependence. The participants and donors maintain records of this aid and aim to reciprocate when they require similar assistance (Ibid).

To conclude, the prevalent social cohesion and collective culture exhibited by the Buddhist religious group contribute to the wellbeing of women after earthquakes. This concept is further elucidated in terms of the labour exchange system, which will be discussed below.

The qualitative data also reveals the common use of "*Perma*," an informal labour exchange system prevalent in agriculture, for post-earthquake reconstruction among the Tamang and Thami ethnic groups (see FGD S01). This utilisation of Parma for reconstruction purposes represents a unique mobilization of their cultural practice, empowering the Tamang and Thami communities to independently lead the reconstruction of their private houses. Interviews with women in the Thami community provide qualitative evidence suggesting that, despite their monetary poverty, their caste group is socially affluent due to their inherent ability to collabourate through informal labour sharing (see FGD S04). The Thami women described how they leveraged their caste-mediated social cohesion to overcome economic burdens and collectively manage resources for post-earthquake reconstruction. By capitalising on the strengths of their group culture, they recognised the potential for reconstruction despite their economic constraints. Notably, a study by Ogihara and Uchida (2014) suggests that collective cultures positively impact personal relationships and wellbeing.

> *"We are the ones who inherit and believe the culture of communal work-group in-between the neighbourhood and live harmoniously." (FGD participant, S04)*
> *'We are poor and none of us have enough money to start reconstruction. We were worried about it and then we 'Perma' group collectively met and developed a strategy to initiate reconstruction. We decided to pool the initial instalment of reconstruction trance of NPR 50,000 per household given by the government among the group members. Then with that amount, we in consensus started building one house first. We worked as labour together so that we could finish a house as soon as possible so that after completion, a house owner can get the other two tranches the government declared to provide in different stages of reconstruction and on its completion. Once the government will return the amount, we will then use that money to build a house for another member. As planned, we started to execute with the first house….'*
>
> *(FGD participant, S01)*

Tamang women are primarily engaged in agriculture for planting and weeding, as well as working as construction labourers (Tamang et al., 2014). Both Tamang and Thami communities, traditionally regarded as labourers, have been involved in such work within their villages or in Indian cities, benefiting from various economic opportunities arising from local post-earthquake reconstruction efforts. The extensive damage caused by the earthquake, particularly to private housing, has resulted in a surge in the construction sector, creating new employment prospects. This reconstruction phase has significantly increased the demand for construction labour, carpenters, and other workers on a short-term basis, thereby impacting the return of migrant workers.

The migration of individuals from Tamang, Thami, and Dalit communities, often associated with unskilled labour in India and other Nepalese cities, clearly indicates the availability of substantial labour resources for reconstruction. The focus group discussion among Tamang women provides insights into the prevailing employment patterns within their ethnic group. They described their lives before the earthquake, highlighting their disadvantaged status, limited access to cash, and dependence on wages earned through labour-intensive work in various cities or abroad. Being labourers, their primary source of income was daily wages to meet their needs.

However, the situation for these communities has changed after the earthquake, as explained in the preceding narrative of the focus group discussion. Tamang and other Janajati ethnic groups have benefited from local work opportunities created for reconstruction purposes. Men who returned to their communities to construct their own houses were able to secure employment due to the high demand for construction workers locally (refer to FGD S04). Additionally, the labour market generated in these sectors since the earthquake has motivated local men to return home. The surge in demand for construction labour and the resulting shortage of available workforce within these communities has led to a significant increase in average daily wages for semi-skilled labourers (see section 5.9.1). Consequently, it is unsurprising that labourers are now more inclined towards daily wage labour rather than engaging in agriculture.

"Before men were working either in Charikot, Kathmandu, Bhaktapur and fewer abroad. Males migrating to India as labour workers had reduced rapidly than before from our community because they have lots of job opportunities here now. As there is a very high demand for construction workers and masons in villages. So, males with those skills do not go away to India for earning anymore." (FGD participant, S04)

Initially, it was anticipated that the earthquake would lead to increased migration from the affected areas as a means to compensate for the significant loss experienced by families. This aligns with international experiences following major disasters, such as the 2001 El Salvador earthquakes (Wisner, 2003), hurricanes Katrina and Rita (Frey & Singer, 2006) and Haiti after the earthquake in 2010 (Le De et al., 2013), which witnessed an upsurge in out-migration. The earthquake in Nepal created new opportunities in construction, leading to higher earnings comparable to migration. This boosted the economy, retained local laborers, increased internal migration, and positively impacted specific caste/ethnic groups for their families' prosperity and food security. As a result, the wellbeing of these groups, as expressed by women during focus group discussions (FGD) (see FGD participant, S04), has improved at present. Tamang and Thami women score higher in happiness and satisfaction, possibly due to improved economic status from higher wages, increasing their purchasing power for necessities. This increase in household income has augmented their purchasing power for food and basic necessities. Additionally, women now have employment prospects in the construction sector, and as discussed in the FGD below, income is positively associated with wellbeing (Deeming, 2013).

"Wages have skyrocketed for labours and so do the opportunities of getting work for masons and construction labours in the village. Now we get more money from our husbands, so we are happy. (Laugh….) Nowadays, the amount of money we earn working as a mason and labour for two days earns enough to buy rice for a family for a month. The daily wages for the labour were Nepali rupees 200 – 300 per day in the village but after the earthquake, it went higher up to Rs.1000 Nepali rupees or more. Nowadays rather than working hard on the farm, we prefer to do labour work. When we can easily earn far better with the same amount of effort then why would we choose to do less-yielding work? The two days wages of two a mason is enough to buy a pack of rice which will be enough to for a month." (FGD participant, S04)

Upon delving deeper into the discussion group data, this study reveals that the Tamang and Thami groups have assumed a proactive role in the reconstruction process. It is noteworthy that nearly 80 percent of individuals from these groups have completed reconstruction within three years after the earthquake, while the overall completion rate among all respondents stands at 65 percent. This finding is corroborated by the insights provided by a key informant (KII S1), who not only holds a prominent social position but also manages a micro-finance institution within the village. According to the informant, the Thami and Tamang castes have been at the forefront of reconstruction efforts, leveraging their professional backgrounds and traditional labour-sharing practices to mitigate the challenges associated with this arduous task. In the aftermath of the earthquake, securing adequate shelter took precedence over financial considerations, as improved housing accessibility directly contributes to overall wellbeing.

> *"In the community, I have noticed that reconstruction is taking place with those families whose profession is a mason and those who were trained for earthquake-resistant houses. The common practice in the community is like for example, if we both are skilled labour then I will help you with your house construction, and then you will help me to do mine. Instead of paying cash, they share informal labour for reconstruction among villagers and which is an easy practice for them. It is higher among Thami and Tamang. But for the person like me who do not belong to that ethnic/caste group, did face problems with reconstruction as I can't help them with their reconstruction as I am not in the construction field and those who can, won't help me because I didn't help them. So, reconstruction is no more only a matter of money. Therefore, I hired labours from the southern part of the country for reconstructing my house."*
> *(KII, S1)*

Furthermore, in examining the self-assessed quality of life, a larger percentage of individuals belonging to the Janajati ethnic groups reported their current quality of life as better than their pre-earthquake life by over 12 percent (see Table 15 Appendix C). This finding suggests that actively participating in reconstruction efforts and experiencing increased income compared to the past has played a significant role in enhancing the wellbeing status of women from these ethnic groups.

The government utilised a 'blanket approach', meaning everyone affected received the same (equal) assistance and treated everyone the same regardless of their socio-economic situation and value of their previous property (Karki et al., 2022). The Chhetri/Brahmin, as the elite group, had better housing before the earthquake, but afterwards, they could not construct the same quality of the house, as they owned before. The poor families, in contrast, who did not have a good quality house before, are happy with the amount of money as they do not have very high expectation for their houses, and thus have had less to lose might contributed to thier wellbeing.

6.4.2 Changing family system and wellbeing

Household and family status significantly influence the self-identity of women in Nepalese society (Bennett, 2005). Within the domestic sphere, the dynamics of household relationships play a crucial role in determining individuals' risk levels and vulnerability, as gender relations, roles, responsibilities, privileges, and entitlements are established and enacted (Bradshaw, 2004). A comprehensive understanding of household operations can provide insights into their response to crises and subsequent effects on individual wellbeing, including resource accessibility and the roles of household members (Bradshaw, 2004).

Modernization has disrupted the traditional extended or joint family structure, which endorsed patriarchy and male dominance within the Hindu system (Bhushal, 2008). As a result, the nuclear family has emerged as the prevailing family form in rural Nepal (Goldstein & Beall, 1986). The extended family system was characterized by patriarchal and autocratic elements in the familial mode of production (Bradley & Caldwell, 1984). In Nepalese culture, the father assumes leadership of the extended family, controlling the household and legal property, while his sons, daughters-in-law, grandchildren, and unmarried daughters collectively form the family unit, working together in the farmlands and respecting the patriarch (Ibid).

The results find that women who live in a nuclear family can expect to have significantly higher happiness and satisfaction scores compared to those living in extended families. Their predictive effect sizes were 0.09 for satisfaction (see Table 34) and 0.11 for happiness (see Table 33). This probably reflects the greater autonomy women enjoy in this more recent family structure. The women's position within the household is greatly influenced by the structure of the household (Dechenla Sherpa,

2007). There is a norm of permission seeking to do everything from the senior members or in-laws in the traditional extended family system, potentially putting restrictions on every single step. In an extended family system, the women's position is believed to be worse when her husband migrates for employment due to a lack of decision-making power, potentially poor communication with in-laws and a lack of access to money as the husband sends money to his parents not directly to his wife (Ibid). This reduces the ability of women to take decisions easily and creates a lack of freedom to engage in different community groups and movements, or the autonomy to perform activities that are important for happiness. A study of women in Pakistan reveals that 'autonomy' is a predictive factor for happiness and satisfaction (Ali & ul Haq, 2006; Chant, 2004). In a nuclear family, a women's position is usually better, and even more when her husband is away as she has more decision-making roles and power although being in a nuclear family can increase the burden of work placed on women (Dechenla Sherpa, 2007). In Nepal, poverty is higher in households with a larger family size although larger families also mean more livelihood options (Joshi & Maharjan, 2008). Nevertheless, during a time of crisis, having an extra member especially dependent old members and children to look after can pose an extra social and economic burden making them less happy in an extended family than those from nuclear families.

6.5 Life experience before the earthquake and wellbeing

The research reveals that the past life experience of women has an important impact on current wellbeing. Those women who disclosed that their life before the earthquake was a good one overall and had no significant prolonged stress in their lives have a higher state of wellbeing in the post-disaster context with a higher happiness and satisfaction score, of a predictive effect of 0.12 (Table 33). Negative trajectories in quality of life before the earthquake was observed among the higher caste groups including Chhetri/Brahmin and Newar, in contrast to the rest marginalised caste groups as a result of the earthquake (see Table 15 in Annex C). Marginalised ethnic/caste groups have achieved a higher level of wellbeing than what they had before the earthquake due to changes in livelihood, income and early reconstruction after the earthquake which is described in the second last section of 6.3.1. Similarly, the study by Rigg and colleagues described how livelihood trajectories following the

Indian Ocean Tsunami are changed for some people in the affected areas. Some families grabbed an opportunity to improve their livelihood by re-working social and economic space following the event (Rigg, Lawt, et al., 2005).

Women were asked about their history of experiencing adverse life events that affected their lives before the earthquake, including personal traumatic events to being directly exposed to wider disruptions such as war and natural hazards. Compared to those having a history of at least one of these experiences of a negative life event in the past, respondents with no such history could expect to have a significantly higher wellbeing score. The predictive power of having such history was 0.11 for satisfaction (see Table 34), 0.16 for happiness (Table 33), and 0.21 for feeling worthwhile (see Table 35). In mental health research, disasters are often considered a traumatic event, not a synonym but rather a category of trauma (Jayawickrama, 2010). Wide and collective threats such as disasters, wars, and mass violence are categorized as a large set of collectively experienced events (McFarlane & Norris, 2006). It is quite common that most people are exposed to at least one violent or traumatic life-threatening event in their life course. The study district had been directly impacted by the civil conflict (Shneiderman & Turin, 2004) which had a devastating effect on people's lives (Crawford, 2007; Pettigrew, 2013). The war forced the men to flee for survival from the communities plagued by war-induced adverse circumstances such as the killing of innocent people or the abducting of non-combatants (Adhikari, 2012) and those who stayed behind were mainly women and children (Crawford, 2007). Some women and children joined the Maoist rebels through either conviction or coercion, and many lost their men in the conflict and reported that the insurgency had ruined their life (Ibid). The impact on women through conflict and related displacement heightened the risk of sexual assault and gender-based violence. The conflict-increased hardship for rural villagers and the risk of exploitation as life has been disrupted and the social fabric changed (Ibid). During the interviews with women in some communities, the impact of the war was visible. Among the interview participants, there were widows whose husband was a victim of that war and women who is living single due to loss of her son and husband in that war. They shared that in many families; sons and husbands are still missing, highlighting the ongoing trauma (See FGD M06).

"It has been 17 years since my brother-in-law went missing during the civil unrest and we still have not heard from him and do not know his status yet." (FGD participant, M06)

Throughout the time some have coped with these potentially disturbing events from the acute distress remarkably well, whereas others have been unable to recover (Bonanno, 2008). Development psychology claims that children who have grown up in disadvantaged conditions/adversity such as war are mostly resilient in their later life (Masten, 2001). In contrast, this study found that those who have experienced past stressors of adverse circumstances report lower wellbeing in the aftermath of a further adverse life-event, in this case the earthquake. This suggest that women in this study were adults already when they experienced civil conflict and now experienced earthquake. However, this indicates the need for further exploration of the relationship of traumatic experience as adult and its impact in future exposure to other trauma.

6.6 Experience of the earthquake and wellbeing

6.6.1 Social support during the immediate aftermath of the disaster and the implications for wellbeing

The social environment in which people live can both create opportunities and act as a protective or risk factor in determining their health (Fischhoff et al., 2001; Morgan, 2011). Evidence suggests that the accumulation of protective mechanisms can increase the likelihood of coping with adverse situations and mitigate the effects of structural inequalities such as poverty and deprivation (World Health Organisation, 2008).

Immediately after the earthquake, it was the community itself that responded promptly, saving lives and rescuing those trapped in the rubble. However, due to the government's inadequate response, vulnerability, limited access to resources, basic services such as road networks, healthcare, and technology to address the heightened demand for services in the aftermath of the disaster, people were mostly left to rely on their own capacities to deal with hazards and daily problems (Tamang, 2015). Despite being impoverished agrarian communities, they possessed the ability to organise and had a tradition of mutual reliance, which led to voluntary actions for the collective benefit of the community, known as social capital (Bankoff, 2007). Social capital is

built upon trust in relationships, and contributions made freely are reciprocated when needed (Ibid). Post-disaster recovery heavily relies on social capital (Bankoff, 2007; Nakagawa & Shaw, 2004). During a disaster, local communities come together quickly and play a crucial role in rescue, relief, and rehabilitation efforts (Shaw et al., 2003). However, priorities shift during the recovery period, where individual interests and needs take precedence. Studies conducted in several East Asian communities after disasters have highlighted the importance of social resources alongside material resources in recovery (Aldrich, 2012).

In this study, access to social capital is measured through three indicators: assistance received in the aftermath of the earthquake, ease in seeking necessary help, and support received from the community as a whole. The analysis revealed that women who easily received support from the community during rescue and recovery activities exhibited better post-earthquake wellbeing. This demonstrates a strong association between women's wellbeing after a disaster and the presence of robust social support. Generally, an individual's level of comfort in seeking necessary help was a strong predictor of the support received and the cohesion of their everyday life in the community (Nakagawa & Shaw, 2004). Economic, political, and societal divisions and inequalities have been recognised as significant barriers to seeking and receiving help during emergencies (Ibid).

Those women who agreed that they were comfortable in seeking help in the immediate aftermath of the earthquake for recovery and relief purposes reported being happier (β = 0.26) and more satisfied overall (β = 0.15) than those who did not have that benefit in hand (see

Table and Table). Similarly, support from the overall community (β = 0.12) and friends (β = 0.08) during the rescue and relief period was found to be positively associated with feeling worthwhile of women (see Table 35). Having access to a wider

network in the community, like neighbourhood, kinship and other socio-political ties, offers them a wider horizon of support and hope not only in the rescue and relief phase but in the later phase too. There are too many things to worry about after a disaster like housing reconstruction, safe place to stay, access to food and water, hygiene, the safety of your family and so on. Therefore, to deal with these many problems in the aftermath having strong social connections really makes a difference in recovery efforts. Similar finding is also highlighted in the other study (Aldrich, 2012). A similar finding is also highlighted in the other study (Aldrich, 2012).

Different studies have consistently shown a strong correlation between social ties and subjective wellbeing (Helliwell & Barrington-Leigh, 2010; Helliwell & Putnam, 2004). Social support can help in reducing the traumatic impact of disasters and maintaining mental health (Zhao, 2013). The strong link between social capital and happiness is well established in the literature (Helliwell & Putnam, 2004), and survivor women of disaster are no exception (Ardalan et al., 2011; Laditka et al., 2010). Pre, as well as post-disaster social support, have already proven to be a protective mechanism against the negative impact of the disaster on survivor's happiness (Calvo et al., 2015). But it is believed that causal linkages between wellbeing and social ties run in both directions. Social support has been identified as a long-term determinant of women's happiness and as an important element for the recovery of disaster survivors (Chan et al., 2015; Lin, 2002). The case study after the Kobe earthquake in Japan shows that a community with social capital and with a tradition of community activities, pro-actively participating in the reconstruction program can make a successful and speedy recovery (Nakagawa & Shaw, 2004).

However, women who believed that the help they received was more limited to the same caste group during the immediate aftermath than the general community or neighbourhood have a negative association with happiness (β = -0.11) (see Table 33) and this was also found to exacerbate anxiety (β = -0.11) (see 36). This indicates that these women experienced segregation within their community based on their caste/ethnicity or other factors, which highlights a lack of cohesion and generates a sense of vulnerability and lack of resilience. Table 9 of Appendix C further supports this finding, as it reveals that Dalit and Janajati individuals had the highest proportion of receiving help within their respective caste/ethnic group (67% and 53% respectively). Socially excluded groups, due to their marginalised social position, have

depleted social, economic, and psychological resources, which presents additional challenges during times of crisis when resources are scarce (Muldoon et al., 2017). In contrast, research conducted in other contexts, such as the study post-Hurricane Andrew in Florida, argues that in emergencies, community-level needs override individual-level needs, leading to ethnicity not having a significant effect on received social support (Kaniasty & Norris, 2000).

Women employed different strategies to navigate the harsh realities of everyday life in the earthquake's aftermath and cope with deteriorating conditions. Qualitative data suggests that these strategies varied according to the stage of the aftermath. During the rescue and relief phase, women relied on generalizing their experiences to the entire community to normalize their situation and alleviate stress, as losses were widespread across communities. Subsequently, they engaged in communal coping, emphasising social capital and fostering interdependence among individuals to collectively overcome the crisis. However, the data also indicate a clear dependence on social networks during the earthquake's aftermath in rural Nepal, with a greater emphasis on informal relational strategies such as seeking help and support from family and friends.

During the recovery phase, people relied more on their neighbourhood and friendship networks regardless of caste/ethnicity. The data suggest that having supportive friends in the neighbourhood is crucial for the wellbeing of women during the recovery phase. In rural Nepal, village life is highly social compared to urban areas, with individuals knowing nearly everyone in their village. A key informant explained:

> *"In my opinion, during the hard times, people as a community felt much better. As in such time, all family members will be going through the common agenda so if they confine themselves within the family only, they might feel isolated. When we come outside of the family in the community, they will have a common feeling of we all are going through the same, I am going through the same and they are going through the same too. People have convinced themselves by comparing their situation with others in the community and generalising their problem, which helps to pull themselves out of the trauma. Everyone is in the same trouble, not only me. Almost all houses have collapsed, not only mine is the feeling of how they have convinced themselves. If it would have been a case of few, imagine how traumatic it would have been?" (KII, M1)*

Despite the construction of temporary shelters, women made a conscious choice to gather together in communal spaces during the day to alleviate their fear of recurring aftershocks in the aftermath of the Gorkha earthquake. This fear prevented them from venturing out individually to engage in agricultural tasks, resulting in many communities abandoning farming for that year. During interviews, women participants expressed a preference for spending daytime with friends rather than family members, as within the family, discussions often revolved around familial issues and problems. They found solace in engaging in various conversations and gossiping with friends, allowing them to momentarily escape from their pain (see the extract from FGD participant, L02 in chapter 5). A mental health specialist working in the district shared a similar observation, stating that community members have strong interpersonal relationships and spend time conversing with one another, as they are often unemployed and have ample free time (see KII, M1 in section 5.6.4).

6.6.2 Earthquake jolt triggered social transformation and wellbeing

Although disasters have predominately been understood as destructive events causing significant loss of lives and livelihood, the constructive nature of disasters as creating potential windows of opportunities to address the overlooked and neglected aspects of disaster risk reduction cannot be denied (Manyena, 2013). The literature on disaster management has begun to recognise the activities carried out during post-disaster as an opportunity for national and communities to 'build back better' providing a significant window of opportunity (Haigh, 2010). That is why post-disaster recovery processes are considered as opportunities for development, by revitalizing the local economy and upgrading livelihoods and living conditions (Nakagawa & Shaw, 2004).

The findings suggest a strong association between feeling worthwhile and earthquake-induced social cohesion (β =0.12) (see Table 35). In nearly all group discussions, women consistently shared their collective strategy for coping with the crisis and fear immediately following the earthquake. The community demonstrated a remarkable level of solidarity and cooperation during this time of disaster. Many community members gathered together in large groups to provide mutual support after their homes were destroyed. They assisted one another in rescue efforts and temporary reconstruction. The sense of strength in facing the aftermath of the disaster was much stronger when united. People found refuge in safe, flat areas near the roadside,

alongside their neighbours, disregarding social status and caste affiliations. They cohabited under one roof, sharing a common kitchen, a significant departure from the past when individuals from higher castes refused to eat food touched by those from lower ethnic groups. Within the group, responsibilities were shared: some searched for food, others cooked, managed water, and set up tents. The community displayed compassion and care for the wellbeing of vulnerable individuals such as the elderly, children, and the injured. The collective will to face adversity together and overcome challenges was prevalent, although the duration of this transformed relationship was unclear. It fostered a sense of unity within the community, helping them to transcend past rivalries and caste discrimination, as revealed in the following quote from FGD F06, representing the mixed Sherpa, Brahmin, and Tamang households in the Mali village.

> *"The earthquake has brought the community even closer. The level of dispute in the community had dropped to minimal after the earthquake, and we all villagers live harmoniously, regardless of caste/ethnicity."*
>
> *(FGD participant, M06)*

Surviving together became their primary goal, fostering a sense of kinship that helped mitigate potential negative consequences like sexual violence and robbery, often observed in similar disaster scenarios. Mutual support within communities was crucial for immediate survival. Despite their hardships, they found solace in shared experiences and even celebrated their survival by collectively slaughtering chickens and goats, followed by a feast. Previous studies on disasters have also emphasised the difficulty in sustaining exceptionally high levels of cooperation and bonding during the recovery process (Zautra et al., 2010).This exemplifies how disasters can bring people together and break down social barriers. Recognising the need for sustainable wellbeing should not solely rely on disasters; however, they can serve as a wake-up call. It is challenging to determine the longevity of these behavioural changes. The recent study by Hülssiep et al. (2021) already revelaed that the weak social cohesion among different castes prior the earthquake was improved during the process of immediate response and recovery but after nearly two years post earthquake the inter-caste tensions and pre-existing caste-based discrimination and prejudices have surfaced again.

Unfortunate events like massive earthquakes leave behind visible immediate damages such as destroyed villages, loss of lives, displaced individuals, and damaged cultural heritage sites. However, in the long term, these disasters often catalyze profound social transformations, triggered by the shock they induce and their interactions with relief and reconstruction efforts (Bankoff, 2003). Different places have witnessed various experiences of disasters, highlighting this point. For instance, the 2004 tsunami in Aceh province, Indonesia, devastated a region plagued by poverty, conflict, and corruption. However, a post-disaster survey in 2008 revealed that people overwhelmingly reported higher satisfaction with life compared to pre-tsunami, attributing it to their strengthened community relationships (Brusset et al., 2009). The severe impact of the disaster halted the ongoing thirty-year civil war and brought the community together to rebuild, underscoring the power of disasters in fostering greater community cohesion (Ibid). Thus, disasters can yield positive outcomes even in the face of adversity, demonstrating the importance of a robust social fabric during the post-disaster period for overall wellbeing. Similarly, a study conducted after Hurricane Katrina in the United State revealed that survivors who experienced the most significant property damage reported receiving more support from their community, leading to improved social relationships (Calvo et al., 2015).

Learning opportunities

Although women in rural communities reported that, they themselves or someone in their household received learning opportunities; using of bank account for the purpose of receiving relief fund (50% HH), training and counselling on mental health, hygiene & sanitation, and some in the form of livelihood training (0.5% HH) such as mason training, agricultural training etc, in post-earthquake Dolakha. The analysis reveals the negative association of the personal wellbeing of women with such learning opportunities. In other words, the happiness (β = -0.13), satisfaction (β = -0.17) and feeling worthwhile (β = -0.21) scores were significantly lower for women who were part of the learning opportunities in the community after the earthquake than for those women who said nobody in their household received any learning opportunities following the earthquake (see Table 33, Table 34, Table 35).

The finding that lower wellbeing scores were associated with accessing training primarily pertains to training on opening and managing a bank account. The reasons

behind this unexpected finding were not apparent from the focus group discussions (FGDs) or key informant interviews. A study by Sijapati and colleagues on the earthquake experience of migrant households revealed that in districts severely affected by the earthquake, the condition of internal migrant households was particularly precarious, with low levels of disaster preparedness compared to the average household (Sijapati et al., 2015). This sheds some light on our finding that women who participated in banking transactions for the first time to receive government-provided reconstruction funds in a bank were already among the poorest and most marginalised. They were struggling without a resident male household head, leaving female household heads to handle administrative issues. As mentioned earlier, female-headed households, especially those formed due to internal migration of men for work, have living conditions below the average.

During the interviews, participants expressed reluctance to participate in skilled masonry training. Some women mentioned that although they were allowed to take part, they declined due to their lack of confidence in numeracy skills and making measurements, which they attributed to limited education (see FGD L02).

> *'Women could have taken part in training too but we didn't attend because we thought we may not be able to understand measurement, and all. And, if we start work as Mason who will take care of children, cook, feed and send them to school on time?'* *(FGD participant, L02)*

Some participants found attending training to be futile since they believed they would not have the opportunity to practice the skills due to their existing domestic workload, which reflects the influence of gender roles. A woman from the Tamang community in Laduk village shared her perspective, stating that if she had undergone the training and started working as a mason, she would not have been able to cook for her children or ensure they reach school on time, compromising their education. Consequently, they advocated for their male counterparts to benefit from the training. However, even though men may gain skills like masonry and carpentry through such training, it is likely to exacerbate the domestic burden as they would be away from home constructing houses in the village, potentially negatively impacting women's wellbeing. Other studies also highlight that various pre-existing social contexts make women more vulnerable during disasters, including a greater reliance on men due to

prevailing patriarchal norms, limited access to certain resources, and societal expectations of caregiving (Enarson, 2000; Juran & Trivedi, 2015).

Key informant interviews conducted for this study revealed that women household heads, often lacking experience and adequate literacy, faced challenges in opening bank accounts. This difficulty in accessing banking services signifies the likelihood of experiencing other disparities in receiving financial assistance. As one key informant associated with the Women Development Office and a social leader from Sunkhani village explained, a notable example is the struggles faced by many women, particularly those in households with male migrants, in obtaining government financial aid in the absence of a male presence (see KII SW1, W1) :

> *"The process of getting NPR. 15 thousand to each victim household for immediate relief and later NPR. 50 thousand for building a temporary shelter was tedious, and not all were able to get it. To those women who had their men abroad, the process was not only tedious, but women felt distrusted and harassed by the questions like Where is your husband? This document cannot be prepared without the presence of your husband, you don't have legal documents in your name, and so on. Women kept going through these piercing attacks. There were disparities in the first place. Initially, to receive a fund allocated by the government mentioned mandatory criteria that a person with legal property documents to collect so those women who did not have documents in their name and whose husbands were away suffered for some time but after a while, the government changed the mandate of distributing it. Later, it was amended that if a wife comes up with a copy of a consent letter from their husband, they get it. We did help women technically to email a consent form to their husbands and get it printed."* *(KII, SW1, W1)*

The government's requirement to qualify for the reconstruction grant initially limited eligibility to individuals possessing legal property documents. However, despite women being de facto household heads, most fixed assets such as land and houses were registered in the names of men. Consequently, women faced numerous difficulties in accessing the grant, especially in cases where the men were abroad. The challenges encountered by women in obtaining the grant were highlighted by a key informant. Subsequently, the government revised the mandate in response to widespread criticism, accepting a letter of consent from the property owner.

Nevertheless, women still faced barriers due to limited internet access and knowledge. Educated individuals, such as teachers in the neighbourhood or cooperative workers, provided technical support to assist these women.

One aspect of the ordeal involved women encountering additional hardships when travelling to district headquarters, where centralized services were located. The journey from their homes to the headquarters, often an hour-long bus ride, presented challenges as bus services were scarce. Women with infants and toddlers had to arrange for assistance from villagers to care for their children while they undertook the necessary documentation. Completing the fund's application process involved navigating multiple departments, resulting in lengthy queues and hours of waiting. Consequently, women were forced to spend at least one or two nights away from home. Finding lodging near the headquarters proved challenging due to high demand, resulting in significant expenses. Nearly half of the grant amount was spent on accommodation, food, travel, and caretaker costs. In contrast, male members faced fewer obstacles due to their technical knowledge, enabling them to expedite the process at a lower cost, as explained by the key informant (refer to KII, W1 in Chapter 5, Section 5.2).

Furthermore, the workload for women significantly increased due to the earthquake's destruction, leaving them to struggle without the support of their husbands or family. They had to bear the additional burden of reconstruction, including physically exerting themselves by transporting construction materials, such as bundles of galvanized sheets, and sourcing logs from the jungle for temporary reconstruction during the initial phase. Additionally, some women engaged in manual labour to reduce construction costs, as revealed in the focus group discussions (refer to FGD S01 in Section 5.4.2).

Notably, many women chose to delay reconstruction when lacking male presence, openly expressing their reluctance to assume the significant responsibility of house reconstruction. Their lack of confidence and perceived inability to handle large sums of money, manage construction materials, and oversee labour hindered the reconstruction process (refer to FGD extract S02 in Chapter 5, Section 5.7.2). Consequently, women's literacy and confidence also played a role in hindering household reconstruction in the absence of male members. This demonstrates that

migration has a substantial impact on the recovery and rehabilitation process (Sijapati et al., 2015).

Following the earthquake, the Government of Nepal facilitated the return of migrants by collabourating with destination countries to arrange advance payment of workers' salaries and paid leave (The Kathmandu Post, 2015). The government also waived round-trip airfares for external migrants who had lost family members in the earthquake. However, post-earthquake migration assessments indicate a significant return of internal migrants from different parts of the country to their hometowns, compared to external migrants (Sijapati et al., 2015). Internal migrants working in various cities promptly returned home after the earthquake, assisting in recovery efforts, such as retrieving buried belongings, constructing temporary shelters, and being involved in other rehabilitation activities (Ibid). Many men returned to their communities, rebuilding their houses and opting to remain due to opportunities emerging within their hometowns.

Despite many women interviewed stating that the absence of men had adverse impacts on their post-earthquake communities, the data from

Table to Table surprisingly indicates that the return of male members to the community following the earthquake generally did not have a positive impact on women's wellbeing. Women who perceived the earthquake as a catalyst for male return had significantly lower levels of happiness, satisfaction, and feelings of worth. It is widely recognised that male out-migration can negatively affect women left behind by increasing their workload and responsibilities without a corresponding increase in control over resources and assets (Khadka et al., 2015; Maharjan et al., 2012; Sugden & De Silva, 2014). In contrast, a study conducted by ICIMOD documents a positive aspect of male migration, suggesting that mountain women view

male out-migration as a normal occurrence and have learned to adapt to it (Maharjan et al., 2016). This migration has contributed significantly to women's empowerment through their increased involvement in community development and economic opportunities (Dechenla Sherpa, 2007). Male migration disrupts established gender-based divisions of labour and decision-making, leading to significant changes that empower women. The necessity created by male absence prompts women to take on new roles, exposing them to government offices, development organisations, and visitors. This exposure helps them discover hidden strengths, skills, and confidence, enabling them to make independent decisions about the household in the absence of male counterparts. Consequently, they assume decision-making positions, inadvertently enhancing their confidence and empowerment (Dechenla Sherpa, 2007). Similarly, the findings of my study suggest that women are content on their own, and the return of men to the community may challenge women's autonomy, negatively impacting their wellbeing. The increased return of males had a negative contribution to women's happiness scores (β = -0.08) and satisfaction scores (β = -0.12) of the women (see Table 33 and Table 34). However, no indication in any of the villages studied was given of the negative experiences of migrant returnee households in the qualitative interviews. When a male member returns in the middle of the migration cycle and not being able to pay the investment household made during his migration (Mak et al., 2021), those returnees afterward are likely to increase domestic violence due to financial stress and also with increase in male return is likely to provide competition in the job market by the returnee to the non-migrant households . These factors mihght have caused negative associaton of male return with wellbeing of women. However, to understand the exact cause that is challenging their wellbeing as a result of male return in the community is something to be studied in detail in the future.

6.7 Current life and wellbeing

6.7.1 Self-assessed current quality of life and wellbeing

Post-disaster resources play a crucial role in shaping the quality of life for women who have experienced a disaster, as indicated by a study conducted among Hurricane Katrina survivors (Calvo et al., 2015). These resources encompass a wide range of factors, including tangible possessions (e.g., housing and vehicles), contextual resources (e.g., employment, marital status), personal attributes (e.g., skills, self-

efficacy, and self-esteem), and access to vital resources (e.g., knowledge and financial means) (Hobfoll, 2012). Disasters significantly deplete available resources, and it is often the most impoverished communities, already lacking essential services, that bear the greatest burden. Effective post-disaster recovery is contingent upon the vulnerability of individuals and communities, their pre-existing strength, and the availability of resources to support rebuilding efforts (Fritze et al., 2008). However, other studies have highlighted instances where disasters have presented individuals with new opportunities or alternative livelihoods that improve their overall wellbeing beyond their pre-disaster state (Rigg, 2004).

The current quality of life was among the most influential variables that explained the mental health and wellbeing scores. The beta coefficients of 0.18 for satisfaction (see Table), 0.27 for both happiness (see Table 33) and feeling worthwhile (see Table 35) were the highest among all variables included in the final model. Likewise, current stress was also a significant predictor for the measures of satisfaction and feeling worthwhile. Surveyed women who perceived that they had a better quality and stress-free life often had better health and wellbeing outcomes. Quality of life is an implicit goal of an individual and many studies proposed it as a combination of objective and subjective elements (Costanza et al., 2007) with special emphasis on wellbeing (Hörnquist, 1990). Quality of life is defined as the interaction of human needs and subjective perception of their fulfilment as mediated by the opportunities available to meet the needs (Costanza et al., 2007). Hence, wellbeing will likely have a direct relationship to the perceived quality of life. The quality of life has the potential to determine the coping potential of survivors and get them back to a normal functioning life. However, there is a contrast in the relationship between lower anxiety scores and good quality of self-assessed life. Women who said their quality of life is good to have a negative association with lower anxiety which in the figure means that women who said they have a better quality of life also scored higher points of anxiety by nearly one point or reduced lower anxiety score by nearly one point in an average compared to women who self-assessed current life is not good.

Research consistently illustrates that physical health is something strongly associated with wellbeing (Oguz et al., 2013), which means those who have better wellbeing have a higher chance of having better physical health and vice versa. The finding in this study also reflects the similar pattern that not having any history of chronic disease

physical or mental illness is significantly associated with the wellbeing of women in the aftermath of the disaster. The predictive effects of not having a chronic health condition were 0.06 for satisfaction (see Table 34), 0.07 for happiness (see Table 33), and 0.1 for feeling worthwhile (see Table 35). In other words, women not having any history of prolonged illness scored higher happiness, satisfaction, and feeling worthwhile than the women who agreed they are a sufferer of such long-standing illnesses. Physical health is an important aspect in pursuing personal goals in achieving quality of life, whereas those living with chronic illness affect the pursuit of life goals and are distant from the quality of life goals (Schwartz & Drotar, 2009).

6.7.2 Economic security and wellbeing

Women's current wellbeing is strongly associated with certain dimensions of economic status, such as occupation and the primary source of household income. Women engaged in paid work (jobs, labour, or self-employment) exhibit higher wellbeing scores compared to those involved in unpaid domestic work. Similarly, women whose main source of income is remittance or service display better wellbeing scores than those reliant on agriculture (see Table 33 & Table 34). Economic factors play a role in reducing vulnerability by providing protection against harm, influencing individuals' perception of risk, and their ability to comprehend and respond to warnings (Wisner et al., 2004). Numerous recent studies on disasters, such as Hurricane Katrina, the Indian Ocean tsunami, and the 2009 Haitian earthquake, have identified widespread poverty as a fundamental contributor to population vulnerability (Galea et al., 2007). The most vulnerable groups are typically the impoverished and marginalised, possessing limited resources.

Women from households relying on remittance as their primary source of income report significantly higher levels of happiness and satisfaction compared to those whose main income comes from agriculture. In Nepal, where unemployment is a

chronic issue, rural households heavily depend on agriculture for subsistence. Due to the rugged terrain and limited use of agricultural technology, farming in rural Nepal remains labour-intensive (Tamang et al., 2014). The high rate of male outmigration in rural areas creates a shortage of labour, resulting in increased demand for labour and higher labour prices. Consequently, agriculture becomes a less attractive and less rewarding activity in terms of workload, cost, and time invested (Jaquet et al., 2016). Remittance income sent by family members working abroad in a household is considered a stable non-farm source, especially in rural household income (Cultural Atlas, 2019; Khadka, 2015) and it has successfully helped to uplift rural communities with an important pathway to rural prosperity (Gaudel, 2007; Hagen-Zanker, 2015; Kamanga et al., 2009; Sunam & McCarthy, 2016; World Bank, 2009). Having a member of foreign employees working abroad has not only been a vital livelihood option for the Nepali population but can also raise the social prestige of the family (Gaudel, 2007; Ghimire et al., 2011).

According to the Nepal living standard survey, 43 percent of all remittances to rural households in Nepal come from abroad and mainly in Malaysia and Gulf countries (like Saudi Arabia, Qatar, United Arab Emirates, Kuwait) as 87 percent of registered migrant workers in 2008- 2016/17 went to these countries (Government of Nepal, 2018) who can bring far higher income back home (Seddon et al., 2002). The majority of Nepali (74%) migrants are placed as semi/unskilled labour (Government of Nepal, 2018), mainly involved on construction sites, in factories, and in domestic work, which is largely characterised by low levels of pay and high level of exploitation (Ghimire et al., 2011). Nonetheless, a study comparing wellbeing between migrant and non-migrant households in terms of wealth and psychosocial aspects in one of the remote districts in Nepal concluded that migrant households have better rates of improvement in wellbeing compared to non-migrant households over 10 years (Adhikari & Hobley, 2015). Moreover, the analysis documents a positive association between women's wellbeing with overseas remittance constituting the main source of household income (Ibid).

In the post-disaster context, migration-driven remittances can enhance the resilience of households dealing with disasters (Le De et al., 2013). Remittances serve as a potent and responsive mechanism during challenging times when other income sources may be disrupted. Remittance income, on the other hand, remains steady and acts as a

source of strength that enables individuals to cope with and recover from shocks (Ibid). A study conducted in Pakistan following the Kashmir earthquake illustrates how remittances reduced vulnerability and enhanced resilience among affected individuals. These remittances facilitated improved access to relief support, reestablishment of other livelihoods at home, and funding for prompt house construction, thereby facilitating a relatively swift recovery (Suleri & Savage, 2006). Furthermore, it indicates that households receiving remittances are generally less vulnerable than those without such inflows, both economically and in terms of having improved housing that is less susceptible to damage during earthquakes (Ibid). Likewise, other disaster studies have highlighted the consistent and reliable nature of remittance transfers in meeting emergency needs and unanticipated expenses for affected households. These transfers act as a safety net, particularly in housing reconstruction, for households with migrants abroad (Mohapatra et al., 2009; Suleri & Savage, 2006).

A post-earthquake migration study in Nepal suggests that households encouraged their migrant members not to return to the country, as their earnings were deemed more crucial during the recovery phase (Sijapati et al., 2015; Suleri & Savage, 2006). Nepali migrants responded to the earthquake in various ways, such as sending remittances and returning home (Nepali Times, 2015). A study conducted in different districts of Nepal following the earthquake revealed that households receiving remittances used them to purchase food and essential items, playing a pivotal role in post-earthquake reconstruction (Limbu et al., 2019b; Sijapati et al., 2015). Another study conducted after the Gorkha earthquake found a weak link between migration and earthquake preparedness in internal migrant households, while the link was stronger in households with international migrants (Sijapati et al., 2015). Remittances have proven to be a lifeline in Nepal during past natural calamities, political conflicts, people's wars, and economic recessions, providing a more reliable source of income (Maher, 2018).

In a focus group discussion in a village called Mali, dominated by the Sherpa ethnic group, participants expressed that the current generation is primarily educated and working abroad. One member of the Sherpa family in Europe was able to gather funds and relief materials from their overseas network and send them back to their community (author's study). On the other hand, another study conducted after the

Gorkha earthquake revealed the negative impacts of the remittance economy on resilience in certain households. These households had borrowed money based on the expectation of continuous remittances to build houses that were subsequently destroyed by the earthquake, leaving them in a state of increased indebtedness without receiving the anticipated benefits (Sijapati et al., 2015). Poor households can become even more impoverished if they fail to secure employment abroad or terminate their contracts prematurely, resulting in loan interest payments without the corresponding remittance (Sunam & McCarthy, 2016).

This study establishes a strong correlation between women's occupation and their post-disaster wellbeing. Self-employed women, such as those engaged in regular business or contracted services/jobs, reported significantly higher scores for feelings of happiness and satisfaction compared to women involved solely in unpaid homebound domestic work and agriculture activities. The majority of women's businesses consist of small retail shops, tea shops, and local hotels providing accommodation. This highlights the connection between women's access to cash and empowerment with their overall wellbeing. Interestingly, these findings align with national data analysis conducted in the United Kingdom, which demonstrates a strong relationship between women's employment status and wellbeing on wellbeing (Office for National Statistics, 2018) It emphasises the importance of secure, high-quality jobs with good social connections for both physical and mental health (What works wellbeing, 2017). The shared mediating factor across these disparate settings is likely to be the impact of employment type on women's empowerment.

Both qualitative and quantitative data from this study support the notion that women engaged in employment outside the home recovered more quickly from the earthquake's aftermath. Returning to work promptly allowed these women to maintain continuous engagement with others, helping them quickly overcome stress in their daily lives, as reported by participants in Focus Group Discussion M06. Additionally, women involved in business activities are widely recognised within the community, serving as crucial contact points in the rural study areas where the number of shops is limited.

> *"Of course, women who are not homebound and are employed coped with the situation better in the aftermath to get back to their normal life faster compared*

to other women they have people to talk to, they have better resources occupational network and responsibilities distract them from the everyday stress caused by the destruction. And also, those who live with family or those whose husband is with them were better in coping." (FGD, M06)

During my fieldwork, I observed that the tea shops in the village served as the primary point of communication upon entering. These shops also sold popular snacks, biscuits, cigarettes, and chocolates, as well as essential cooking items like oil, salt, and spices. In Chilankha, a market site in one of my study areas within the Bigu municipality, there were only three shops, a few small hotels, and the ward office. Upon arrival, I encountered difficulties finding accommodation as the hotels had limited rooms. Typically, the hotels in the villages are privately owned homes where spare rooms are rented out to guests. Due to the presence of construction workers in the village, all the hotels were fully occupied, but fortunately, the kind lady who owned one of the hotels offered me a room to share with her children. Each morning, I observed various project staff (NGOs), contractors involved in road construction and housing projects, as well as government employees gathering at the hotel for tea, reflecting the strong social network of the hotel owner due to her profession. This highlights the potential positive impact of work-related social support on women's wellbeing, a notion also explored in studies conducted in other countries, such as the US, across seven manufacturing industries (Loscocco & Spitze, 1990).

Post-earthquake reconstruction activities boosted local businesses, revitalised markets, and had positive economic multiplier effects. The influx of money and goods supported retail stores, hotels, and construction workers, benefiting the local economy. Jobs related to reconstruction were more secure compared to labor-intensive agriculture, enabling effective organisation among workers (Randolph & Agarwal, 2017). This enabled the hotel owner to fulfil her basic needs, recover from the shock and has been linked to improved welfare among women (Stevenson, 2009). The literature review indicates a strong correlation between income and happiness, particularly in poor nations (Diener, 2002), and especially among low-income families where income access is crucial for the mental health after a disaster, as evidenced by studies conducted among Hurricane Katrina survivors (Diener, 2002; Paxson et al., 2012).

Table 34 and Table 35 demonstrate that having a job contributes to two dimensions of wellbeing: satisfaction (beta=0.07) and feeling worthwhile (beta=0.12). As discussed earlier, women's wellbeing is associated with employment. Jobs are generally better protected and less impacted by disasters, allowing workers to organise themselves better compared to those in labour-intensive, low-yield agricultural work (Randolph & Agarwal, 2017). Despite the contracted jobs, such as teaching or healthcare, not offering high pay in this study, even women engaged in voluntary work have shown a contribution to women's wellbeing. For instance, an in-depth interview with a Tamang FCHV revealed that she, in her 50s, living alone with her paralysed husband and shouldering the burden of domestic and agricultural work as well as caregiving, expressed her reluctance to give up her volunteer role as a health worker. She considers herself fortunate to be employed in this capacity as it uplifts her morale. (Refer to the detailed interview of FCHV below.)

> *"It is only me and my husband living in the village, and my son and his family live in Kathmandu. I have a responsibility to handle all domestic works, farms, cattle, and my husband too as he has paralysis. Besides, I am working as a Female Community Health Volunteer in this ward. Despite all these domestic burdens, I don't want to give up my role as FCHV. I do not take that role as a burden as it helps me to keep in regular contact with other people which makes me feel happy and forget other worries." (In-depth, FCHV Chilankha)*

The in-depth informant, widely recognised in her village for her role as a female community health volunteer, expressed her willingness to shoulder additional responsibilities. She has received a notable level of recognition and respect within the community, which helps alleviate the pain and hardships in her life. Likewise, other participants in the focus group discussions, including teachers and health workers, explained how their roles bestow upon them a significant status within the village, making them important and well-regarded members of society. This demonstrates that having a job not only contributes to the economic empowerment of women but also fosters social cohesion, solidarity, and mutual support, thereby enhancing overall wellbeing.

6.7.3 Reconstruction and wellbeing

The earthquake rendered nearly everyone in the rural study area homeless, leading to the displacement of some villages due to earthquake-induced landslides. People

endured a miserable life in temporary shelters for over two years, with reconstruction efforts commencing nearly two years after the earthquake, as detailed in section 5.7.2. While housing became a top priority for women's wellbeing, expressed during interviews conducted as part of the disaster recovery process, not all those who completed reconstruction were satisfied with the end-product. However, women respondents who were content with the reconstruction exhibited significantly higher levels of happiness and satisfaction.

The concept of "building back better" in terms of constructing more solid and modern housing has caused disappointment among the population. Authorities have developed robust building codes and various residential models to ensure compliance with earthquake-resistant construction. Despite 80 percent of the 800,000 houses destroyed by the earthquake being made of mud and mortar, the government-proposed post-earthquake building designs include only two models using stone masonry with mud mortar (see Figure 33), while the rest involve brick masonry with cement mortar and reinforced bars (Sharma et al., 2018b). As a result, community members are uncertain about adopting government-designed houses due to concerns about the availability and cost of building materials, as well as the size and design of the houses, which do not meet the needs of those living in earthquake-prone areas. In remote villages, where markets are far away, transportation of cement, rods, and bricks, which are not locally available, significantly increases construction costs. Alternatively, traditional materials such as mud, wood, and stones abundant in local areas could be used for construction, as discussed in FGD L07. Most rural communities have limited financial resources, and the mandatory government-specified materials make reconstruction much more challenging to achieve within the limited reconstruction grants provided.

> *"In the present context, we can't dare to start to reconstruct if we do not have enough cash in hand in advance. In past, we used mud, wood, and local stones to construct our houses. But now the government has imposed on us to use cement and rod which are very expensive. Now, we need to buy rods, cement, and everything for construction."* *(FGD, L07)*

Figure 33: Picture of reconstruction of an individual household

Furthermore, the qualitative data reveals that the government-proposed house size was inadequate for accommodating agricultural products, crops, and animals. The design lacked a cattle shed (barn), which holds significant importance in the daily lives of rural villagers (refer to the in-depth interview of Tamang women from Laduk below). This disregard for the local culture by the government resulted in dissatisfaction with the reconstruction process as people felt their needs were not considered. It indicates the lack of appropriate technical solutions for reconstruction in the rural Nepali context and a lack of cultural sensitivity in building design, failing to accommodate the specific needs and lifestyles of the inhabitants. A similar finding was uncovered in a study conducted in Nepal, highlighting that the reconstructed houses did not align with people's domestic, familial, and cultural requirements. (Shneiderman et al., 2020).

> *"The dimension of house technicians provided for reconstruction are very small for our use. Although I have completed reconstruction according to the government-given criteria because the house is very tiny for us, we are still living in the cottage which we built for a temporary purpose. We haven't shifted there as all our belongings do not fit there. Just a two-bedroom congested house that will hardly fit 10-12 goats. What is the use of such small houses for us? Where will we keep our guests when they come, in such a small house? Where shall we store our crops and all?"*
>
> *(In-depth interview, Tamang women Laduk)*

Numerous studies have consistently demonstrated that post-disaster reconstruction and rehabilitation following a large-scale disaster is a complex and multifaceted process. This process involves the intricate interplay of various factors, primarily arising from social dynamics (such as the absence of male members and insufficient labour forces), technological considerations (such as adherence to building codes), and economic influences (Birkland, 2006; Davidson et al., 2007). Lack of suitable resources and alternatives (Chang et al., 2010; Zuo et al., 2008), disruption of access to the communities due to road blockage caused by disaster (Green et al., 2007) and limited ways of procuring (Oxfam, 2007) available resources have been identified as a few of numerous adverse circumstances that post-disaster reconstruction is susceptible to which significantly impede the reconstruction process.

6.8 Summary

This chapter examines various factors that significantly influence the wellbeing of women in post-earthquake communities. The findings demonstrate how the impact of one variable can change when combined with other variables, either diminishing or amplifying its effect on the outcome mostly resulting in reduction. Overall, this chapter highlights not only the role of post-earthquake life but also the pre-earthquake circumstances, the inequalities women face in their daily lives, and the importance of physical health in determining wellbeing. All significant factors, whether positively or negatively associated with women's wellbeing, are summarised.

Most of the factors presented in the table show a positive association with wellbeing, except for women's experiences during the earthquake, specifically the limited support received only from the same caste group, and earthquake-induced changes such as learning opportunities and the return of male members of the family. However, regarding anxiety, the factors contributing to lower anxiety are different and mostly opposite to those affecting the other three outcome measures.

Significant positive contributors to post-disaster wellbeing include women residing in urban areas, socio-cultural factors like Janajati ethnicity, women's self-employment, living in a nuclear family system, and reliance on remittance or job as the primary income source. Other significant contributors include the absence of adverse life events in the past, better current physical health or absence of chronic illness,

improved self-assessed quality of life, and reduced stress levels before and after the earthquake. Factors related to post-earthquake recovery experiences, such as better access to social support and the comfort of seeking necessary help within the community, as well as satisfaction with the reconstruction efforts, also significantly contribute to women's wellbeing.

There are also some significant negative contributors to women's post-disaster wellbeing, including limited help received from outside the same caste group post-earthquake, women in households who received learning opportunities post-earthquake, and the return of male family members induced by the earthquake.

Chapter 7 Discussion and Conclusion

7.1 Introduction

This research aims to contribute to the existing evidence on the factors that are most relevant to the wellbeing of women following the 2015 Gorkha earthquake in Nepal. I examined the disparities in women's wellbeing, considering their individual and socio-economic factors, geographical location, and their different pre- and post-disaster life experiences, which were found to strongly influence their post-disaster wellbeing. These variables were studied using a mixed-method approach. While most mental health research relies on qualitative methods, my study incorporated qualitative research to inform the quantitative study design and provide context to the quantitative findings. This allowed my study to benefit from the strengths of both research designs.

Given the limited research focus on post-disaster mental health and wellbeing in Nepal, the existing body of evidence mainly addresses mental illness from a curative perspective. In contrast, this thesis explores mental health from a positive perspective, specifically focusing on wellbeing in the context of disasters, aiming to bridge this gap. Therefore, this study targets a wider population, encompassing individuals who may or may not have clinically diagnosed mental health conditions, to foster resilience and promote mental wellbeing among women to effectively cope with crises. The study takes into account mental health and wellbeing in terms of post-disaster recovery and resilience.

In the subsequent discussion section, I will briefly outline how I have addressed the study objectives, highlighting the key themes that emerged from the study, and discussing the contributions this study makes to the broader literature on post-disaster wellbeing. Firstly, I will examine how I have achieved my research objectives, followed by an analysis of how my findings enhance the existing literature. Finally, I will explore potential avenues for further research and provide recommendations based on the insights gained from this study.

7.2 Key findings

7.2.1 Pre-earthquake life experience of women and wellbeing

In this section, I present findings related to the first research objective, which focuses on the pre-disaster exposure of women and its impact on their post-earthquake wellbeing. I not only discuss the findings of this study but also provide references to the relevant literature pertaining to each determinant.

1. ***To explore the everyday lives of women before the 2015 Gorkha earthquake and the implications for mental health and wellbeing.***

The post-earthquake wellbeing of women is influenced by key pre-earthquake determinants, including socio-economic factors such as Janajati ethnicity, employment, and spatial location. This study highlights the predictive role of Janajati ethnicity in promoting higher wellbeing among women. Although Janajati ethnicity is generally associated with disadvantaged and marginalised groups with relatively low socio-economic status (Bennett et al., 2006), it proves beneficial for women's wellbeing after a disaster due to additional social characteristics associated with the ethnicity. These include cultural and religious factors, the equitable position of women and men within households, strong ethnically mediated social cohesion that supports post-earthquake reconstruction, and improved economic status resulting from opportunities arising from the earthquake. Similar findings regarding the positive association between Janajati ethnicity and mental health outcomes were observed among former child soldiers in Nepal. (Adhikari et al., 2014). The Janajati women surveyed in this thesis mostly were following Buddhism (see table 2 in appenix c). Buddhism is linked to adaptive practices that can alleviate psychological problems through various forms of tailored mental training suited to individual needs and capabilities (Hofmann et al., 2011). According to Bennett et al. (2006) women belonging to the Janajati ethnic group experience less patriarchal oppression. Thus, the post-disaster wellbeing of women is influenced by a complex interplay of multiple factors, with ethnicity serving as a predictor.

This study highlights the significance of women's economic empowerment for their post-earthquake wellbeing. Specifically, it suggests that women engaged in self-employment or contracted jobs experience better wellbeing compared to those involved in unpaid domestic and agricultural work. The positive impact of full-time employment on mental health and wellbeing has been reported regardless of gender

(Flatau et al., 2000), while consistent evidence exists regarding the detrimental effects of unemployment on wellbeing (Newton, 2007). However, there is a lack of evidence regarding the specific nature of work that shapes wellbeing (Newton, 2007).

Furthermore, this study found that women in households receiving international remittances as the primary source of family income experience positive wellbeing. Research conducted in various districts of Nepal following the 2015 earthquake has documented the key role played by remittances in post-earthquake recovery and reconstruction (Limbu et al., 2019b; Sijapati et al., 2015). However, another study suggests that migration can have adverse effects on some poor households if a family member fails to secure employment abroad or has to return home prematurely, adding financial burdens due to loans taken for migration expenses (Sunam & McCarthy, 2016).

In contrast to the findings of this study, research on "left-behind women" in the eastern terai of Nepal concluded that while remittances improve objective wellbeing, they do not significantly impact subjective wellbeing. Subjective wellbeing is complex and multifaceted, influenced not only by income but also by family context and socio-cultural factors (Gartaula et al., 2012). Women living with in-laws, where the in-laws receive the remittance money, often do not experience significant economic benefits, and the absence of their husbands makes them less satisfied. However, they receive some support from their in-laws in sharing their workload. On the other hand, women who become de facto heads of households in the absence of their husbands face increased responsibilities and additional workloads, but they perceive these changes as positive rather than negatively impacting their wellbeing. Another scenario observed is that women from poor households express greater satisfaction with remittances compared to women from relatively well-to-do households, as their primary wish is for their husbands to be with them.

The study indicates that good physical health and the absence of adverse life events are predictors of post-disaster wellbeing among women. This finding aligns with similar studies conducted in non-disaster contexts (Oguz et al., 2013). However, a longitudinal study on lifetime adversity exposure and mental health suggests that certain past adverse experiences can have positive implications for wellbeing. Individuals with a history of adversity are less negatively affected by recent adversity

compared to those without prior lifetime adversities (Seery, 2011). Nonetheless, the study highlights the temporal effects of past adverse experiences, revealing that recent experiences of adversity (less than 18 months) contribute to worse wellbeing outcomes (Seery, 2011).

Another significant family-related factor influencing post-earthquake wellbeing among women is the type of family unit they reside in. Women in nuclear families show a significant association with post-earthquake wellbeing. Bradshaw (2004), in her review study of Hurricane Mitch, emphasises the role of household structure in crises, including response capabilities, reconstruction efforts, and relief needs. For instance, the distribution of relief materials without considering the number of family members can lead to conflicts. In nuclear families, women typically have better positions, with more decision-making roles and power (Dechenla Sherpa, 2007). This finding supports the results of my study, suggesting that women's autonomy contributes to wellbeing. Similarly, studies conducted in Pakistan reveal that "autonomy" is a predictive factor for women's happiness and satisfaction (Ali & ul Haq, 2006; Chant, 2004).

In addition to individual and family factors that impact their daily lives, the geographical landscape, specifically the rural or urban setting, also plays a significant role. Regression analysis conducted in my study reveals a strong positive association between the post-disaster wellbeing of women and living in urban areas compared to rural areas. This finding supports the World Bank's (2013) report, which emphasises the close correlation between people's wellbeing and their environment. Urban areas offer better access to resilient infrastructure and services, as highlighted by Glaeser (2011) and identified as an important determinant of wellbeing according to Sapkota (2018). Adhikari and Hobley (2015) similarly argue that women find life comparatively easier in urban areas, with less physical workload and greater involvement in income-generating activities. On the other hand, women in rural communities face excessive workloads, negatively impacting their health (Dechenla Sherpa, 2007). While women in urban areas are increasingly participating in the paid workforce, women in rural areas often engage in non-paid activities such as subsistence farming and labour (Cultural Atlas, 2019).

The rapid urbanisation and extensive building development in Kathmandu, Nepal, have led to an alarming earthquake risk for this urban city. Consequently, prior to the 2015 Gorkha earthquake, earthquake preparedness and risk reduction efforts mainly focused on the Kathmandu Valley alone (Dixit et al., 2012; World Bank, 2013). However, the Gorkha-Dolakha earthquake resulted in higher casualties and infrastructure damage in rural areas of Nepal. Significant disparities exist between urban and rural regions in Nepal regarding access to markets, services, information, employment opportunities, safe drinking water, and sanitation, with urban areas typically offering better access (Bennett, 2005; World Bank, 2013). A study on rural Nepal's infrastructure and human wellbeing emphasised the importance of access to infrastructure for overall wellbeing (Sapkota, 2018). Research conducted by Robinson et al. (2018) highlighted the exposure and vulnerability of rural communities to earthquakes in Nepal. Their study modelled 90 plausible earthquake scenarios and concluded that the districts with the highest seismic risk are predominantly located in rural western Nepal, with approximately 9.5 million Nepalis residing in these high-risk districts, surpassing the risk level in Kathmandu. Therefore, the findings of this study indicate the necessity of considering earthquake vulnerabilities in rural areas and prioritizing their ability to cope and recover from earthquakes, rather than solely focusing on urban areas due to rampant construction and high population density in cities. Similarly, it is crucial to ensure better recovery and reconstruction measures after earthquakes and promote equitable development in both rural and urban areas to prepare rural communities for earthquake risks.

7.2.2 Experience of the aftermath and response strategies of women and wellbeing

The section above focused more on pre earthquake factors having impact on wellbing of women. The following section focuses on the second research objective concerned with the lived experience of women during the earthquake and immediate aftermath and their implication to wellbeing.

2. ***To document the challenges faced by women and their response strategies in the aftermath of the 2015 Gorkha earthquake and the implications for mental health and wellbeing***

The study found that women who felt comfortable seeking help from the community, both during and after the earthquake, demonstrated a positive association with their wellbeing. In contrast, women who relied on support from their own caste group experienced a negative impact on their wellbeing. Social capital, encompassing trust, mutual help, and reciprocity, has long been recognised as a determinant of positive mental health and wellbeing, irrespective of disaster situations (Aida et al., 2013; R. Wind et al., 2011). The cognitive aspect of social capital, which pertains to the recognition of community connections, consistently showed a positive association with mental health outcomes, while the structural component, relating to the existence of community linkages, yielded mixed results (De Silva et al., 2007; R. Wind et al., 2011).

Although my study did not specifically focus on the type or components of social capital, it revealed that women's comfort in seeking help from the overall community, rather than being limited to specific caste groups, is crucial for their mental health and post-disaster wellbeing. This finding highlights the positive outcomes associated with the support received from diverse caste/ethnic groups, representing bridging social capital that transcends social divides. Similar findings were observed in another study conducted in India after an earthquake, where women's comfort in seeking help correlated positively with received support and community cohesion (Nakagawa & Shaw, 2004). Additionally, my study indicated that when women's support was limited to their own caste group, it had a clear negative impact on their wellbeing. This emphasises the significance of bridging social capital.

7.2.3 Experience of recovery and reconstruction process post-earthquake and wellbeing

While the third research question focused on women's individual experiences during and after the earthquake and their influence on mental health and wellbeing, I aimed to expand this inquiry by considering the role of earthquake-induced changes in individuals' lives, families, and the broader environment in shaping women's wellbeing. The final research question delved into broader changes brought about by the earthquake at individual, family, and community levels, and their impact on wellbeing:

3. ***To identify the factors shaping women's differentiated experiences of the processes of recovery and reconstruction that have influenced women's wellbeing in the aftermath of the earthquake***

My study uncovered various transformations resulting from the earthquake at both the community and household levels, encompassing infrastructural and social changes during the post-earthquake recovery phase. These changes entailed the return of male migrants, new educational opportunities, increased economic prospects, enhanced social cohesion, and improved housing conditions.

Although disasters often disempower women, they can also potentially create opportunities for them, such as acquiring new knowledge and skills (Enarson, 1998). However, not all opportunities arising from disasters contribute positively to women's wellbeing. Women from households that received learning opportunities after the earthquake had significantly lower wellbeing scores compared to women from households without such opportunities. As discussed in section 5.7.1, the learning opportunities provided to the majority of households primarily involved establishing and utilising bank accounts to receive government-allocated reconstruction grants. This observation possibly reflects the respondents' lower literacy levels and the higher economic vulnerability of these households, as they did not previously possess bank accounts. The added burden of safeguarding the received funds due to their lack of confidence in conducting bank transactions may have adversely affected their wellbeing.

The findings of this study indicate a negative relationship between the return of male migrants to earthquake-affected communities and the wellbeing of women. Existing literature on male migration has demonstrated both positive and negative effects on the lives of women left behind in these communities. Several studies have identified adverse consequences, including increased workload for women without a corresponding increase in control over resources and assets (Adhikari & Hobley, 2015; Khadka et al., 2015; Maharjan et al., 2012; Sugden et al., 2014). However, a contrasting study has highlighted the potential for male migration to contribute to women's empowerment by enabling them to assume new decision-making roles both within and outside the home (Dechenla Sherpa, 2007). Nonetheless, Adhikari and Hobley (2015) suggest that the temporary authority gained by women in the absence of male family members diminishes when male migrants return and resume their

traditional patriarchal positions, potentially leading to negative implications for women's wellbeing.

Various studies have demonstrated the significance of remittance income in alleviating household poverty (CBS, 2011), enhancing overall household wellbeing, and contributing to post-earthquake reconstruction efforts in Nepal (Limbu et al., 2019b ; Sijapati et al., 2015). Following the occurrence of natural disasters, such as earthquakes, families often encouraged their migrant members to remain abroad as their earnings were crucial for the recovery phase (Wendelbo et al., 2016). However, the return of males to their families post-disaster may have led to economic crises for households and adversely affected the wellbeing of women. Although extensive research has examined the impact of male migration on women who are left behind, minimal attention has been given to the influence of returning male migrants, complicating the understanding of the interplay between the wellbeing of "left-behind" women and these returnees.

Among the surveyed women, the sole predictive factor positively associated with their wellbeing in the aftermath of the earthquake was the satisfactory reconstruction of their private houses. While timely reconstruction is crucial for women's wellbeing following an earthquake, my study revealed that the participants' satisfaction with the reconstruction process played a more significant role. Many households that completed the reconstruction were dissatisfied with their houses, as they adhered to the government building codes, which did not meet the practical or cultural requirements of the people. Participants expressed concerns that the size of the reconstructed houses was inadequate for their family's needs, including the storage of harvest and accommodation of livestock. The new houses lacked sufficient space for these activities. Thus, the concept of "building back better" presents an opportunity to enhance resilience in post-disaster situations but should also prioritize meeting the people's needs, extending beyond mere speed and strength in reconstruction efforts (Hallegatte et al., 2018).

People intended to modify the post-earthquake reconstructed houses following the building codes to fulfil their need for additional space, such as by adding storeys or porches (Shneiderman et al., 2020). It is worth noting that the government provided equal economic support to all affected households for house reconstruction regardless

of their pre-disaster income level, wealth, house type, or losses. This approach may have disproportionately affected previously more affluent families, as they would need to invest additional funds beyond the grants to rebuild their houses to the desired size.

7.3 Main themes emerging from the research

The findings of this study reveal the profound negative impact of the 2015 earthquake on the health and wellbeing of the women who were surveyed and interviewed. The loss of human lives, physical devastation, and disruption of daily routines contributed to this impact. While some individuals quickly regained their normal mental functioning following the disaster, others experienced chronic effects on their mental wellbeing. Earthquake events with greater intensity have been shown to have long-term consequences on individuals' health and wellbeing, hindering their ability to fully recover (Bland et al., 1996; Chen et al., 2007).

Among the various factors examined in this study, one recurring theme that emerged was the importance of **control, autonomy, and decision-making power in contributing to the positive wellbeing of women**. Specifically, women from the Janajati ethnicity, those with paid employment, and those belonging to nuclear families reported higher levels of self-assessed wellbeing. Significantly, ethnicity was found to be associated with wellbeing, with middle-caste and marginalised groups exhibiting better post-disaster mental health and wellbeing than high-caste groups. These findings contrast with much of the existing literature, such as Norris and colleagues' review on post-disaster mental health, which indicates that individuals from minority groups and with low socioeconomic status typically have poorer mental health outcomes (F. H. Norris et al., 2002).

Although the Janajati ethnic group is categorized as a marginalised indigenous group, they exhibit a cultural dynamic with fewer power divisions between genders. Women in these communities face fewer patriarchal obligations and constraints within their households, which affords them greater authority in decision-making in their everyday lives compared to women from higher caste groups within the Hindu caste system. It is essential to recognise the diversity within the Janajati population, as individual experiences may vary significantly based on factors such as socio-economic status, geographic location, education, and cultural variations within the ethnic group. It is important to note that the findings of this study reflect general patterns

observed within the sample and may not capture the full range of experiences across all Janajati women. Notably, in many Janajati caste groups such as Tamang, Gurung, and Magar, women assume leadership roles within their households, even when a male presence is present. This observation suggests that women from these groups have more control over household resources and decision-making compared to women from privileged ethnic groups.

Women employed in professions other than domestic and agricultural work, such as self-employment and paid jobs, were found to experience higher levels of wellbeing. These occupations provide women with access to networks beyond the confines of their homes, granting them individual income and enhancing their independence, confidence, and control over their lives. A study on Bangladeshi women involved in handicraft production highlights the importance of work-related networks in improving their wellbeing and shaping their identities (Le Mare, 2012). However, this study also reveals that women's empowerment within the context of waged employment in Bangladesh is constrained by the prevailing social and cultural norms.

Additionally, women in nuclear families reported a higher level of post-disaster wellbeing, likely attributed to their increased control over family dynamics and resources. In contrast, women residing in households with returning male migrant exhibited lower levels of wellbeing. It is unclear from my study whether this can be attributed to a loss of freedom experienced by women during the migrant's absence or their concerns about the potential reduction in remittances upon his return. Nevertheless, this finding challenges the notion that women left behind by male migration either face overwhelming burdens in assuming vacated roles or are compelled to realign their indoor and outdoor work priorities (Phadera, 2016).

The second key theme that emerges from this study is the **role of resource access in relation to wellbeing**. The findings underscore the significance of accessing social, economic, and physical infrastructural resources. Urban living, reliance on remittances as the primary source of family income, and overall social support following the earthquake were found to be positively associated with wellbeing.

The results indicate that urban living has a notable positive correlation with the post-disaster wellbeing of women. In Nepal, the introduction of the new constitution in 2015 established a federal system of governance and initiated efforts to decentralise

services and development that were previously concentrated in major cities. This decentralisation has resulted in improved access to vital services such as markets, banks, and a functioning road network, which fundamentally facilitates women's lives during post-disaster recovery and reconstruction in urban areas. In contrast, rural areas face additional challenges due to limited access to essential services and infrastructure, as revealed by the surveyed women. Historically, urbanisation has been linked to expanded economic, social, and political opportunities for women, giving urban women comparatively greater advantages over their rural counterparts (UN-Habitat, 2013). Therefore, the study findings suggest that the lives, circumstances, and everyday experiences of women in urban and rural settings differ significantly. Women in urban areas experience comparatively lower workloads, improved economic opportunities, and better access to infrastructure and services. Consequently, access to essential services significantly influences women's wellbeing in the aftermath of a disaster.

The findings of this study indicate that Janajati, as a less advantaged middle-caste group within traditional caste hierarchies, demonstrate better outcomes compared to other privileged groups when provided with social and economic opportunities. Specifically, the Janajati ethnic group exhibited notable improvements in various aspects of their lives following the earthquake, including higher income and improved housing. This progress can be attributed to their utilisation of ethnically and culturally based social support networks and reciprocal systems, which facilitated access to labour and skilled workers for reconstruction efforts. Consequently, the surveyed Janajati women reported higher levels of wellbeing in post-earthquake Dolakha, surpassing those of the privileged high-caste Chhetri/Brahmin women. These outcomes remained consistent despite the Janajati group lagging behind in Human Development Index (HDI) and ranking high in vulnerability index. Notably, while rural geography was found to have a negative association with wellbeing, Janajati ethnicity prevailed over geography in shaping post-disaster wellbeing, even though Tamang and other Janajati groups were predominantly located in rural areas.

Conversely, despite receiving similar opportunities post-earthquake, such as economic and educational prospects and the return of family members, the surveyed Dalit women exhibited lower wellbeing scores. The key differentiating factor between the groups, which may provide some explanation, was access to social assets, which

was significantly lower for Dalit women. The Dalit women received the least support from the broader community, which was positively associated with wellbeing, and relied primarily on support from their own caste group, which was negatively associated with wellbeing during recovery and reconstruction. This disparity highlights their lack of inclusion within the case study communities and underscores their continued vulnerability as the most marginalised group post-earthquake. Moreover, while different caste groups within the Janajati category face marginalisation, their experience of caste-based discrimination within the community is comparatively less severe than that faced by the most disadvantaged ethnic group, the Dalit, who encounter extreme levels of discrimination and unequal access to land resources, further highlighting their vulnerability. These findings reflect enduring social inequalities within and between communities that hinder post-disaster wellbeing.

Furthermore, the wellbeing of women was significantly influenced by their access to overall community support and their comfort in seeking necessary assistance during post-disaster recovery and reconstruction. Women who reported better access to community-wide support demonstrated a significant contribution to their wellbeing. In contrast, limited access to support confined to their own caste group was negatively associated with wellbeing. This underscores the importance of access to social support and inclusion within the community for post-disaster wellbeing.

The third key theme of this study highlighted gender as a cross-cutting issue that affects many factors tied to promoting the post-disaster wellbeing of women. The descriptive chapter explains the gendered impact on women's wellbeing during disaster recovery and reconstruction. Despite the offer of vocational training for masonry work after the earthquake, many surveyed women declined due to their need to focus on domestic responsibilities rather than income-generating activities. The return of men to communities also negatively impacted women's wellbeing due to male dominance and reduced freedom from domestic roles. Conversely, reconstruction had a positive association with women's wellbeing, but the absence of male household members to lead reconstruction efforts resulted in delayed progress due to the low monetary and managerial skills of women caused by gendered divisions of labor. Gender discrimination and patriarchal cultural practices continue to limit women's status and empowerment in society, leading to social unrest. Therefore,

post-disaster wellbeing requires equal participation in decision-making, access to resources and services, and opportunities for women to be empowered. The study found that households with a more gender-inclusive culture, empowered women in employment, and nuclear families with women in prominent decision-making roles and control over resources had a significantly positive association with post-disaster wellbeing.

7.4 Broader Implications of the Research and Contribution to Literature

The synthesis of both quantitative and qualitative results reveals nuanced tensions in understanding the wellbeing of women in the long-term aftermath of the disaster. While the quantitative aspect highlights the negative impact of the return of male migrants on women's wellbeing, the qualitative study shows the importance of male members in coping with the aftermath and managing reconstruction. This suggests a dynamic shift in the immediate and longer-term needs of women post-disaster, emphasising the importance of considering evolving circumstances. This research significantly contributes to existing literature by explaining the negative impact of the return of male migrants, potentially associated with the interruption of remittance as a family income source.

This study challenges conventional understanding by suggesting that self-employment, rather than broader women empowerment efforts, has a more substantial positive contribution to post-disaster wellbeing. The qualitative data indicates that engaging in self-employment, often in the form of running small tea shops or restaurants, not only enables women to earn a livelihood and sustain their lives post-earthquake but also facilitates their access to necessary support within the community. Through their entrepreneurial ventures, women develop robust networks, enhancing their social capital and creating a foundation for community support. This finding emphasises the multifaceted benefits of self-employment beyond economic aspects, contributing to the overall wellbeing and resilience of women in the aftermath of the earthquake.

Contrary to the prevalent perception of certain ethnic groups, particularly Tamang and Thami, as disadvantaged, this study challenges this narrative. It highlights the strength and resilience of these communities, showcasing practices such as religious

support, informal labour sharing, and employment opportunities that contribute to their elevated wellbeing post-disaster.

The study emphasises the often-overlooked importance of nuclear family structures in Nepal. Despite the prevalent pattern of joint families, women living in nuclear families demonstrate higher wellbeing compared to their counterparts in joint families.

Access to social support is acknowledged as beneficial, but the study underscores the necessity for women to have access to overall community support, rather than being confined to the limited support of the same caste group, which exhibits a negative association with post-disaster wellbeing.

Furthermore, the research questions the effectiveness of generic community interventions post-disaster, highlighting the negative impact of certain interventions, such as learning opportunities, on women's wellbeing because they were not ready to take that or their capacity did not match the opportunity provided. Another example supporting the need for community-specific interventions is evident in the dissatisfaction expressed by women regarding the completion of private houses. The qualitative and quantitative both studies revealed that not all completed reconstructions had a positive contribution to the wellbeing of women. The dissatisfaction from the fact that, in adhering to the government building code for eligibility to receive grants, the reconstructed houses did not align with the everyday needs of the women. The qualitative findings highlight the size and design did not fit their agricultural purpose and these reconstructed houses turned out to be more expensive than their traditional way of construction. Hence, the study recommends tailoring interventions to the specific needs of the community, recognising that not all activities contribute positively to women's empowerment and their wellbeing.

The research methodology, employing a mixed-methods approach, proves to be instrumental in capturing a wide range of issues. By integrating qualitative and quantitative data, the study unveils important insights into the changes in social dynamics post-disaster, the impact of male return on women's wellbeing, and the factors that make vulnerable groups stronger in a particular scenario.

The study also underlines the simplicity and effectiveness of wellbeing measures as a tool to understand the overall life of women post-disaster. Wellbeing, considered synonymous with resilience in many instances, emerges as a straightforward to the post-disaster resilience of women. For example, Bonanno (2004) define resilience as the ability to maintain a relatively healthy level of psychosocial functioning, as this definition overlaps and complements the concept of wellbeing.

In aligning with the MWIA approach of Friedli, the study provides validation for its relevance in studying the wellbeing of women. The key themes identified in the discussion chapter align with the core protective factors of Friedli's model, reinforcing its utility in understanding post-disaster wellbeing.

In conclusion, this research not only contributes valuable insights to the discourse on post-disaster wellbeing but also provides methodological guidance for future studies, advocating for a comprehensive mixed-methods approach to capture the complexity of women's experiences in the aftermath of disasters.

7.5 Key message for policymakers

The study has identified several issues concerning the differential impact of disaster responses on women's post-disaster recovery and wellbeing. Existing disaster studies primarily focus on the consequences of disasters for women, rather than exploring their emotional experiences during and after the disaster (Cupples, 2007). This tendency persists in perceiving women in the Global South as a homogeneous and oppressed group burdened by powerlessness (Mohanty, 1988). The effects of post-disaster responses on women's wellbeing intersect with pre-existing disadvantages related to female empowerment, access to social capital, skills training, and political representation. Notably, the study found that certain blanket approaches to supporting women during disasters had unintended adverse effects on their wellbeing.

Consequently, the study's recommendations propose that disaster response planning should give greater consideration to the cultural context and the diverse experiences of women in disasters. This approach aims to develop more gender-sensitive and differentiated interventions, while also ensuring careful monitoring of potential negative and differentiated effects of post-disaster programs on women.

1. To ensure **gender-sensitive disaster response** planning and promote women's wellbeing, it is crucial to prioritize their involvement and empowerment in the planning and decision-making processes. This section highlights three examples that demonstrate the negative consequences of post-disaster responses, which could have been mitigated through women's participation and opportunities for their voices to be heard:

    a. The study reveals that facilitating paid employment opportunities and supporting self-employment for women contribute to higher levels of post-disaster wellbeing.
    b. However, it also found that skills training provided to women for managing post-disaster resources (e.g., building and banking skills) increased their stress levels and had a negative impact on their wellbeing. These training programs assumed a higher level of pre-existing literacy and numeracy among women, failing to consider their actual capabilities and the constraints on their time and energy.
    c. In contrast to many other studies, this research found that the wellbeing of women heading households deteriorated when male migrant workers returned to the household after a disaster. This shift in decision-making power within the household to the returning male migrants resulted in a setback for women's empowerment.

By examining these examples, it becomes evident that involving women in decision-making processes and addressing their specific needs is crucial for enhancing post-disaster wellbeing and minimizing negative impacts.

2. To prioritize women's wellbeing with **cultural and contextual sensitivity**, it is crucial for disaster response planning to recognise the varying power dynamics among women in different household structures. Access to different forms of social capital and the diverse reconstruction needs of women should also be taken into account. These issues highlight the importance of post-disaster planning that can flexibly respond to the unique needs and experiences of women. Several examples demonstrate the differentiated experiences of women in these areas:

    a. Women's positions vary significantly depending on the type of household structure. Female-headed households are often among the most

disadvantaged, but the wellbeing of the female head may be higher compared to a young woman with low status in an extended family household. This reflects the relative power dynamics within the household, and policy responses should be sensitive to these effects.

b. Furthermore, women's experiences after a disaster are further differentiated by factors such as ethnicity and caste, which intertwine with gender roles and social status. For instance, Janajati women exhibit higher wellbeing despite their lower caste status, as they hold greater decision-making power within the family unit due to cultural norms. On the other hand, Dalit women, considered "untouchable," display the low wellbeing that might have been anticipated. Post-disaster responses should aim to address existing community inequalities by fostering bridging social capital.

c. The rapid reconstruction of housing emerged as a priority issue in the post-disaster context. The government provided grants, but these grants came with standardized building codes for size and design. However, these codes disregarded the socio-cultural and economic contexts that shaped diverse building and reconstruction needs. In some cases, households preferred to remain in damaged old residences. Recognising and accommodating these variations is essential to effectively address the housing needs of affected communities.

7.6 Conclusion

The massive Gorkha earthquake and aftershocks struck the central part of Nepal in 2015 causing severe damage to infrastructure and people. This had a negative impact on the mental health and wellbeing of the population, both in the short and long term. To better understand the factors contributing to women's mental health and wellbeing in Dolakha district in the aftermath of the disaster, this study utilised a mixed-method approach. It involved collecting qualitative data in the first stage, which guided the second stage, a household survey, where appropriate wellbeing measures were selected using the qualitative data. Post-disaster mental health and wellbeing is crucial to maintaining and strengthening a population's resilience in the face of adversity. Furthermore, mental health has a direct impact on physical health, educational productivity, overall socio-economic development, and helping people

and communities reach their potential. This thesis offers a new outlook and has filled the gap on post-disaster problems by emphasising positive aspects rather than negative ones, illness. This study assesses the importance of a holistic approach to wellbeing.

It is important to note that mental health and wellbeing vary depending on context and culture, and mental disorders are highly stigmatised in Nepalese society. Therefore, interventions developed for mental health and wellbeing after disasters must consider cultural and social settings. Understanding wellbeing is also crucial in guiding community improvement to prepare for future disasters and to enhance post-disaster recovery. In Nepal with many rural communities with high male migration, women play a significant role in post-disaster recovery. Hence, understanding the determinants of their wellbeing is essential to ensure their meaningful participation in the post-earthquake recovery and reconstruction. This study has been able to explore the main contributors to the post-disaster wellbeing of women in Nepal in the case study communities in Dolakha. This study was conducted 3 years post-earthquake which is intended to study the longer-term impact on mental health and wellbeing. As most of the research on post-disaster is on immediate phase or acute reaction but this study has tried to provide temporal dimension post-disaster although it is not a longitudinal study. I believe that this understanding will help to guide the stage needing the most attention to prepare for future disasters and build healthy and sustainable communities.

This study echoes inherent structural inequalities that are attached to women's everyday living prior to the disaster that precedes their experiences and ability to respond during disasters, such as patriarchy, their inability to live independently, limited access to resources, and decision-making. The study notes that access to infrastructure, services, social support, and equality culture are major determinants of post-disaster wellbeing for women. Women who have no limitation to seeking help only within certain groups and have easy access to help they require in the aftermath is one of the identified determinants by this study. The study further highlights that being labelled as a vulnerable group does not always indicate they are constantly at risk. This group also exhibits particular abilities that may occasionally serve as an advantage and compete better than the advantaged group given the chance to utilise their skills which is shown by Tamang women in this study. The thesis sets the tone

that post-disaster wellbeing is not solely determined by pre-disaster advantages but also current conditions and dynamics at that point.

This thesis offers an insight into how the better current quality of life they are living post-disaster has a significant role rather than their pre-earthquake life in determining their wellbeing. Having better physical health and the absence of any adverse life events also have a significant contribution to post-disaster wellbeing. The central finding of this thesis is that although disasters can bring about change within the household and community, but most of them turned out to have a negative impact on the post-disaster wellbeing of women.

The study highlights that the changes induced by the earthquake bring about changes in family dynamics by the return of males, leading to women losing some autonomy they once had, which negatively impacts their wellbeing. Post-disaster recovery is crucial but should not focus solely on response, restoration, and rapid reconstruction without considering the long-term impacts of these activities. Educational, livelihood, and awareness programs aimed at improving living conditions for affected communities should consider cultural needs and local context, as rapid reconstruction may end up doing more harm than good, particularly for women's wellbeing. Women's post-disaster experiences are complex, and recovery experiences differ in different groups of women. Therefore, we should not categorise all women as homogenous groups. Wellbeing after a disaster is not always predicted by pre-existing advantages or disadvantages, but by how the dynamic of the group changes post-disaster.

References

4 years, 45000 aftershock. (25 April 2019). *Kantipur Daily*.

Abdel-Khalek, A. M. (2006). Measuring happiness with a single-item scale. *Social Behavior and Personality: an international journal*, *34*(2), 139-150.

Acharya, B. R. (2008). Dimension of rural development in Nepal. *Dhaulagiri Journal of Sociology and Anthropology*, *2*, 181-192.

Acharya, M., Mathema, P., & Acharya, B. (1999). *Women in Nepal*.

Acharya, T. P. 2068 vs Nepalko Mahila Andolanka Paribartit Sandarva: Ek Bibechana. In. Kathmandu: Acharya, Meena.

Ackland, S. (2002). Mental health services in primary care. The case of Nepal. *World Mental Health Case Book, New York, Kluwer*, 121-152.

Action Aid. (2015). The South Asia Women's Resilience Index: Examining the Role of Women in Preparing for and Recovering from Disasters. *London: The Economist Intelligence Unit and Canberra: Australian Government Department of Foreign Affairs and Trade*.

Adams, R., Bromet, E. J., Panina, N., Golovakha, E., Goldgaber, D., & Gluzman, S. (2002). Stress and well-being in mothers of young children 11 years after the Chornobyl nuclear power plant accident. *Psychological Medicine*, *32*(01), 143-156.

Adams, R. E., & Boscarino, J. A. (2005). Stress and well-being in the aftermath of the World Trade Center attack: The continuing effects of a communitywide disaster. *Journal of Community Psychology*, *33*(2), 175-190.

Adger, W. N. (2006). Vulnerability. *Global environmental change*, *16*(3), 268-281.

Adhikari, J., & Hobley, M. (2015). " Everyone is leaving. Who will sow our fields?": The livelihood effects on women of male migration from Khotang and Udaypur districts, Nepal, to the gulf countries and Malaysia. *Himalaya*, *35*(1), 11-23.

Adhikari, L. B., Gautam, U. P., Koirala, B. P., Bhattarai, M., Kandel, T., Gupta, R. M., Timsina, C., Maharjan, N., Maharjan, K., Dahal, T., Hoste-Colomer, R., Cano, Y., Dandine, M., Guilhem, A., Merrer, S., Roudil, P., & Bollinger, L. (2015). The aftershock sequence of the 2015 April 25 Gorkha–Nepal earthquake. *Geophysical Journal International*, *203*(3), 2119-2124. https://doi.org/10.1093/gji/ggv412

Adhikari, P. (2012). The plight of the forgotten ones: Civil war and forced migration. *International Studies Quarterly*, *56*(3), 590-606.

Adhikari, R. P., Kohrt, B. A., Luitel, N. P., Upadhaya, N., Gurung, D., & Jordans, M. D. (2014). Protective and risk factors of psychosocial wellbeing related to the reintegration of former child soldiers in Nepal. *Intervention*, *12*(3), 367-378.

Ahern, M., Kovats, R. S., Wilkinson, P., Few, R., & Matthies, F. (2005). Global health impacts of floods: epidemiologic evidence. *Epidemiol Rev*, *27*, 36-46. https://doi.org/10.1093/epirev/mxi004

Aida, J., Kawachi, I., Subramanian, S. V., & Kondo, K. (2013). Disaster, Social Capital, and Health. In I. Kawachi, S. Takao, & S. V. Subramanian (Eds.), *Global Perspectives on Social Capital and Health* (pp. 167-187). Springer New York. https://doi.org/10.1007/978-1-4614-7464-7_7

Aitsi-Selmi, A., Egawa, S., Sasaki, H., Wannous, C., & Murray, V. (2015). The Sendai Framework for Disaster Risk Reduction: Renewing the Global Commitment to People's Resilience, Health, and Well-being. *International Journal of Disaster Risk Science*, *6*(2), 164-176. https://doi.org/10.1007/s13753-015-0050-9

Aitsi-Selmi, A., & Murray, V. (2016). Protecting the Health and Well-being of Populations from Disasters: Health and Health Care in The Sendai Framework for Disaster Risk Reduction 2015-2030. *Prehospital and disaster medicine*, *31*(1), 74-78. https://doi.org/10.1017/S1049023X15005531

Aldrich, D. P. (2012). *Building resilience: Social capital in post-disaster recovery*. University of Chicago Press.

Alexander, L., Lopes, B., Ricchetti-Masterson, K., & Yeatts, K. (2015). Cross-sectional studies. *Eric Notebook*, *2*(6), 1-5.

Ali, I., & Pernia, E. M. (2003). *Infrastructure and poverty reduction-what is the connection?* (1655-5260). (ERD Policy Brief Series, Issue.

Ali, S. M., & ul Haq, R. (2006). Women's autonomy and happiness: the case of Pakistan. *The Pakistan Development Review*, 121-136.

Allen, J., Balfour, R., Bell, R., & Marmot, M. (2014). Social determinants of mental health. *International Review of Psychiatry*, *26*(4), 392-407. https://doi.org/10.3109/09540261.2014.928270

Amatya, P., Ghimire, S., Callahan, K. E., Baral, B. K., & Poudel, K. C. (2018). Practice and lived experience of menstrual exiles (Chhaupadi) among adolescent girls in far-western Nepal. *PloS one*, *13*(12), e0208260. https://doi.org/10.1371/journal.pone.0208260

Amin, A. (2013). Surviving the turbulent future. *Environment and Planning D: Society and Space*, *31*(1), 140-156. https://doi.org/10.1068/d23011

Amnesty International. (2002). *Nepal A spiralling human right crisis*.

Amnesty International. (2004). *Nepal: Human Rights Defenders Under Threat* (Human rights and fundamental freedoms, Issue. https://www.refworld.org/docid/4129f5864.html

Ampuero, D., Goldswosthy, S., Delgado, L. E., & Miranda J, C. (2015). Using mental well-being impact assessment to understand factors influencing well-being after a disaster. *Impact Assessment and Project Appraisal*, *33*(3), 184-194. https://doi.org/10.1080/14615517.2015.1023564

Antaramian, S. P., Huebner, E. S., Hills, K. J., & Valois, R. F. (2010). A dual-factor model of mental health: Toward a more comprehensive understanding of youth functioning. *American Journal of Orthopsychiatry*, *80*(4), 462.

Anttila-Hughes, J. K., & Hsiang, S. M. (2013). Destruction, Disinvestment, and Death: Economic and Human Losses Following Environmental Disaster. https://doi.org/10.2139/ssrn.2220501

Archer, M. S., & Archer, M. S. (1995). *Realist social theory: The morphogenetic approach*. Cambridge university press.

Ardalan, A., Mazaheri, M., Vanrooyen, M., Mowafi, H., Nedjat, S., Naieni, K. H., & Russel, M. (2011). Post-disaster quality of life among older survivors five years after the Bam earthquake: implications for recovery policy. *Ageing and Society*, *31*(2), 179-196. https://doi.org/10.1017/S0144686X10000772

Arghode, V. (2012). Qualitative and Quantitative Research: Paradigmatic Differences. *Global Education Journal*, *2012*(4).

Ariyabandu, M. M., & Foenseka, D. (2006). Do disasters discriminate. *South Asia network for disaster mitigation: Tackling the tides and tremors*, 23-40.

Asgary, A., Badri, A., Rafieian, M., & Hajinejad, A. (2006). Lost and used post-disaster development opportunities in Bam earthquake and the role of stakeholders. Proceedings of the International Conference and Student Competition on post-disaster reconstruction: Meeting stakeholder interests,

Asian Development Bank. (2002). *Annual Report* T. W. P. P. Ltd.

Asian Development Bank. (2010). *Overview of Gender Equality and Social Inclusion in Nepal*.

Astbury, J. (2001). Gender disparities in mental health.

Atkinson, S., Bagnall, A.-M., Corcoran, R., South, J., & Curtis, S. (2020). Being Well Together: Individual Subjective and Community Wellbeing. *Journal of Happiness Studies*, *21*(5), 1903-1921. https://doi.org/10.1007/s10902-019-00146-2

Austin Lord, B. S., Jeevan Baniya, Obindra Chand and Tracy Ghale. (May 2016). *Disaster, Disability, & Difference* (A study of the challanges faced by persons with disabilities in post-earthquake Nepal, Issue.

Bajracharya, A., & Amin, S. (2012). Poverty, Marriage Timing, and Transitions to Adulthood in Nepal. *43*(2), 79-92. https://doi.org/10.1111/j.1728-4465.2012.00307.x

Bakrania, S. (2015). Urban poverty in Nepal. In: Birmingham, UK: GSDRC, University of Birmingham. Retrieved from http://gsdrc ….

Bankoff, G. (2003). *Cultures of disaster: Society and natural hazard in the Philippines*. Routledge.

Bankoff, G. (2007). Dangers to going it alone: social capital and the origins of community resilience in the Philippines. *Continuity and Change*, *22*(2), 327-355. https://doi.org/10.1017/s0268416007006315

Bankoff, G., & Frerks, G. (2013). *Mapping Vulnerability:" Disasters, Development and People"*. Routledge.

Banskota, M. (2006). *Project for Sustainable Agriculture and Rural Development in Mountain Regions*.

Barry, M. (2008). *Mental Capital and Wellbeing: Making the most of ourselves in the 21st century*.

Barry, M., & Freidl, L. (2008). Mental capital and wellbeing: Making the most of ourselves in the 21st century. *State-of-Science Review: SR-B3 The Influence of Social, Demographic and Physical Factors on Positive Mental Health in Children, Adults and Older People. Government Office for Science, London*.

Basnet, S., Kandel, P., & Lamichhane, P. (2018). Depression and anxiety among war-widows of Nepal: a post-civil war cross-sectional study. *Psychology, Health & Medicine*, *23*(2), 141-153. https://doi.org/10.1080/13548506.2017.1338735

Baum, F. (1995). Researching public health: behind the qualitative-quantitative methodological debate. *Social science & medicine*, *40*(4), 459-468.

Bedford, T., & Burgess, J. (2001). Using focus groups in qualitative research.

Bennett, L. (2005). *Gender, caste and ethnic exclusion in Nepal: Following the policy process from analysis to action* World Bank conference on New Frontiers of

Social Policy: Development in a Globalizing World', Arusha. http://siteresources.worldbank.org/INTRANETSOCIALDEVELOPMENT/Resources/Bennett.rev.pdf

Bennett, L., Dahal, D. R., & Govindasamy, P. (2008). *Caste, Ethnic and Regional Identity in Nepal: Further Analysis of the 2006 Nepal Demographic and Health Survey* M. I. Inc.

Bennett, L., Tamang, S., Onta, P., & Thapa, M. (2006). *Unequal citizens: Gender, caste and ethnic exclusion in Nepal* (Department for International Development and The World Bank, Kathmandu, Issue. http://documents1.worldbank.org/curated/en/745031468324021366/pdf/379660v20WP0Un00Box0361508B0PUBLIC0.pdf

Benson, T., Sladen, J., Liles, A., & Potts, H. W. W. (2019). Personal Wellbeing Score (PWS)—a short version of ONS4: development and validation in social prescribing. *BMJ Open Quality*, *8*(2), e000394. https://doi.org/10.1136/bmjoq-2018-000394

Berger, R. (2015). Now I see it, now I don't: researcher's position and reflexivity in qualitative research. *Qualitative Research*, *15*(2), 219-234. https://doi.org/10.1177/1468794112468475

Berry, B. J. L., & Okulicz-Kozaryn, A. (2011). An Urban-Rural Happiness Gradient. *Urban Geography*, *32*(6), 871-883. https://doi.org/10.2747/0272-3638.32.6.871

Bhushal, S. (2008). Educational and Socio-Cultural Status of Nepali Women. *Himalayan Journal of Sociology and Anthropology*, *3*(0), 139-147. https://doi.org/10.3126/hjsa.v3i0.1501

Bich, T. H., Quang, L. N., Le, T. T. H., Tran, T. D. H., & Guha-Sapir, D. (2011). Impacts of flood on health: epidemiologic evidence from Hanoi, Vietnam. *Global Health Action*, *4*. <Go to ISI>://WOS:000299012700051

Birkland, T. A. (2006). *Lessons of disaster: Policy change after catastrophic events*. Georgetown University Press.

Birkmann, J., Cardona, O. D., Carreño, M. L., Barbat, A. H., Pelling, M., Schneiderbauer, S., Kienberger, S., Keiler, M., Alexander, D., Zeil, P., & Welle, T. (2013). Framing vulnerability, risk and societal responses: the MOVE framework. *Natural Hazards*, *67*(2), 193-211. https://doi.org/10.1007/s11069-013-0558-5

Birkmann, J., & Wisner, B. (2006). *Measuring the unmeasurable: the challenge of vulnerability*. UNU-EHS.

Blaikie, P., Cannon, T., Davis, I., & Wisner, B. (2014). *At risk: natural hazards, people's vulnerability and disasters*. Routledge.

Bland, S. H., O'Leary, E. S., Farinaro, E., Jossa, F., & Trevisan, M. (1996). Long-Term Psychological Effects of Natural Disasters. *Psychosomatic medicine*, *58*(1), 18-24. https://journals.lww.com/psychosomaticmedicine/Fulltext/1996/01000/Long_Term_Psychological_Effects_of_Natural.4.aspx

Boardman, J., Currie, A., Killaspy, H., & Mezey, G. (2010). *Socia Inclusion and Mental Health*. The Royal College of Psychiatrists

Bok, D. (2010). *The politics of happiness: What government can learn from the new research on well-being*. Princeton University Press.

Bonanno, G., & Gupta, S. (2009). Resilience after disaster. *Mental health and disasters*, 145-160.

Bonanno, G. A. (2004). Loss, trauma, and human resilience: have we underestimated the human capacity to thrive after extremely aversive events? *American psychologist*, *59*(1), 20.

Bonanno, G. A. (2008). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *Psychological Trauma: Theory, Research, Practice, and Policy*, *S*(1), 101-113. https://doi.org/10.1037/1942-9681.s.1.101

Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahov, D. (2006). Psychological resilience after disaster: New York City in the aftermath of the September 11th terrorist attack. *Psychological Science*, *17*(3), 181-186.

Boniwell, I. (2008). *Positive psychology in a nutshell: A balanced introduction to the science of optimal functioning*. Personal Well-Being Centre.

Boyce, J. K. (2000). Let them eat risk? Wealth, rights and disaster vulnerability. *Disasters*, *24*(3), 254-261.

Bracken, L., Ruszczyk, H. A., & Robinson, T. (2018). *Evolving narratives of hazard and risk: The Gorkha earthquake, Nepal, 2015*. Springer.

Bradley, R. H., & Caldwell, B. M. (1984). The relation of infants' home environments to achievement test performance in first grade: A follow-up study. *Child development*, 803-809.

Bradshaw, S. (2001). Dangerous liaisons: women, men and Hurricane Mitch. In: Fundacion Puntos de Encuentro.

Bradshaw, S. (2004). *Socio-economic impacts of natural disasters: a gender analysis* (Vol. 32). United Nations Publications.

Bradshaw, S., & Fordham, M. (2013). *Women, Girls and Disasters, A review for DFID*.

Briere, J., & Elliott, D. (2000). Prevalence, characteristics, and long-term sequelae of natural disaster exposure in the general population. *Journal of traumatic stress*, *13*(4), 661-679.

Brusset, E., Bhatt, M., Bjornestad, K., Cosgrave, J., Davies, A., Deshmukh, Y., Haleem, J., Hidalgo, S., Immajati, Y., Jayasundere, R., Mattsson, A., Muhaimin, N., Polastro, R., & Wu, T. (2009). *A ripple in development? Long term perspectives on the response to the Indian Ocean tsunami 2004* (A joint follow-up evaluation of the links between relief, rehabilitation and development (LRRD), Issue. S. 2009.

Bryman, A. (2004). Qualitative research on leadership: A critical but appreciative review. *The leadership quarterly*, *15*(6), 729-769.

Bryman, A., & Bell, E. (2001). The nature of qualitative research. *Social research methods*, 365-399.

Burawoy, M. (1998). The extended case method. *Sociological theory*, *16*(1), 4-33.

Calo-Blanco, A., Kovářík, J., Mengel, F., & Romero, J. G. (2017). Natural disasters and indicators of social cohesion. *PloS one*, *12*(6), e0176885.

Calvo, R., Arcaya, M., Baum, C. F., Lowe, S. R., & Waters, M. C. (2015). Happily Ever After? Pre-and-Post Disaster Determinants of Happiness Among Survivors of Hurricane Katrina. *Journal of Happiness Studies*, *16*(2), 427-442. https://doi.org/10.1007/s10902-014-9516-5

Cameron, M. M. (1998). *On the edge of the auspicious: Gender and caste in Nepal*. University of Illinois Press.

Campbell, B. (2018). Communities in the Aftermath of Nepal's Earthquake. In *Evolving Narratives of Hazard and Risk* (pp. 109-123). Springer.

Campion, J., & Nurse, J. (2007a). A dynamic model for wellbeing. *Australasian Psychiatry*, *15*(sup1), S24-S28. https://doi.org/10.1080/10398560701701106

Campion, J., & Nurse, J. (2007b). A Dynamic Model for Wellbeing. *Australasian Psychiatry*, *15*(1_suppl), S24-S28. https://doi.org/10.1080/10398560701701106

Care Nepal. (2015, 2016/04/26). *Nepal Gender Brief*. Care Nepal. Retrieved 2016/05/16 from http://reliefweb.int/sites/reliefweb.int/files/resources/CARE_Nepal%20Gender%20Brief_05.05.2015.pdf

Carey, S. (2009). *The origin of concepts*. Oxford university press.

Carr, S., Beresford, P., & Webber, M. (2004). *Social perspectives in mental health: Developing social models to understand and work with mental distress*. Jessica Kingsley Publishers.

Carter, W. N. (2008). *Disaster management: A disaster manager's handbook*.

Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical psychology review*, *30*(7), 879-889. https://doi.org/10.1016/j.cpr.2010.01.006

CBS. (2004). *Nepal Living Standard Survey 2003/04: Statistical Report*. Kathmandu: Central Bureau of Statistics.

CBS. (2011). *National Population and Housing Census 2011 (National Report)*.

Central Bureau of Statistics (CBS). (2020). *Nepal Multiple Indicator Cluster Survey 2019, Survey Findings Report*. Central Bureau of Statistics and UNICEF Nepal.

Centre for Resreach on the Epidemiology of Disasters (CRED). (2020). *Disaster Year in Review 2019* 58).

Chae, E.-H., Kim, T. W., Rhee, S.-J., & Henderson, T. D. (2005). The impact of flooding on the mental health of affected people in South Korea. *Community Mental Health Journal*, *41*(6), 633-645.

Chan, C. S., Lowe, S. R., Weber, E., & Rhodes, J. E. (2015). The contribution of pre- and postdisaster social support to short- and long-term mental health after Hurricanes Katrina: A longitudinal study of low-income survivors. *138*, 38-43. https://doi.org/10.1016/j.socscimed.2015.05.037

Chang, Y., Wilkinson, S., Potangaroa, R., & Seville, E. (2010). Resourcing challenges for post-disaster housing reconstruction: a comparative analysis. *38*(3), 247-264. https://doi.org/10.1080/09613211003693945

Chant, S. (2003). Female household headship and the feminisation of poverty: facts, fictions and forward strategies.

Chant, S. (2004). Dangerous Equations? How Female-headed Households Became the Poorest of the Poor: Causes, Consequences and Cautions. *IDS Bulletin*, *35*(4), 19-26. https://doi.org/10.1111/j.1759-5436.2004.tb00151.x

Chase, L. E., Marahatta, K., Sidgel, K., Shrestha, S., Gautam, K., Luitel, N. P., Dotel, B. R., & Samuel, R. (2018). Building back better? Taking stock of the post-

earthquake mental health and psychosocial response in Nepal. *International Journal of Mental Health Systems*, *12*(1), 44. https://doi.org/10.1186/s13033-018-0221-3

Chase, L. E., Sapkota, R. P., Crafa, D., & Kirmayer, L. J. (2018). Culture and mental health in Nepal: an interdisciplinary scoping review. *Global Mental Health*, *5*, e36, Article e36. https://doi.org/10.1017/gmh.2018.27

Chen, C.-H., Tan, H. K.-L., Liao, L.-R., Chen, H.-H., Chan, C.-C., Chen, C.-Y., Wang, T.-N., & Lu, M.-L. (2007). Long-term psychological outcome of 1999 Taiwan earthquake survivors: a survey of a high-risk sample with property damage. *Comprehensive psychiatry*, *48*(3), 269-275.

Chhetry, D. (2001). Understanding rural poverty in Nepal. Asia and Pacific forum on poverty: Reforming policies and institutions for poverty reduction,

Christopher, K. A., & Kulig, J. C. (2000). Determinants of psychological well-being in Irish immigrants. *Western Journal of Nursing Research*, *22*(2), 123-143.

Cohen, A., Kleinman, A., & Saraceno, B. (2007). *World mental health casebook: Social and mental health programs in low-income countries*. Springer.

Cohen, J., & Cohen, P. (2009). *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences* (Second Edition ed.). Psychology Press.

Compton, M. T., & Shim, R. S. (2015). The social determinants of mental health. *Focus*, *13*(4), 419-425.

Cooke, A., & Coggins, T. (2005). Neighbourhood well-being in Lewisham and Lambeth: the development of a mental well-being impact assessment and indicator toolkit. *Journal of Public Mental Health*.

Copestake, J. (2008). Wellbeing in international development: What's new? *Journal of International Development: The Journal of the Development Studies Association*, *20*(5), 577-597.

Corrarino, J. E. (2008). Disaster-Related Mental Health Needs of Women and Children. *MCN: The American Journal of Maternal/Child Nursing*, *33*(4), 242-248. https://doi.org/10.1097/01.NMC.0000326079.26870.e3

Costanza, R., Fisher, B., Ali, S., Beer, C., Bond, L., Boumans, R., Danigelis, N. L., Dickinson, J., Elliott, C., Farley, J., Gayer, D. E., Glenn, L. M., Hudspeth, T., Mahoney, D., McCahill, L., McIntosh, B., Reed, B., Rizvi, S. A. T., Rizzo, D. M., Simpatico, T., & Snapp, R. (2007). Quality of life: An approach integrating opportunities, human needs, and subjective well-being. *Ecological Economics*, *61*(2-3), 267-276. https://doi.org/10.1016/j.ecolecon.2006.02.023

Council of Europe. (2004). *A new strategy for Social Cohesion* (Revised strategy for Social Cohesion, Issue.

Coutts, A., Kim, D., Kawachi, I., & Subramanian, S. (2004). Commentary: Reconciling the three accounts of social capital. *International journal of epidemiology*, *33*(4), 682-690. https://doi.org/10.1093/ije/dyh177

Crawford, M., aufman, Michelle R Gurung, Alka. (2007). Women and children last: The effects of the Maoist insurgency on gender-based violence. *Contentious politics and democratization in Nepal*, 95-119.

Crenshaw, K. W. (2017). *On intersectionality: Essential writings*. The New Press.

Creswell, J. W. (2014). *A concise introduction to mixed methods research*. SAGE publications.

Creswell, J. W., Clark, V. L. P., Gutmann, M. L., & Hanson, W. E. (2003). Advanced Mixed Methods Reserach Designs. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of Mixed Methods in Soical and Behavioural Research* (pp. 209-240). SAGE Publicaltions.

Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.

Creswell, J. W., Shope, R., Plano Clark, V. L., & Green, D. O. (2006). How interpretive qualitative research extends mixed methods research. *Research in the Schools*, *13*(1), 1-11.

Cultural Atlas. (2019). *Nepalese Culture*. Retrieved 17 August from https://culturalatlas.sbs.com.au/nepalese-culture/family-9b9a86a6-6ab3-4b9d-a2a6-2e4c8ebe4986#family-9b9a86a6-6ab3-4b9d-a2a6-2e4c8ebe4986

Cupples, J. (2007). Gender and Hurricane Mitch: reconstructing subjectivities after disaster. *31*(2), 155-175. https://doi.org/10.1111/j.1467-7717.2007.01002.x

Curtis, A., Mills, J. W., & Leitner, M. (2007). Katrina and vulnerability: The geography of stress. *Journal of Health Care for the Poor and Underserved*, *18*(2), 315-330.

Cutter, S. L. (2008). The Vulnerability of Science and the Science of Vulnerability. *Annals of the Association of American Geographers*, *93*(1), 1-12. https://doi.org/10.1111/1467-8306.93101

Cutter, S. L., Boruff, B. J., & Shirley, W. L. (2003). Social Vulnerability to Environmental Hazards*. *Social Science Quarterly*, *84*(2), 242-261. https://doi.org/10.1111/1540-6237.8402002

Cutter, S. L., Mitchell, J. T., & Scott, M. S. (2000). Revealing the Vulnerability of People and Places: A Case Study of Georgetown County, South Carolina. *Annals of the Association of American Geographers*, *90*(4), 713-737. https://doi.org/10.1111/0004-5608.00219

Dahal, S. (2014). *A study of Women's self help groups and the impact of SHG participation on women empowerment and livelihood in Lamachaur village of Nepal* Norwegian University of Life Sciences, Ås].

Dalingwater, L. (2019). Linking Health and Wellbeing in Public Discourse and Policy: The Case of the UK. *Revue Interventions économiques. Papers in Political Economy*(62).

Daly, P., Feener, R Michael,. (2012). Anthony Reid, eds. 2012 From the Ground Up: Perspectives on Post-Tsunami and Post-Conflict Aceh. *Singapore: Institute of Southeast Asian Studies*.

Darlington, R. B., & Hayes, A. F. (2017). Regression analysis and linear models. *New York, NY: Guilford*.

Davidson, C. H., Johnson, C., Lizarralde, G., Dikmen, N., & Sliwinski, A. (2007). Truths and myths about community participation in post-disaster housing projects. *Habitat International*, *31*(1), 100-115. https://doi.org/10.1016/j.habitatint.2006.08.003

DDC. (2015). *Dolakha development bulletin (earthquake especial)*. Dolakha: District Development Committee Office

de Jong, J. (2011). (Disaster) Public Mental Health. In H. Herrman, D.J. Stein, M.J. Friedman, & C. Blanco (Eds.), *Post-Traumatic Stress Disorder* (pp. 217-262). https://doi.org/10.1002/9781119998471.ch6

De Silva, M. J., Huttly, S. R., Harpham, T., & Kenward, M. G. (2007). Social capital and mental health: A comparative analysis of four low income countries. *Social science & medicine*, *64*(1), 5-20. https://doi.org/https://doi.org/10.1016/j.socscimed.2006.08.044

Deeming, C. (2013). Addressing the Social Determinants of Subjective Wellbeing: The Latest Challenge for Social Policy. *Journal of social policy*, *42*(3), 541-565. https://doi.org/10.1017/s0047279413000202

Delle Fave, A., Brdar, I., Freire, T., Vella-Brodrick, D., & Wissing, M. P. (2011). The Eudaimonic and Hedonic Components of Happiness: Qualitative and Quantitative Findings. *Social Indicators Research*, *100*(2), 185-207. https://doi.org/10.1007/s11205-010-9632-5

Devine, J., Hinks, T., & Naveed, A. (2019). Happiness in Bangladesh: The Role of Religion and Connectedness. *Journal of Happiness Studies*, *20*(2), 351-371. https://doi.org/10.1007/s10902-017-9939-x

DeYoung, S. E., & Penta, S. (2017). Issue attention and group mobilization for caste rights following the 2015 Gorkha, Nepal, earthquake. *Earthquake Spectra*, *33*, 403-416.

DFID. (2016). *Summary of DFID's work in Nepal 2011-2016*.

DFID. (2017). *Regional Dimensions of Poverty and Vulnerability in Nepal* Background reports, Issue.

Dhamala, R. (2019). *Gender and Citizenship in the Constitution of Nepal, 2015* Virginia Tech].

Diener, E. (2009). Subjective Well-Being. In (pp. 11-58). Springer Netherlands. https://doi.org/10.1007/978-90-481-2350-6_2

Diener, E., Biswas-Diener, Robert. (2002). Will Money Increase Subjective Well-Being? [journal article]. *Social Indicators Research*, *57*(2), 119-169. https://doi.org/10.1023/a:1014411319119

Diener, E., & Ryan, K. (2009). Subjective well-being: A general overview. *South African journal of psychology*, *39*(4), 391-406.

Diener, E., & Seligman, M. E. (2004). Beyond money: Toward an economy of well-being. *Psychological science in the public interest*, *5*(1), 1-31.

Diener, E., & Suh, E. M. (2003). 22-National differences in subjective well-being. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology*.

Dirkzwager, A. J., Van der Velden, P. G., Grievink, L., & Yzermans, C. J. (2007). Disaster-related posttraumatic stress disorder and physical health. *Psychosomatic medicine*, *69*(5), 435-440.

Disaster Reduction Center Asia. (2002). *Living with risk. A global review of disaster reduction initiatives. Preliminary version*.

District Development Committee Office. (2015a). *District profile of Dolakha*. Dolakha

District Development Committee Office. (2015b). *Dolakha development bulletin (earthquake especial)*. Dolakha

Dixit, A., Shrestha, S., Parajuli, Y., & Thapa, M. (2012). Preparing for a Major Earthquake in Nepal: Achievements and Lessons. 15th World Conference on Earthquake Engineering. Lisbon,

Dolan, P., Layard, R., & Metcalfe, R. (2011). *Measuring subjective well-being for public policy*.

Dube, S. K. (2015). Earthquake in Nepal: A Miserable Environmental Hazard Visited by Nature. *Academic Voices: A Multidisciplinary Journal*, *5*, 56-66.

Dunn, C. E., Le Mare, A., & Makungu, C. (2011). Malaria risk behaviours, socio-cultural practices and rural livelihoods in southern Tanzania: Implications for bednet usage. *Social science & medicine*, *72*(3), 408-417. https://doi.org/https://doi.org/10.1016/j.socscimed.2010.11.009

Enarson, E. (1998). Through women's eyes: A gendered research agenda for disaster social science. *Disasters*, *22*(2), 157-173.

Enarson, E., & Chakrabarti, P. D. (2009). *Women, gender and disaster: global issues and initiatives*. SAGE Publications India.

Enarson, E., & Fordham, M. (2001). From women's needs to women's rights in disasters. *Global Environmental Change Part B: Environmental Hazards*, *3*(3), 133-136.

Enarson, E., Fothergill, A., & Peek, L. (2007). Gender and Disaster: Foundations and Directions. In H. R, Q. EL, & D. RR (Eds.), *Handbook of disaster research* (pp. 130-146). Springer. https://doi.org/10.1007/978-0-387-32353-4_8

Enarson, E., & Morrow, B. H. (1998). Why gender? Why women? An introduction to women and disaster. *The gendered terrain of disaster: Through women's eyes*, 1-8.

Enarson, E. P. (2000). *Gender and natural disasters*. ILO Geneva.

Epstein, K., DiCarlo, J., Marsh, R., Adhikari, B., Paudel, D., Ray, I., & Måren, I. E. (2018). Recovery and adaptation after the 2015 Nepal earthquakes. *Ecology and Society*, *23*(1).

Evers, H.-D. (2014). Changing ethnic diversity in Peninsular Malaysia. *Journal of Malaysian Studies*, *32*(1), 37-53.

Fan, C., Jiang, Y., & Mostafavi, A. (2020). Emergent social cohesion for coping with community disruptions in disasters. *Journal of the Royal Society Interface*, *17*(164), 20190778.

Fassin, D., & Rechtman, R. (2009). *The empire of trauma: An inquiry into the condition of victimhood*. Princeton University Press.

Fazel, M., Wheeler, J., & Danesh, J. (2005). Prevalence of serious mental disorder in 7000 refugees resettled in western countries: a systematic review. *The Lancet*, *365*(9467), 1309-1314. https://doi.org/https://doi.org/10.1016/S0140-6736(05)61027-6

Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annu. Rev. Public Health*, *26*, 399-419.

Ferlander, S. (2003). The internet, social capital and local community.

Ferlander, S. (2007). The importance of different forms of social capital for health. *Acta sociologica*, *50*(2), 115-128.

Figart, D. M., & Warnecke, T. L. (2013). *Handbook of research on gender and economic life*. Edward Elgar Publishing.

Firestone, W. A. (1987). Meaning in method: The rhetoric of quantitative and qualitative research. *Educational researcher*, *16*(7), 16-21.

Fischhoff, B., Nightingale, E. O., Iannotta, J. G., & Council, N. R. (2001). Vulnerability, Risk, and Protection. In *Adolescent Risk and Vulnerability: Concepts and Measurement*. National Academies Press (US).

Flatau, P., Galea, J., & Petridis, R. (2000). Mental Health and Wellbeing and Unemployment. *The Australian Economic Review*, *33*(2), 161-181. https://doi.org/10.1111/1467-8462.00145

Fleetwood, S. (2004). An ontology for organization and management studies. *Critical realist applications in organisation and management studies*, 27-54.

Forgeard, M. J., Jayawickreme, E., Kern, M. L., & Seligman, M. E. (2011). Doing the right thing: Measuring wellbeing for public policy. *International Journal of Wellbeing*, *1*(1).

Fothergill, A. (1996). Gender, risk, and disaster. *International journal of mass emergencies and disasters*, *14*(1), 33-56.

Frey, B. S., & Stutzer, A. (2010). *Happiness and economics: How the economy and institutions affect human well-being*. Princeton University Press.

Frey, W. H., & Singer, A. (2006). *Katrina and Rita impacts on gulf coast populations: First census findings*. Brookings Institution, Metropolitan Policy Program Washington, DC.

Friedli, L. (2009). *Mental Health, Resilience and Inequalities*. http://www.euro.who.int/document/e92227.pdf

Friedli, L., Cooke, A., Coggins, T., Michaelson, J., Stansfield, J., O'Hara, K., Snowden, L., Steuer, N., Scott-Samuel, A., & Edmonds, N. (2010). *Mental Well-being Impact Assessment A Toolkit for Well-being,* (2nd edition ed.). National MIWA Collaborative.

Friedli, L., & Parsonage, M. (2007). Building an economic case for mental health promotion: part I. *Journal of Public Mental Health*, *6*(3), 14-23. https://doi.org/http://dx.doi.org/10.1108/17465729200700017

Friedman, H. S., & Kern, M. L. (2014). Personality, well-being, and health. *Annual review of psychology*, *65*.

Fritze, J. G., Blashki, G. A., Burke, S., & Wiseman, J. (2008). Hope, despair and transformation: climate change and the promotion of mental health and wellbeing. *International Journal of Mental Health Systems*, *2*(1), 13. https://doi.org/10.1186/1752-4458-2-13

Gaillard, J., & Gomez, C. (2015). Post-disaster research: Is there gold worth the rush?: Opinion paper. *Jàmbá: Journal of Disaster Risk Studies*, *7*(1), 1-6.

Gaillard, J., & Peek, L. (2019). Disaster-zone research needs a code of conduct. In: Nature Publishing Group.

Galea, S., Brewin, C. R., Gruber, M., Jones, R. T., King, D. W., King, L. A., McNally, R. J., Ursano, R. J., Petukhova, M., & Kessler, R. C. (2007). Exposure to

Hurricane-Related Stressors and Mental Illness After Hurricane Katrina. *Archives of General Psychiatry*, *64*(12), 1427. https://doi.org/10.1001/archpsyc.64.12.1427

Gartaula, H. N., Visser, L., & Niehof, A. (2012). Socio-Cultural Dispositions and Wellbeing of the Women Left Behind: A Case of Migrant Households in Nepal. *Social Indicators Research*, *108*(3), 401-420. https://doi.org/10.1007/s11205-011-9883-9

Gasper, D. (2004). Discussion Paper No. 2004/06 Human Well-being: Concepts and Conceptualizations Des Gasper.

Gaudel, Y. S. (2007). Remittance Income in Nepal: Need for Economic Development. *Journal of Nepalese Business Studies*, *3*(1), 9-17. https://doi.org/10.3126/jnbs.v3i1.491

Gautam, D., & Chaulagain, H. (2016). Structural performance and associated lessons to be learned from world earthquakes in Nepal after 25 April 2015 (MW 7.8) Gorkha earthquake. *Engineering Failure Analysis*, *68*, 222-243. https://doi.org/https://doi.org/10.1016/j.engfailanal.2016.06.002

Gautam, Y., & Andersen, P. (2016). Rural livelihood diversification and household well-being: Insights from Humla, Nepal. *Journal of Rural Studies*, *44*, 239-249. https://doi.org/10.1016/j.jrurstud.2016.02.001

Gellner, D. N. (2007). Caste, ethnicity and inequality in Nepal. *Economic and political weekly*, 1823-1828.

Gelman, A. (2013). P values and statistical practice. *Epidemiology*, *24*(1), 69-72. https://doi.org/10.1097/EDE.0b013e31827886f7

Généreux, M., Roy, M., O'Sullivan, T., & Maltais, D. (2020). A Salutogenic Approach to Disaster Recovery: The Case of the Lac-Mégantic Rail Disaster. *International Journal of Environmental Research and Public Health*, *17*(5), 1463. https://doi.org/10.3390/ijerph17051463

Genetti, C. (2007). *A grammar of Dolakha Newar* (Vol. 40). Mouton de Gruyter.

Genetti, C. (2009). *A grammar of Dolakha Newar* (Vol. 40). Walter de Gruyter.

Ghani, E. (2010). *The poor half billion in South Asia* (What is Holding Back Lagging Regions?, Issue. O. U. Press.

Ghimire, A., Rajbanshi, A., Gurung, G., Adhikari, J., & Thieme, S. (2011). Nepal migration year book 2010. In: Nepal Institute of Development Studies (NIDS)/National Centre of Competence.

Gillard, M., & Paton, D. (1999). Disaster stress following a hurricane: The role of religious differences in the Fijian Islands. *The Australasian Journal of Disaster and Trauma Studies*, *2*(24.11), 2011.

Glaeser, E. (2011). *Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier*. Penguin Press HC.

Global IDP project. (2004). *Nepal: Up to 200,000 people displaced by fighting remain largely un-assisted* (Protection and Human Rights, Issue. www.db.idpproject.org/Sites/idpSurvey.nsf/wCountries/Nepal

Goldmann, E., & Galea, S. (2014). Mental health consequences of disasters. *Annual Review of Public Health*, *35*, 169-183.

Goldstein, M. C., & Beall, C. M. (1986). Family change, caste, and the elderly in a rural locale in Nepal. *Journal of Cross-Cultural Gerontology*, *1*(3), 305-316.

Gough, I., & McGregor, J. A. (2007). *Wellbeing in developing countries: from theory to research*. Cambridge University Press.

Government of Nepal. (2013). *Nepal Disaster Report* Kathmandu Disaster Preparedness Network Nepal (DPNet-Nepal) Retrieved from https://reliefweb.int/sites/reliefweb.int/files/resources/Nepal%20Disaster%20Report%202013.pdf

Government of Nepal. (2013/2014). *Labour Migration for Employment*. Kathmandu, Nepal: Ministry of Labour and Employment.

Government of Nepal. (2014). *Nepal Human Development Report 2014*. Singha Durbar, Kathmandu: Government of Nepal & UNDP

Government of Nepal. (2016). *Recent earthquake*. Nepal Disaster Risk Reduction Portal. Retrieved 9th March from http://www.drrportal.gov.np/

Government of Nepal. (2017). *Gender Equality Update No. 12: Nepal Flood Response 2017*. https://reliefweb. int/sites/reliefweb. int/files/resources/Gender% 20Equality% 20Update% 20No% 20 12% 20% 2831% 20August% 202017% 29% 20Final% 20version. pdf

Government of Nepal. (2018). *Labour Migration for Employment – A status report for Nepal: 2015/2016- 2016/2017*. Kathmandu: Ministry of Labour and Employment.

Graham, H., & Power, C. (2004). *Childhood disadvantage and adult health: a lifecourse framework*. Health Development Agency London.

Green, R., Bates, L. K., & Smyth, A. (2007). Impediments to recovery in New Orleans' Upper and Lower Ninth Ward: one year after Hurricane Katrina. *31*(4), 311-335. https://doi.org/10.1111/j.1467-7717.2007.01011.x

Greene, J. C., & Caracelli, V. J. (1997). *Advances in mixed-method evaluation: The challenges and benefits of integrating diverse paradigms* (Vol. 74). Jossey-Bass Publishers San Francisco, CA.

Greene, M. C., Jordans, M. J. D., Kohrt, B. A., Ventevogel, P., Kirmayer, L. J., Hassan, G., Chiumento, A., van Ommeren, M., & Tol, W. A. (2017). Addressing culture and context in humanitarian response: preparing desk reviews to inform mental health and psychosocial support. *Conflict and health*, *11*(1), 21. https://doi.org/10.1186/s13031-017-0123-z

Gregorius, H.-R., & Gillet, E. M. (2008). Generalized Simpson-diversity. *Ecological Modelling*, *211*(1), 90-96. https://doi.org/10.1016/j.ecolmodel.2007.08.026

Grossman-Thompson, B., & Dennis, D. (2017). Citizenship in the Name of the Mother: Nationalism, Social Exclusion, and Gender in Contemporary Nepal. *positions: asia critique*, *25*(4), 795-820. https://doi.org/10.1215/10679847-4188422

Gruebner, O., Lowe, S. R., Sampson, L., & Galea, S. (2015). The geography of post-disaster mental health: spatial patterning of psychological vulnerability and

resilience factors in New York City after Hurricane Sandy. *International journal of health geographics*, *14*(1), 1.

Guest, G., Namey, E. E., & Mitchell, M. L. (2013). *Collecting qualitative data: A field manual for applied research*. Sage.

Gurung, T. D. (2019). Debate over Nepali women's right to pass on citizenship to children reignites as House Committee holds discussions on controversial provisions. *The Kathmandu Post*. https://kathmandupost.com/national/2019/03/07/debate-over-nepali-womens-right-to-pass-on-citizenship-to-children-reignites-as-house-committee-holds-discussions-on-controversial-provisions

Hadmoko, D. S. (2013). The Routledge Handbook of Hazards and Disaster Risk Reduction. *Jurnal Teknosains*, *2*(2).

Hagen-Zanker, D. J. (2015). *Effects of remittances and migration on migrant sending countries, communities and households*

Haigh, R. (2010). *Disicussion paper: Developing a resilient built environment: Disaster reconstruction as a window of opportunity* International Conference on Sustainable Built Environments, Kandy.

Hall, A. R. (1982). *Religion in Tamang society: A Buddhist community in northern Nepal* SOAS University of London].

Hallegatte, S., Rentschler, J., & Walsh, B. (2018). *Building Back Better* (Achieving Resilience through Stronger, Faster, and More Inclusive Post-Disaster Reconstruction, Issue. https://www.gfdrr.org/sites/default/files/publication/Building%20Back%20Better.pdf

Hamilton, J. P., & Halvorson, S. J. (2007). The 2005 Kashmir earthquake. *Mountain Research and Development*, *27*(4), 296-301.

Hanson, B. (2008). Wither qualitative/quantitative?: Grounds for methodological convergence. *Quality & Quantity*, *42*(1), 97-111.

Harris-Roxas, B., Viliani, F., Bond, A., Cave, B., Divall, M., Furu, P., Harris, P., Soeberg, M., Wernham, A., & Winkler, M. (2012). Health impact assessment: the state of the art. *Impact Assessment and Project Appraisal*, *30*(1), 43-52. https://doi.org/10.1080/14615517.2012.666035

Harris, E. J. (2013). Ananda Metteyya: Controversial Networker, Passionate Critic. *Contemporary Buddhism*, *14*(1), 78-93. https://doi.org/10.1080/14639947.2013.785727

Harrison, H., Birks, M., Franklin, R., & Mills, J. (2017). Case study research: Foundations and methodological orientations. Forum Qualitative Sozialforschung/Forum: Qualitative Social Research.

Headey, B., Kelley, J., & Wearing, A. (1993). Dimensions of mental health: Life satisfaction, positive affect, anxiety and depression. *Social Indicators Research*, *29*(1), 63-82. https://doi.org/10.1007/bf01136197

Helliwell, J. F. (2006). Well-being, social capital and public policy: what's new? *The economic journal*, *116*(510), C34-C45.

Helliwell, J. F., & Barrington-Leigh, C. P. (2010). Viewpoint: Measuring and understanding subjective well-being. *Canadian Journal of Economics/Revue canadienne d'économique*, *43*(3), 729-753. https://doi.org/10.1111/j.1540-5982.2010.01592.x

Helliwell, J. F., & Putnam, R. D. (2004). The social context of well–being. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, *359*(1449), 1435-1446. https://doi.org/10.1098/rstb.2004.1522

Henderson, L. J. (2004). Emergency and Disaster: Pervasive Risk and Public Bureaucracy in Developing Nations. *Public Organization Review*, *4*(2), 103-119. https://doi.org/10.1023/B:PORJ.0000031624.46153.b2

Hennink, M. M. (2014). *Foccus Group Discussions, Understanding Qualitative Reserach*. Oxford University Press.

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The Use of Partial Least Squares Path Modeling in International Marketing. *New Challenges to International Marketing*, *20*, 277-319. https://doi.org/10.1108/S1474-7979(2009)0000020014

Herrman, H. (2012). Promoting Mental Health and Resilience after a Disaster. *4*(2), 82-87. https://doi.org/10.1016/j.jecm.2012.01.003

Hobfoll, S. E. (2012). Conservation of resources and disaster in cultural context: The caravans and passageways for resources. *Psychiatry: Interpersonal & Biological Processes*, *75*(3), 227-232.

Hofmann, S. G., Grossman, P., & Hinton, D. E. (2011). Loving-kindness and compassion meditation: Potential for psychological interventions. *Clinical psychology review*, *31*(7), 1126-1132. https://doi.org/10.1016/j.cpr.2011.07.003

Holmberg, D. (2018). *Order in Paradox : Myth and Ritual Among Nepal's Tamang*. Cornell University Press.

Holmberg, D. H., & March, K. S. (2015). 'Tamsaling and the Toll of the Gorkha Earthquake'. In *Fieldsights*: Hot Spots.

Hopkins, P. (2017). Social geography I: Intersectionality. *Progress in Human Geography*, *43*(5), 937-947. https://doi.org/10.1177/0309132517743677

Hörnquist, J. O. (1990). Quality of Life. *Scandinavian Journal of Social Medicine*, *18*(1), 69-79. https://doi.org/10.1177/140349489001800111

Horsburgh, D. (2003). Evaluation of qualitative research. *Journal of Clinical Nursing*, *12*(2), 307-312. https://doi.org/10.1046/j.1365-2702.2003.00683.x

Hudson, J. I., Pope, H. G. J., & Glynn, R. J. (2005). The Cross-Sectional Cohort Study: An Underutilized Design. *Epidemiology*, *16*(3), 355-359. https://doi.org/10.1097/01.ede.0000158224.50593.e3

Hülssiep, M., Thaler, T., & Fuchs, S. (2021). The impact of humanitarian assistance on post-disaster social vulnerabilities: some early reflections on the Nepal

earthquake in 2015 [https://doi.org/10.1111/disa.12437]. *Disasters*, *45*(3), 577-603. https://doi.org/https://doi.org/10.1111/disa.12437

Hunzal, K., Gerlitz, J., & Hoermann, B. (2011). *The Specificities of Mountain Poverty. Regional Analysis of Mountain Poverty in Bhutan, India and Nepal*.

Huppert, F., & Cooper, C. L. (2014). *The state of wellbeing science: Concepts, measures, interventions, and policies to enhance wellbeing* (Vol. VI). Wiley Blackwell. https://doi.org/10.1002/9781118539415.wbwell036

Huppert, F. A. (2009). Psychological Well-being: Evidence Regarding its Causes and Consequences†. *Applied Psychology: Health and Well-Being*, *1*(2), 137-164.

Huppert, F. A., Baylis, N., & Keverne, B. (2005). *The science of well-being*. Oxford University Press, USA.

Huppert, F. A., & So, T. T. C. (2013). Flourishing Across Europe: Application of a New Conceptual Framework for Defining Well-Being. *Social Indicators Research*, *110*(3), 837-861. https://doi.org/10.1007/s11205-011-9966-7

Hutt, M. (2020a). Before the dust settled: is Nepal's 2015 settlement a seismic constitution? *Conflict, Security & Development*, *20*(3), 379-400.

Hutt, M. (2020b). The changing face of Nepal. *Current History*.

Hyyppä, M. T., & Mäki, J. (2001). Individual-Level Relationships between Social Capital and Self-Rated Health in a Bilingual Community. *Preventive Medicine*, *32*(2), 148-155. https://doi.org/10.1006/pmed.2000.0782

ICIMOD. (2015). Nepal Earthquake 2015, Map of Nepal with 14 hardest hit districts. In *Nepalem.maps.arcgis.com. (2016). Story Map Journal.*

Inter-Agency Standing Committee (IASC). (2015). *Nepal Earthquakes 2015: Desk Review of Existing Information with Relevance to Mental Health and Psychosocial Support*.

Ionescu, C., Klein, R. J. T., Hinkel, J., Kavi Kumar, K. S., & Klein, R. (2009). Towards a Formal Framework of Vulnerability to Climate Change. *Environmental*

Modeling & Assessment, *14*(1), 1-16. https://doi.org/10.1007/s10666-008-9179-x

Jacqueline, H., Aya Hirata, K., Steven, A. G., Theodore, R., Brinton, R., & Bir Bahadur, T. (2014). Implications of Conservation Agriculture for Men's and Women's Workloads Among Marginalized Farmers in the Central Middle Hills of Nepal. *Mountain Research and Development*, *34*(3), 214-222. https://doi.org/10.1659/MRD-JOURNAL-D-13-00083.1

Jaquet, S., Shrestha, G., Kohler, T., & Schwilch, G. (2016). The Effects of Migration on Livelihoods, Land Management, and Vulnerability to Natural Disasters in the Harpan Watershed in Western Nepal. *36*(4), 494-505. https://doi.org/10.1659/mrd-journal-d-16-00034.1

Jayawickrama, J. (2010). *Rethinking mental health and wellbeing interventions in disaster and conflict affected communities: case studies from Sri Lanka, Sudan and Malawi* Northumbria University].

Jetley, S. (1987). Impact of male migration on rural females. *Economic and political weekly*, WS47-WS53.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational researcher*, *33*(7), 14-26.

Jordans, M. J., Tol, W. A., Sharma, B., & Van Ommeren, M. (2003). Training psychosocial counselling in Nepal: content review of a specialised training programme. *Intervention*, *1*(2), 18-35.

Joseph, J., & McGregor, J. A. (2020). *Wellbeing, Resilience and Sustainability*. Springer.

Joshi, M., & Pyakurel, S. R. (2015). Individual-Level Data on the Victims of Nepal's Civil War, 1996–2006: A New Data Set. *International Interactions*, *41*(3), 601-619. https://doi.org/10.1080/03050629.2015.987345

Joshi, N. P., & Maharjan, K. L. (2008). A study on rural poverty using inequality decomposition in Western Hills of Nepal: A case of Gulmi district.

Juran, L., & Trivedi, J. (2015). Women, gender norms, and natural disaster in Bangladesh. *Geographical Review*, *105(4)*, 601-611.

Kafle, S. K. (2012). Measuring disaster-resilient communities: a case study of coastal communities in Indonesia. *Journal of business continuity & emergency planning*, *5*(4), 316-326.

Kahneman, D. (1999). Objective measures of happiness. *Well-Being: The Foundations of Hedonic Psychology. New York: Russell Sage Foundation*.

Kamanga, P., Vedeld, P., & Sjaastad, E. (2009). Forest incomes and rural livelihoods in Chiradzulu District, Malawi. *Ecological Economics*, *68*(3), 613-624.

Kandel, N., & Lamichhane, J. (2019). Female health volunteers of Nepal: the backbone of health care. *The Lancet*, *393*(10171), e19-e20.

Kaniasty, K., & Norris, F. H. (2000). Help-Seeking Comfort and Receiving Social Support: The Role of Ethnicity and Context of Need. *American Journal of Community Psychology*, *28*(4), 545-581. https://doi.org/10.1023/a:1005192616058

Karki, J., Matthewman, S., & Grayman, J. H. (2022). Nayã Ghar (A new house): examining post-earthquake housing reconstruction issues in Nepal. *International Journal of Disaster Risk Reduction*, *78*, 103116.

Kaspar, H. (2005). *«I am the household head now!» Impacts of out-migration for labour on gender relations in Nepal*

Kawachi, I., & Berkman, L. (2000). Social cohesion, social capital, and health. *Social epidemiology*, *174*, 190.

Kawachi, I., & Berkman, L. F. (2001). Social ties and mental health. *Journal of Urban health*, *78*, 458-467.

Kawachi, I., & Subramanian, S. (2006). Measuring and modeling the social and geographic context of trauma: a multilevel modeling approach. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, *19*(2), 195-203.

Ketola, H. (2020). Withdrawing from politics? Gender, agency and women ex-fighters in Nepal. *Security Dialogue*, *0*(0), 0967010620906322. https://doi.org/10.1177/0967010620906322

Keyes, C. L. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of health and social behavior*, 207-222.

Keyes, C. L. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of consulting and clinical psychology*, *73*(3), 539.

Keyes, C. L. (2007). Promoting and protecting mental health as flourishing: A complementary strategy for improving national mental health. *American psychologist*, *62*(2), 95.

Keyes, C. L. M. (2002). The Mental Health Continuum: From Languishing to Flourishing in Life. *Journal of health and social behavior*, *43*(2), 207. https://doi.org/10.2307/3090197

Keyes, C. L. M., & Annas, J. (2009). Feeling good and functioning well: distinctive concepts in ancient philosophy and contemporary science. *The Journal of Positive Psychology*, *4*(3), 197-201. https://doi.org/10.1080/17439760902844228

Khadka, M. (2015). *Role of remittances on sustainable livelihoods of rural families in Nepal* Norwegian University of Life Sciences, Ås].

Khadka, M., Rasul, G., Bennett, L., Wahid, S., & Gerlitz, J.-Y. (2015). Gender and social equity in climate change adaptation in the Koshi basin: An analysis for action. *Handbook of climate change adaptation. Springer Berlin Heidelberg*, 1049-1076.

Khatri, R. B., Mishra, S. R., & Khanal, V. (2017). Female Community Health Volunteers in Community-Based Health Programs of Nepal: Future Perspective [Perspective]. *Frontiers in Public Health*, *5*(181). https://doi.org/10.3389/fpubh.2017.00181

Kingon, Y. S., & O'Sullivan, A. L. (2001). The family as a protective asset in adolescent development. *Journal of Holistic Nursing*, *19*(2), 102-121.

Köhler, G., Calì, M., & Stirbu, M. (2009). Rethinking poverty and social exclusion responses in post-conflict Nepal: child-sensitive social protection. *Children Youth and Environments*, *19*(2), 229-249.

Kohrt, B. A. (2009). Vulnerable social groups in postconflict settings: a mixed methods policy analysis and epidemiology study of caste and psychological morbidity in Nepal. *Intervention*, *7*(3), 239-264.

Kohrt, B. A., & Harper, I. (2008). Navigating Diagnoses: Understanding Mind–Body Relations, Mental Health, and Stigma in Nepal. *Culture, Medicine, and Psychiatry*, *32*(4), 462. https://doi.org/10.1007/s11013-008-9110-6

Kohrt, B. A., & Hruschka, D. J. (2010). Nepali concepts of psychological trauma: the role of idioms of distress, ethnopsychology and ethnophysiology in alleviating suffering and preventing stigma. *Culture, Medicine, and Psychiatry*, *34*(2), 322-352.

Kohrt, B. A., Jordans, M. J., Tol, W. A., Perera, E., Karki, R., Koirala, S., & Upadhaya, N. (2010). Social ecology of child soldiers: child, family, and community determinants of mental health, psychosocial well-being, and reintegration in Nepal. *Transcultural psychiatry*, *47*(5), 727-753.

Kohrt, B. A., Speckman, R. A., Kunz, R. D., Baldwin, J. L., Upadhaya, N., Acharya, N. R., Sharma, V. D., Nepal, M. K., & Worthman, C. M. (2009). Culture in psychiatric epidemiology: using ethnography and multiple mediator models to assess the relationship of caste with depression and anxiety in Nepal. *Annals of human biology*, *36*(3), 261-280.

Kokai, M., Fujii, S., Shinfuku, N., & Edwards, G. (2004). Natural disaster and mental health in Asia. *Psychiatry and clinical neurosciences*, *58*(2), 110-116.

Kreutzmann, H. (2012). After the flood. Mobility as an adaptation strategy in high mountain oases. The case of Pasu in Gojal, Hunza Valley, Karakoram. *DIE ERDE–Journal of the Geographical Society of Berlin*, *143*(1-2), 49-73.

Kuhn, T. S. (2012). *The structure of scientific revolutions* (Fourth ed.). THe University of Chicago Press.

Kumar, R., Singh, M. C., Singh, M. C., Ahlawat, S. K., Thakur, J. S., Srivastava, A., Sharma, M. K., Malhotra, P., Bali, H. K., & Kumari, S. (2006). Urbanization and coronary heart disease: a study of urban-rural differences in northern India. *Indian Heart J*, *58*(2), 126-130. https://www.ncbi.nlm.nih.gov/pubmed/18989056

Kumpulainen, S. (2006). Vulnerability concepts in hazard and risk assessment. *Special paper-Geological Survey of Finland*, *42*, 65.

Kuwabara, H., Shioiri, T., Toyabe, S. I., Kawamura, T., Koizumi, M., Ito-Sawamura, M., Akazawa, K., & Someya, T. (2008). Factors impacting on psychological distress and recovery after the 2004 Niigata–Chuetsu earthquake, Japan: Community-based study. *Psychiatry and clinical neurosciences*, *62*(5), 503-507.

Laczo, M. (2003). Deprived of an individual identity: citizenship and women in Nepal. *Gender & Development*, *11*(3), 76-82. https://doi.org/10.1080/741954372

Laditka, S. B., Murray, L. M., & Laditka, J. N. (2010). In the Eye of the Storm: Resilience and Vulnerability Among African American Women in the Wake of Hurricane Katrina. *Health Care for Women International*, *31*(11), 1013-1027. https://doi.org/10.1080/07399332.2010.508294

Lai, T.-J., Chang, C.-M., Connor, K. M., Lee, L.-C., & Davidson, J. R. (2004). Full and partial PTSD among earthquake survivors in rural Taiwan. *Journal of psychiatric research*, *38*(3), 313-322.

Lamichhane, P., Puri, M., Tamang, J., & Dulal, B. (2011). Women's Status and Violence against Young Married Women in Rural Nepal. *BMC Women's Health*, *11*(1), 19. https://doi.org/10.1186/1472-6874-11-19

Land, K. C., Michalos, A. C., & Sirgy, M. J. (2011). *Handbook of social indicators and quality of life research*. Springer Science & Business Media.

Lawoti, M. (2010). Informal institutions and exclusion in democratic Nepal. *Ethnicity, inequality, and politics in Nepal*, 18-54.

Layard, R., & Clark, D. M. (2014). *Thrive: the power of evidence-based psychological therapies*. Penguin UK.

Le Billon, P., Suji, M., Baniya, J., Limbu, B., Paudel, D., Rankin, K., Rawal, N., & Shneiderman, S. (2020). Disaster Financialization: Earthquakes, Cashflows and Shifting Household Economies in Nepal. *Development and Change*, *51*(4), 939-969.

Le De, L., Gaillard, J. C., & Friesen, W. (2013). Remittances and disaster: a review. *International Journal of Disaster Risk Reduction*, *4*, 34-43. https://doi.org/10.1016/j.ijdrr.2013.03.007

Le Mare, A. (2012). 'Show the world to women and they can do it': Southern Fair Trade Enterprises as agents of empowerment. *Gender & Development*, *20*(1), 95-109. https://doi.org/10.1080/13552074.2012.663608

Le Masson, V., Norton, A., & Wilkinson, E. (2015). *Gender and Resilience*.

Leaning, J., & Guha-Sapir, D. (2013). Natural disasters, armed conflict, and public health. *New England journal of medicine*, *369*(19), 1836-1842.

Levin, K. A. (2006). Study design III: Cross-sectional studies. *Evidence-based dentistry*, *7*(1), 24.

Levy, B. R., Slade, M. D., & Ranasinghe, P. (2009). Causal Thinking After a Tsunami Wave: Karma Beliefs, Pessimistic Explanatory Style and Health Among Sri Lankan Survivors. *48*(1), 38-45. https://doi.org/10.1007/s10943-008-9162-5

Limbu, B., Rawal, N., Suji, M., Subedi, P. C., & Baniya, J. (2019a). *Reconstructing Nepal: Post-earthquake Experiences from Bhaktapur, Dhading and Sindhupalchowk*. Social Science Baha.

Limbu, B., Rawal, N., Suji, M., Subedi, P. C., & Baniya, J. (2019b). *Reconstructing Nepal: Post-earthquake Experiences from Bhaktapur, Dhading and Sindhupalchowk* (9937891590).

Limbu, S. (2018). Nepal's house of cards: are women included or co-opted in politics? *https://blogs.lse.ac.uk/southasia/2018/02/02/nepals-house-of-cards-are-women-included-or-co-opted-in-politics-gender-female-representation-caste/*.

Lin, N. (2002). *Social capital: A theory of social structure and action* (Vol. 19). Cambridge university press.

Linley, P. A., & Joseph, S. (2004). Positive change following trauma and adversity: A review. *Journal of traumatic stress*, *17*(1), 11-21.

Linley, P. A., Maltby, J., Wood, A. M., Osborne, G., & Hurling, R. (2009). Measuring happiness: The higher order factor structure of subjective and psychological well-being measures. *Personality and Individual Differences*, *47*(8), 878-884. https://doi.org/10.1016/j.paid.2009.07.010

Linog, R. S. G. a. M. T. S. (2005). *MICRODIS: Integrated Health, Social and Economic Impacts of Extreme Events: Evidence, Methods and Tools* (Combined Literature Review (Social, Health and Economic Literature Reviews), Issue.

Liu, C.-L. J., & Mishna, F. (2012). Resilience in a cultural context: Taiwanese female earthquake survivors. *Qualitative Social Work*, 1473325012470694.

Logistics Cluster. (2016). *Nepal Situation Update - 26 February 2016*. Logistics Cluster. Retrieved 9th March from http://www.logcluster.org/document/nepal-situation-update-26-february-2016

Loscocco, K. A., & Spitze, G. (1990). Working conditions, social support, and the well-being of female and male factory workers. *Journal of health and social behavior*, *31*(4), 313-327.

Lucas, R. (2018). Exploring the associations between personality and subjective well-being. *Handbook of well-being*. *Salt Lake City, UT: DEF Publishers*.

Luitel, N. P., Jordan, M. J. D., Sapkota, R. P., Tol, W. A., Kohrt, B. A., Thapa, S. B., Komproe, I. H., & Sharma, B. (2012). Conflict and mental health: a cross-

sectional epidemiological study in Nepal. *Soc Psychiatry Psychiatr Epidemiol*, 183–193. https://doi.org/10.1007/s00127-012-0539-0

Luitel, N. P., Jordans, M. J., Adhikari, A., Upadhaya, N., Hanlon, C., Lund, C., & Komproe, I. H. (2015). Mental health care in Nepal: current situation and challenges for development of a district mental health care plan. *Conflict and health*, *9*(1), 3.

Lynn Bennett, D. R. D., Pav Govindasamy,. (2008). *Caste, Ethnic and Regional Identity in Nepal: Further Analysis of the 2006 Nepal Demographic and Health Survey* M. I. Inc.

Magar, S. G. (2015, 10-16 July 2015). The Tamang Epicentre. *Nepali Times*. http://archive.nepalitimes.com/article/nation/April-25-earthquake-Tamang-epicentre,2407

Maharjan, A., Bauer, S., & Knerr, B. (2012). Do Rural Women Who Stay Behind Benefit from Male Out-migration? A Case Study in the Hills of Nepal. *Gender, Technology and Development*, *16*(1), 95-123. https://doi.org/10.1177/097185241101600105

Maharjan, A., Prakahs, A., & Goodrich Gurung, C. (2016). *Migration and the 2015 Ghorkha earthquake in Nepal-effect on rescue and relief processes and lessons for the future* (9291154113). (HI-AWARE Working Paper 4, Issue.

Maher, B. (2018, November 29, 2018). Remittances and migration: the case of Nepal. *DEVPOLICYBLOG*. http://www.devpolicy.org/remittances-migration-the-case-of-nepal-20181129/

Mak, J., Zimmerman, C., & Roberts, B. (2021). Coping with migration-related stressors - a qualitative study of Nepali male labour migrants. *BMC public health*, *21*(1), 1131. https://doi.org/10.1186/s12889-021-11192-y

Makwana, N. (2019). Disaster and its impact on mental health: A narrative review. *Journal of family medicine and primary care*, *8*(10), 3090-3095. https://doi.org/10.4103/jfmpc.jfmpc_893_19

Malterud, K. (2001). Qualitative research: standards, challenges, and guidelines. *The Lancet*, *358*(9280), 483-488.

Manandhar, M., Hawkes, S., Buse, K., Nosrati, E., & Magar, V. (2018). Gender, health and the 2030 agenda for sustainable development. *Bull World Health Organ*, *96*(9), 644-653. https://doi.org/10.2471/BLT.18.211607

Manyena, S. B. (2013). Disaster event: Window of opportunity to implement global disaster policies? *Jàmbá: Journal of Disaster Risk Studies*, *5*(1). https://doi.org/10.4102/jamba.v5i1.99

Marin, A., & Wellman, B. (2011). Social network analysis: An introduction. *The SAGE handbook of social network analysis*, *11*, 25.

Marmot, M. (2005). *Social determinants of health inequalities* (0140-6736). (The Lancet, Issue.

Marmot, M., Allen, J., Goldblatt, P., Boyce, T., McNeish, D., Grady, M., & Geddes, I. (2010). The Marmot review: Fair society, healthy lives. *Strategic review of health inequalities in England post-2010. London: The Marmot Review*.

Massey, D. (2010). *A global sense of place*. Aughty. org.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American psychologist*, *56*(3), 227.

Math, S. B., Girimaji, S. C., Benegal, V., Uday Kumar, G. S., Hamza, A., & Nagaraja, D. (2006). Tsunami: Psychosocial aspects of Andaman and Nicobar islands. Assessments and intervention in the early phase. *International Review of Psychiatry*, *18*(3), 233-239. https://doi.org/10.1080/09540260600656001

Math, S. B., Nirmala, M. C., Moirangthem, S., & Kumar, N. C. (2015). Disaster management: mental health perspective. *Indian journal of psychological medicine*, *37*(3), 261-271.

Maybery, D., & Reupert, A. (2009). Parental mental illness: a review of barriers and issues for working with families and children. *Journal of psychiatric and mental health nursing*, *16*(9), 784-791.

McEvoy, P., & Richards, D. (2006). A critical realist rationale for using a combination of quantitative and qualitative methods. *Journal of research in nursing*, *11*(1), 66-78.

McFarlane, A. C., & Norris, F. (2006). Definitions and concepts in disaster research. *Methods for disaster mental health research*, 3-19.

McMahan, E. A., & Estes, D. (2011). Hedonic Versus Eudaimonic Conceptions of Well-being: Evidence of Differential Associations With Self-reported Well-being. *Social Indicators Research*, *103*(1), 93-108. https://doi.org/10.1007/s11205-010-9698-0

Mechanic, D. (1999). Mental health and mental illness: Definitions and perspectives. In *A handbook for the study of mental health: Social contexts, theories, and systems*. (pp. 12-28). Cambridge University Press.

Mehta, M. (2007). *Gender matters: Lessons for disaster risk reduction in South Asia*. International Centre for Integrated Mountain Development (ICIMOD).

Meril, C. (2012). Religion and Disater in Anthropological Research. In F. K. Stuart Lane, Matthew B. Kearnes (Ed.), *Critical Risk Research: Practices, Politics and Ethics* (pp. 43). John Wiley & Sons.

Mertens, D. M., & Tarsilla, M. (2015). Mixed methods evaluation. In *The Oxford handbook of multimethod and mixed methods research inquiry*.

Mguni, N., Bacon, N., & Brown, J. F. (2012a). The wellbeing and resilience paradox. *The Young Foundation, London*.

Mguni, N., Bacon, N., & Brown, J. F. (2012b). The wellbeing and resilience paradox. *London: The Young Foundation*.

Michael T. Compton, & Ruth S. Shim. (2015). *The Social Determinants of Mental Health* (Michael T. Compton & Ruth S. Shim, Eds.). American Psychiatric Association.

Miller, P., & Rose, N. (2008). *Governing the present: Administering economic, social and personal life*. Polity.

Milly, P. C. D., Wetherald, R. T., Dunne, K. A., & Delworth, T. L. (2002). Increasing risk of great floods in a changing climate. *Nature*, *415*(6871), 514-517. https://doi.org/10.1038/415514a

Ministry of Water Supply, G. o. N. (2018). *Urban Water Supply and Sanitation (Sector) Project: Charikot (Dolakha) Water Supply and Sanitation Subproject (Package No. W-01)* (Initial Environmental Examination, Issue.

Mohanty, C. (1988). Under Western Eyes: Feminist Scholarship and Colonial Discourses. *Feminist Review*, *30*(1), 61-88. https://doi.org/10.1057/fr.1988.42

Mohapatra, S., Joseph, G., & Ratha, D. (2009). *Remittances and natural disasters: ex-post response and contribution to ex-ante preparedness*. The World Bank.

Molden, D., Sharma, E., & Acharya, G. (2016). Lessons from Nepal's Gorkha earthquake 2015. In *Lessons from Nepal's earthquake for the Indian Himalayas and the Gangetic plains* (pp. 1-14).

Montazeri, A., Baradaran, H., Omidvari, S., Azin, A. S., Ebadi, M., Garmaroudi, G., Harirchi, A., & Shariati, M. (2005). Psychological distress among Bam earthquake survivors in Iran: a population-based study. *BMC public health*, *5*(1), 1.

Morgan, A. (2011). *Social capital as a health asset for young people's health and wellbeing* Karolinska Institutet]. Stockholm, Sweden.

Morgan, A., & Ziglio, E. (2007). Revitalising the evidence base for public health: an assets model. *Promotion & Education*, *14*(2_suppl), 17-22. https://doi.org/10.1177/10253823070140020701x

Morrow, B. H., & Enarson, E. (1994). *Making the case for gendered disaster research*.

Morrow, M., LeFrançois, B., Menzies, R., & Reaume, G. (2013). Mad Matters: A Critical Reader in Canadian Mad Studies.

Morse, J. M. (2016). *Mixed method design: Principles and procedures*. Routledge.

Moser, C. O. N. (1989). Gender planning in the third world: Meeting practical and strategic gender needs. *World Development*, *17*(11), 1799-1825. https://doi.org/10.1016/0305-750x(89)90201-5

Muldoon, O. T., Acharya, K., Jay, S., Adhikari, K., Pettigrew, J., & Lowe, R. D. (2017). Community identity and collective efficacy: A social cure for traumatic stress in post-earthquake Nepal. *European Journal of Social Psychology*, *47*(7), 904-915. https://doi.org/10.1002/ejsp.2330

Mulmi, S., & Shneiderman, S. (2017a). 9 Citizenship, gender and statelessness in Nepal. *Understanding Statelessness*, *4*, 135.

Mulmi, S., & Shneiderman, S. (2017b). Citizenship, gender and statelessness in Nepal: Before and after the 2015 Constitution. In T. Bloom, K. Tonkiss, & P. Cole (Eds.), *Understanding Statelessness* (pp. 135-152). Routledge.

Najarian, L. M., Goenjian, A. K., Pelcovitz, D., Mandel, F., & Najarian, B. (2001). The effect of relocation after a natural disaster. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, *14*(3), 511-526.

Nakagawa, Y., & Shaw, R. (2004). Social capital: A missing link to disaster recovery. *International journal of mass emergencies and disasters*, *22*(1), 5-34.

National Planning Commision. (2015). *Post Disaster Needs Assessment* (Sector Reports, Issue.

National Research Council. (2006). *Facing hazards and disasters: Understanding human dimensions*. National Academies Press.

Neria, Y., Galea, S., & Norris, F. H. (Eds.). (2009). *Mental Health and Disasters*. Cambridge University Press.

Neumayer, E., & Plümper, T. (2007). The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981–2002. *Annals of the Association of American Geographers*, *97*(3), 551-566. https://doi.org/10.1111/j.1467-8306.2007.00563.x

Newman, E., & Kaloupek, D. G. (2004). The risks and benefits of participating in trauma-focused research studies. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, *17*(5), 383-394.

Newton, J. (2007). Wellbeing research: Synthesis report. *London: DEFRA*.

Nightingale, A. J. (2002). Participating or just sitting in? The dynamics of gender and caste in community forestry. *Journal of forest and livelihood vol*, *2*(1).

Niraula, R. R., Gilani, H., Pokharel, B. K., & Qamer, F. M. (2013). Measuring impacts of community forestry program through repeat photography and satellite remote sensing in the Dolakha district of Nepal. *Journal of environmental management*, *126*, 20-29.

Nirvana, D. (February 2014). *Women as a force in resilience building, gender equality in DRR* (Towards Post-2015 Agenda for DRR (HFA2), Issue.

Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C. M., Diaz, E., & Kaniasty, K. (2002). 60,000 disaster victims speak: Part I. An empirical review of the empirical literature, 1981-2001. *Psychiatry*, *65*(3), 207-239. https://www.ncbi.nlm.nih.gov/pubmed/12405079

Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C. M., Diaz, E., & Kaniasty, K. (2002). 60,000 disaster victims speak: Part I. An empirical review of the empirical literature, 1981—2001. *Psychiatry*, *65*(3), 207-239.

Norris, F. H., Stevens, S. P., Pfefferbaum, B., Wyche, K. F., & Pfefferbaum, R. L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, *41*, 127-150.

Novick, L. F. (2005). Epidemiologic approaches to disasters: reducing our vulnerability. *American journal of epidemiology*, *162*(1), 1-2.

Nussbaum, M. C. (2001). *Women and human development: The capabilities approach* (Vol. 3). Cambridge University Press.

Nygren, B., Aléx, L., Jonsén, E., Gustafson, Y., Norberg, A., & Lundman, B. (2005). Resilience, sense of coherence, purpose in life and self-transcendence in relation to perceived physical and mental health among the oldest old. *Aging & Mental Health*, *9*(4), 354-362. https://doi.org/10.1080/1360500114415

O'Brien, K., Eriksen, S., Nygaard, L. P., & Schjolden, A. (2007). Why different interpretations of vulnerability matter in climate change discourses. *Climate policy*, *7*(1), 73-88.

O'Brien, K., Sygna, L., Leichenko, R., Adger, W. N., Barnett, J., Mitchell, T., Schipper, L., Tanner, T., Vogel, C., & Mortreux, C. (2008). *Disaster risk reduction, climate change adaptation and human security*.

O'Brien, P., & Mileti, D. S. (1992). Citizen Participation in Emergency Response Following the Loma Prieta Earthquake. *International journal of mass emergencies and disasters*, *10*(1), 71-89. http://dx.doi.org/

O'Brien, K., Barnett, J., De Soysa, I., Matthew, R., Mehta, L., Seager, J., Woodrow, M., & Bohle, H. (2005). Hurricane Ktrina reveals challenges to human security. *Aviso. Issue*(14).

O'Brien, K., Quinlan, T., & Ziervogel, G. (2009). Vulnerability interventions in the context of multiple stressors: lessons from the Southern Africa Vulnerability Initiative (SAVI). *Environmental science & policy*, *12*(1), 23-32.

Office for National Statistics. (2018). *Measuring National Well-being: Quality of Life in the UK, 2018*. https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/measuringnationalwellbeing/qualityoflifeintheuk2018

Office of National Statistics. (2018a). *Personal well-being in the UK QMI*.

Office of National Statistics. (2018b). *Personal well-being user guidance*.

Ogihara, Y., & Uchida, Y. (2014). Does individualism bring happiness? Negative effects of individualism on interpersonal relationships and happiness [Original Research]. *Frontiers in Psychology*, *5*(135). https://doi.org/10.3389/fpsyg.2014.00135

Oguz, S., Merad, S., & Snape, D. (2013). *Measuring National Well-being -What matters most to Personal Well-being?* http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.372.6655&rep=rep1&type=pdf

Oldham, R. L. (2013). Mental health aspects of disasters. *South Med J*, *106*(1), 115-119. https://doi.org/10.1097/SMJ.0b013e31827cd091

ONS. (2018). *Personal well-being in the UK QMI*.

Organisation for Economic Coperation Development. (2013). *OECD guidelines on measuring subjective well-being*. OECD Publishing.

Ornatowski, G. K. (1996). Continuity and Change in the Economic Ethics of Buddhism--Evidence From the History of Buddhism in India, China and Japan. *Journal of Buddhist Ethics*, *3*, 198-240.

Ostadtaghizadeh, A., Ardalan, A., Paton, D., Khankeh, H., & Jabbari, H. (2016). Community disaster resilience: a qualitative study on Iranian concepts and indicators [journal article]. *Natural Hazards*, *83*(3), 1843-1861. https://doi.org/10.1007/s11069-016-2377-y

Oven, K., & Bankoff, G. (2020). The neglected country(side): Earthquake risk perceptions and disaster risk reduction in post-Soviet rural Kazakhstan. *Journal of Rural Studies*, *80*, 171-184. https://doi.org/https://doi.org/10.1016/j.jrurstud.2020.08.048

Oven, K., Rigg, J., Rana, S., Gautam, A., & Singh, T. (2019). # leavenoonebehind: Women, gender planning and disaster risk reduction in Nepal. In *Climate Hazards, Disasters, and Gender Ramifications* (pp. 138-164). Routledge.

Oven, K., Ruszczyk, H., & Rigg, J. (2020). Spaces of Disaster. In H. F. Wilson & J. Darling (Eds.), *Research Ethics for Human Geography: A Handbook for Students* (pp. 280-289). Sage.

Oxfam. (2005). *"The Tsunami's Impact on Women." Brefing Note* (Prevention Web. https://www. preventionweb. net/files/1502_bn050326tsunamiwomen. pdf (retrieved June 7, 2018), Issue.

Oxfam. (2007). *Australian Red Cross and World Vision : Emergency Response Supply Chain Assessment*.

Oxfam. (2016). *I Am Alone; Single Women and the Nepal Earthquake*.

Palinkas, L. A. (2006). Qualitative Approaches to Studying the Effects of Disasters. In F. H. NORRIS, S. GALEA, M. J. FRIEDMAN, & P. J. WATSON (Eds.), *Method for Disaster Research*. Guliford Press.

Pande, K. (2017). *Improving Rural Connectivity and it's Impact on Sustainable Development Goals (SDGs) – Case of Nepal* (Background paper for the Intergovernmental Tenth Regional Environmentally Sustainable Transport (EST) Forum in Asia, Issue.

Pant, B., & Standing, K. (2011). Citizenship rights and women's roles in development in post-conflict Nepal. *Gender & Development*, *19*(3), 409-421. https://doi.org/10.1080/13552074.2011.625656

Parajuli, V. J., Macdonald, S., & Jimba, M. (2015). Social–Contextual Factors Associated with Alcohol Use among Adolescents of Traditional Alcohol User and Nonuser Ethnic Groups of Nepal. *Journal of Ethnicity in Substance Abuse*, *14*(2), 151-165. https://doi.org/10.1080/15332640.2014.973624

Patel, V., & Goodman, A. (2007). Researching protective and promotive factors in mental health. *International journal of epidemiology*, *36*(4), 703-707.

Patt, A. G., Tadross, M., Nussbaumer, P., Asante, K., Metzger, M., Rafael, J., Goujon, A., & Brundrit, G. (2010). Estimating least-developed countries' vulnerability to climate-related extreme events over the next 50 years. *Proceedings of the National Academy of Sciences*, *107*(4), 1333-1337.

Paul, B. K. (2005). Evidence against disaster-induced migration: the 2004 tornado in north-central Bangladesh. *Disasters*, *29*(4), 370-385.

Paxson, C., Fussell, E., Rhodes, J., & Waters, M. (2012). Five years later: Recovery from post traumatic stress and psychological distress among low-income mothers affected by Hurricane Katrina. *Social science & medicine*, *74*(2), 150-157.

Petal, M., Baral, M., Giri, S., Rajbanshi, S., Gajurel, S., Green, R., Pandey, B., & Shoaf, K. (2017). *Causes of deaths and injuries in the 2015 Gorkha (Nepal) earthquake*.

Peters, S. (2010). Qualitative Research Methods in Mental Health. *Evidence-Based Mental Health*, *13*(2), 35-40. https://doi.org/10.1136/ebmh.13.2.35

Pettigrew, J. (2013). *Maoist at the Heart: Everyday Life in Nepal's Civil War*. University of Pennsylvania Press.

Pettigrew, J., & Shneiderman, S. (2004). Women and the Maobadi: Ideology and agency in Nepal's Maoist movement. *Himal Southasian*, 19-29.

Phadera, L. (2016, 2016). *International Migration and its Effect on Labor Supply of the Left-Behind Household Members: Evidence from Nepal* https://ageconsearch.umn.edu/record/235968/files/Migration%20and%20Labor%20Market%20_AAEA%202016_.pdf

Pilgrim, D. (2020). *Key Concepts in Mental Health* (A. Clabburn, Ed. 5 ed.). SAGE.

Pope, C., & Mays, N. (1995). Qualitative research: reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. *Bmj*, *311*(6996), 42-45.

Pradhan, A., Poudel, P., Thomas, D., & Barnett, S. (2011). *A review of the evidence: suicide among women in Nepal*.

Pradhan, P. K., & Sharma, P. (2016). Nepal: Urban Environment Analysis. *Environmental Geography of South Asia: Contributions toward a Future Earth Initiative*, 305-334. https://doi.org/10.1007/978-4-431-55741-8_18

Pradhan, R., & Shrestha, A. (2005). *Ethnic and caste diversity: Implications for development*

Pradhan, S., Sharma, S., Malla, D., & Sharma, R. (2013). A study of help seeking behavior of psychiatric patients. *Journal of Kathmandu Medical College*, *2*(1), 21-24.

Pradhan, T. R. (2020). Ruling party for allowing naturalized citizenship to foreign women married to Nepali men only after seven years. *The Kathmandu Post*.

Pradhan, U., & Valentin, K. (2019). Towards a Relational Approach to the State: Understanding Social and Political Transformation in Nepal. *South Asia: Journal of South Asian Studies*, *42*(5), 880-885. https://doi.org/10.1080/00856401.2019.1642615

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon and schuster.

R. Wind, T., Fordham, M., & H. Komproe, I. (2011). Social capital and post-disaster mental health. *Global Health Action*, *4*(1), 6351. https://doi.org/10.3402/gha.v4i0.6351

Rai, K. (2016). Heroic Tales: Memoirs by Maoist Women. In P. R. O. Michael J. Hutt (Ed.), *Political Change and Public Culture in Post–1990 Nepal* (pp. 197-218). Cambridge University Press.

Raibley, J. R. (2012). Happiness is not Well-Being. *Journal of Happiness Studies*, *13*(6), 1105-1129. https://doi.org/10.1007/s10902-011-9309-z

Randolph, G., & Agarwal, P. (2017). *Rebuilding Nepal: Creating good jobs amid reconstruction and migration*.

Rao, C. N. S. (2013). *Sociology: Principles of Sociology with an Introduction to Social Thought, (Revised Edition)*. S. Chand & Company Ltd.

Ratha, D. K., De, S., Dervisevic, E., Plaza, S., Schuettler, K., Shaw, W., Wyss, H., Yi, S., & Yousefi, S. R. (2015). *Migration and remittances: Recent developments and outlook*.

Ratnapradipa, D. (2012). The 2011 Japanese earthquake: an overview of environmental health impacts. *Journal of environmental health*, *74*(6), 42.

Rea, L. M., & Parker, R. A. (2014). *Designing and conducting survey research: A comprehensive guide*. John Wiley & Sons.

Regmi, S. (2016). Gender politics and disaster in rural Nepal. *Women and Disasters in South Asia: Survival, Security and Development*, 178.

Regmi, S. K., Pokharel, A., Ojha, S. P., Pradhan, S. N., & Chapagain, G. (2004). Nepal mental health country profile. *International Review of Psychiatry*, *16*(1-2), 142-149. https://doi.org/10.1080/09540260310001635186

Rehdanz, K., Welsch, H., Narita, D., & Okubo, T. (2015). Well-being effects of a major natural disaster: The case of Fukushima. *Journal of Economic Behavior & Organization*, *116*, 500-517. https://doi.org/10.1016/j.jebo.2015.05.014

Richardson, D. (2000). Claiming Citizenship? Sexuality, Citizenship and Lesbian/Feminist Theory. *Sexualities*, *3*(2), 255-272. https://doi.org/10.1177/136346000003002009

Richardson, E. A., Hill, S. E., Mitchell, R., Pearce, J., & Shortt, N. K. (2015). Is local alcohol outlet density related to alcohol-related morbidity and mortality in Scottish cities? *Health & place*, *33*, 172-180. https://doi.org/https://doi.org/10.1016/j.healthplace.2015.02.014

Rigg, J. (2004). *Southeast Asia: The human landscape of modernization and development*. Routledge.

Rigg, J., Law, L., Tan-Mullins, M., & GRUNDY-WARR, C. (2005). The Indian Ocean tsunami: socio-economic impacts in Thailand. *The Geographical Journal*, *171*(4), 374-379.

Rigg, J., Lawt, L., Tan-Mullins, M., & Grundy-Warr, C. (2005). The Indian Ocean tsunami: socio-economic impacts in Thailand. *The Geographical Journal*, *171*(4), 374-379.

Rigg, J., Oven, K. J., Basyal, G. K., & Lamichhane, R. (2016). Between a rock and a hard place: Vulnerability and precarity in rural Nepal. *Geoforum*, *76*, 63-74. https://doi.org/10.1016/j.geoforum.2016.08.014

Rijal, S. P. (2018). Female Ownership of Fixed Assets in Nepal: A Regional Perspective. *The Third Pole: Journal of Geography Education*, *17*, 73-82. https://doi.org/10.3126/ttp.v17i0.19984

Robinson, T. R., Rosser, N. J., Densmore, A. L., Oven, K. J., Shrestha, S. N., & Guragain, R. (2018). Use of scenario ensembles for deriving seismic risk. *Proceedings of the National Academy of Sciences*, *115*(41), E9532. https://doi.org/10.1073/pnas.1807433115

Rodriguez-Llanes, J. M., Vos, F., & Guha-Sapir, D. (2013). Measuring psychological resilience to disasters: are evidence-based indicators an achievable goal? *Environmental health*, *12*(1), 1.

Rose, R. (2000). How much does social capital add to individual health? *Social science & medicine*, *51*(9), 1421-1435. https://doi.org/https://doi.org/10.1016/S0277-9536(00)00106-4

Roux, A. V. D. (2007). Integrating social and biologic factors in health research: a systems view. *Annals of epidemiology*, *17*(7), 569-574.

Rutter, M. (2013). Annual research review: resilience–clinical implications. *Journal of Child Psychology and Psychiatry*, *54*(4), 474-487.

Ryan, A. B. (2006). Post-positivist approaches to research. *Researching and Writing your Thesis: a guide for postgraduate students*, 12-26.

Ryan, R. M., & Deci, E. L. (2001). On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being. *Annual review of psychology*, *52*(1), 141-166. https://doi.org/10.1146/annurev.psych.52.1.141

Ryavec, K. E. (2015). *A historical atlas of Tibet*. University of Chicago Press.

Sale, J. E., Lohfeld, L. H., & Brazil, K. (2002). Revisiting the quantitative-qualitative debate: Implications for mixed-methods research. *Quality and quantity*, *36*(1), 43-53.

Sandifer, P. A., & Walker, A. H. (2018). Enhancing Disaster Resilience by Reducing Stress-Associated Health Impacts [Review]. *Frontiers in Public Health*, *6*(373). https://doi.org/10.3389/fpubh.2018.00373

Sapkota, J. B. (2018). Access to infrastructure and human well-being: evidence from rural Nepal. *Development in Practice*, *28*(2), 182-194. https://doi.org/10.1080/09614524.2018.1424802

Scheaffer, R. L., Mendenhall III, W., Ott, R. L., & Gerow, K. G. (2011). *Elementary survey sampling*. Cengage Learning.

Schröter, D., Polsky, C., & Patt, A. G. (2005). Assessing vulnerabilities to the effects of global change: an eight step approach. *Mitigation and Adaptation Strategies for Global Change*, *10*(4), 573-595. https://doi.org/10.1007/s11027-005-6135-9

Schwanen, T., & Atkinson, S. (2015). Geographies of wellbeing: an introduction. *The Geographical Journal*, *181*(2), 98-101. https://doi.org/10.1111/geoj.12132

Schwartz, G. E., & Weinberger, D. A. (1980). Patterns of emotional responses to affective situations: Relations among happiness, sadness, anger, fear, depression, and anxiety. *Motivation and Emotion*, *4*(2), 175-191. https://doi.org/10.1007/bf00995197

Schwartz, L. A., & Drotar, D. (2009). Health-related hindrance of personal goal pursuit and well-being of young adults with cystic fibrosis, pediatric cancer survivors, and peers without a history of chronic illness. *Journal of pediatric psychology*, *34*(9), 954-965.

Seale-Feldman, A. (2020). The Work of Disaster: Building Back Otherwise in Post-Earthquake Nepal. *Cultural Anthropology*, *35*(2). https://doi.org/10.14506/ca35.2.07

Seale-Feldman, A., & Upadhaya, N. (2015). Mental health after the earthquake: building Nepal's mental health system in times of emergency. Hotspots. *Cultural Anthropology Website*.

Seddon, D., Adhikari, J., & Gurung, G. (2002). Foreign Labor Migration and the Remittance Economy of Nepal. *Critical Asian Studies*, *34*(1), 19-40. https://doi.org/10.1080/14672710276016658l

Seery, M. D. (2011). Resilience. *Current Directions in Psychological Science*, *20*(6), 390-394. https://doi.org/10.1177/0963721411424740

Seligman, M. E. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment*. Simon and Schuster.

Seligman, M. E. P., Forgeard, M. J. C., Jayawickreme, E., & Kern, M. L. (2011). Doing the Right Thing: Measuring Well-Being for Public Policy. *International Journal of Wellbeing*, *1*(1). https://doi.org/10.5502/ijw.v1i1.15

Shakya, A. (2008). *Impact of armed conflict on women and children in nepal*. WISCOMP, Foundation for Universal Responsibility of His Holiness the Dalai Lama.

Shakya, K. (2016). Earthquake: Impact on Nepalese economy and women. *Lowland Technology International*, *18*(2, Sep), 75-82.

Sharma, B., & Van Ommeren, M. (1998). Preventing torture and rehabilitating survivors in Nepal. *Transcultural psychiatry*, *35*(1), 85-97.

Sharma, K., Kc, A., Subedi, M., & Pokharel, B. (2018a). Challenges for reconstruction after Mw7.8 Gorkha earthquake: a study on a devastated area of Nepal. *Geomatics, Natural Hazards and Risk*, *9*(1), 760-790. https://doi.org/10.1080/19475705.2018.1480535

Sharma, K., KC, A., Subedi, M., & Pokharel, B. (2018b). Post Disaster Reconstruction after 2015 Gorkha Earthquake: Challenges and Influencing Factors. *Journal of the Institute of Engineering*, *14*, 52-63.

Sharma, M. J., & Jin, Y. S. (2015). Stepwise regression data envelopment analysis for variable reduction. *Applied Mathematics and Computation*, *253*, 126-134. https://doi.org/10.1016/j.amc.2014.12.050

Shaw, R., Gupta, M., & Sarma, A. (2003). Community recovery and its sustainability: lessons from Gujarat earthquake of India. *The Australian Journal of Emergency Management,*, *18*(2), 28.

Shear, M. K., Simon, N., Wall, M., Zisook, S., Neimeyer, R., Duan, N., Reynolds, C., Lebowitz, B., Sung, S., Ghesquiere, A., Gorscak, B., Clayton, P., Ito, M., Nakajima, S., Konishi, T., Melhem, N., Meert, K., Schiff, M., O'Connor, M. F., First, M., Sareen, J., Bolton, J., Skritskaya, N., Mancini, A. D., & Keshaviah, A. (2011). Complicated grief and related bereavement issues for DSM-5. *Depress Anxiety*, *28*(2), 103-117. https://doi.org/10.1002/da.20780

Sherpa, D. (2007). *New vulnerabilities for mountain women: A different light on the Greater Himalaya* (Status Report, Issue.

Sherpa, D. (2007). *New Vulnerabilities for Mountain Women: A Different Light on the Greater Himalayas, status Report*.

Shmotkin, D., & Shrira, A. (2013). Subjective Well-Being and Meaning in Life in a Hostile World: Proposing a Configurative Perspective. In J. A. Hicks & C. Routledge (Eds.), *The Experience of Meaning in Life: Classical Perspectives, Emerging Themes, and Controversies* (pp. 77-86). Springer Netherlands. https://doi.org/10.1007/978-94-007-6527-6_6

Shneiderman, S., Baniya, J., Limbu, B., Suji, M., Rawal, N., & Subedi, P. (2020). House, Household and Home: Revisiting Social Science and Policy Frameworks through Post-Earthquake Reconstruction Experiences in Nepal.

Shneiderman, S., & Turin, M. (2004). The Path to Jan Sarkar in Dolakha District: Towards an Ethnography of the Maoist Movement. In M. Hutt (Ed.), *Himalayan people's war: Nepal's Maoist rebellion* (pp. 79-111). Indiana University Press.

Sijapati, B., Baniya, J., Bhandari, A., Bhattarai, A., Kharel, S., Limbu, A., Pathak, D., Rawal, N., & Thami, P. (2015). *Migration and Resilience: Expereinces from Nepal's 2015 Earthquake* (9937296633).

Silva, M., Loureiro, A., & Cardoso, G. (2016). Social determinants of mental health: a review of the evidence. *The European Journal of Psychiatry*, *30*(4), 259-292.

Silwal, E. (2013, 12 April). *Nepal's civil war continues to haunt rural women* Women News Network.

Singh, S. (2004). Impact of long-term political conflict on population health in Nepal. *CMAJ*, *171*(12), 1499-1501. https://doi.org/10.1503/cmaj.1040777

Singh, S., Dahal, K., & Mills, E. (2005). Nepal's War on Human Rights: A summit higher than Everest. *International Journal for Equity in Health*, *4*(1), 9. https://doi.org/10.1186/1475-9276-4-9

Slade, M., Oades, L., & Jarden, A. (2017). *Wellbeing, recovery and mental health*. Cambridge University Press.

Slevitch, L. (2011). Qualitative and Quantitative Methodologies Compared: Ontological and Epistemological Perspectives. *Journal of Quality Assurance in Hospitality & Tourism*, *12*(1), 73-81. https://doi.org/10.1080/1528008X.2011.541810

Smith, D., & Troni, J. (2004). *Adaptation to climate change: Making development disaster-proof. Climate change and poverty: Making development resilient to climate change*.

Stafford, T. (2014). Psychology: Why bad news dominates the headlines. *BBC*. https://www.bbc.com/future/article/20140728-why-is-all-the-news-bad

Stallings, R. A. (2007). Methodological Issues. In H. Rodriguez, E. L. Quarantelli, & R. R. Dynes (Eds.), *Handbook of Disaster Reserach* (pp. 605). Springer.

Stevens, J. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). Lawrence Erlbaum Associates.

Stevenson, B., Wolfers, Justin. (2009). The Paradox of Declining Female Happiness. *American Economic Journal: Economic Policy*, *1*(2), 190-225. https://doi.org/10.1257/pol.1.2.190

Stiglitz, J. E., Sen, A., & Fitoussi, J.-P. (2009). Report by the commission on the measurement of economic performance and social progress. In: Citeseer.

Striessnig, E., Lutz, W., & Patt, A. G. (2013). Effects of educational attainment on climate risk vulnerability. *Ecology and Society*, *18*(1).

Subedi, M. (2010). Caste system: theories and practices in Nepal. *Himalayan Journal of Sociology and Anthropology*, *4*, 134-159.

Sudmeier-Rieux, K., Jaquet, S., Basyal, G., Derron, M., Devkota, S., Jaboyedoff, M., & Shrestha, S. (2013). A neglected disaster: landslides and livelihoods in Central-Eastern Nepal. In *Landslide Science and Practice* (pp. 169-176). Springer.

Sugden, F., & De Silva, S. (2014). A framework to understand gender and structural vulnerability to climate change in the Ganges River Basin: lessons from Bangladesh, India and Nepal.

Sugden, F., Maskey, N., Clement, F., Ramesh, V., Philip, A., & Rai, A. (2014). Agrarian stress and climate change in the Eastern Gangetic Plains: Gendered vulnerability in a stratified social formation. *Global environmental change*, *29*, 258-269. https://doi.org/10.1016/j.gloenvcha.2014.10.008

Suleri, A. Q., & Savage, K. (2006). *Remittances in crises: a case study from Pakistan*. Sustainable Development Policy Institute.

Sunam, R. K., & McCarthy, J. F. (2016). Reconsidering the links between poverty, international labour migration, and agrarian change: critical insights from Nepal. *The Journal of Peasant Studies*, *43*(1), 39-63. https://doi.org/10.1080/03066150.2015.1041520

Taillefer, M.-C., Dupuis, G., Roberge, M.-A., & LeMay, S. (2003). Health-Related Quality of Life Models: Systematic Review of the Literature. *Social Indicators Research*, *64*(2), 293-323. https://doi.org/10.1023/A:1024740307643

Tamang, M. S. (2009). Tamang activism, history, and territorial consciousness. *Ethnic activism and civil society in South Asia*, 269-290.

Tamang, S. (24 April 2017). How Nepal quake turned women into builders. *BBC Nepali*.

Tamang, S. (2015). Dangers of resilience - Citizens should not have to fend for themselves; the govt has duties that it must fulfill in times of crisis. *The Kathmandu Post*.

Tamang, S., Paudel, K. P., & Shrestha, K. K. (2014). Feminization of agriculture and its implications for food security in rural Nepal. *Journal of Forest and Livelihood*, *12*(1), 20-32.

Thapa, M. B. (200). *Participatory Disaster Management Programme* "Environmental management and the mitigation of natural disasters: a gender perspective.", Ankara, Turkey.

Thapa, R., van Teijlingen, E., Regmi, P. R., & Heaslip, V. (2021). Caste Exclusion and Health Discrimination in South Asia: A Systematic Review. *Asia Pacific Journal of Public Health*, *33*(8), 828-838. https://doi.org/10.1177/10105395211014648

The Asia Foundation. (2016). *Nepal Government Distribution of Earthquake Reconstruction Cash Grants for Private Houses* (IRM – Thematic Study, Issue.

The Kathmandu Post. (2015, 30 April 2015). 'Embassies ask host countries to grant Nepali workers leave'. *The Kathmandu Post*. https://kathmandupost.com/national/2015/04/29/embassies-ask-host-countries-to-grant-nepali-workers-leave

Thera, V. N. (2001). *The Power of Mindfulness* Buddha Dharma Education Associantion Inc.

Timothy Halliday. (2006). Migration, Risk, and Liquidity Constraints in El Salvador. *Economic Development and Cultural Change*, *54*(4), 893-925. https://doi.org/10.1086/503584

Tol, W. A., Barbui, C., Galappatti, A., Silove, D., Betancourt, T. S., Souza, R., Golaz, A., & Van Ommeren, M. (2011). Mental health and psychosocial support in humanitarian settings: linking practice and research. *The Lancet*, *378*(9802), 1581-1591.

Tol, W. A., Kohrt, B. A., Jordans, M. J., Thapa, S. B., Pettigrew, J., Upadhaya, N., & de Jong, J. T. (2010). Political violence and mental health: a multi-disciplinary review of the literature on Nepal. *Soc Sci Med*, *70*(1), 35-44. https://doi.org/10.1016/j.socscimed.2009.09.037

Tomás, J. M., Sancho, P., Melendez, J. C., & Mayordomo, T. (2012). Resilience and coping as predictors of general well-being in the elderly: A structural equation modeling approach. *Aging & Mental Health*, *16*(3), 317-326. https://doi.org/10.1080/13607863.2011.615737

TPO Nepal. (2015). *Assessment of Mental Health and Psychosocial Support Needs and Resources among Earthquake-Affected Communities in Nepal*

Turner, B. L., Kasperson, R. E., Matson, P. A., McCarthy, J. J., Corell, R. W., Christensen, L., Eckley, N., Kasperson, J. X., Luers, A., Martello, M. L., Polsky, C., Pulsipher, A., & Schiller, A. (2003). A framework for vulnerability analysis in sustainability science. *Proceedings of the National Academy of Sciences*, *100*(14), 8074-8079. https://doi.org/10.1073/pnas.1231335100

Twigg, J., & Bhatt, M. R. (1998). *Understanding Vulnerability: South Asian Perspectives*. Intermediate Technology Publications.

UN-Habitat. (2013). *State of the world's cities 2012/2013: Prosperity of cities*. Routledge.

UNDP. (2014). *Nepal Human Development Report* (Beyond Geography: Unlocking Human Potential, Issue.

UNDP. (2015). *Human Development Report* (Work for Human Development, Issue.

UNDP. (2020). *Nepal Human Development Report* (Beyond Graduation: Productive Transformation and Prosperity, Issue.

UNISDR. (2015). Sendai framework for disaster risk reduction 2015–2030. Proceedings of the 3rd United Nations World Conference on DRR, Sendai, Japan,

Upadhaya, N., Luitel, N. P., Koirala, S., Adhikari, R. P., Gurung, D., Shrestha, P., Tol, W. A., Kohrt, B. A., & Jordans, M. D. (2014). The role of mental health and psychosocial support nongovernmental organisations: reflections from post conflict Nepal. *Intervention*, *12*(Supplement 1), 113-128.

Ursano, R. J., Fullerton, C. S., Weisaeth, L., & Raphael, B. (2007). *Textbook of disaster psychiatry*. Cambridge University Press.

Vaillant, G. E. (2012). Positive mental health: is there a cross-cultural definition? *World Psychiatry*, *11*(2), 93-99. https://doi.org/10.1016/j.wpsyc.2012.05.006

Van Kessel, G., MacDougall, C., & Gibbs, L. (2014). Resilience—rhetoric to reality: a systematic review of intervention studies after disasters. *Disaster medicine and public health preparedness*, *8*(5), 452-460.

Van Ommeren, M., & Wessells, M. (2007). Inter-agency agreement on mental health and psychosocial support in emergency settings. In: SciELO Public Health.

Van Teijlingen, E. R., & Hundley, V. (2001). The importance of pilot studies.

Veenhoven, R. (1994). How satisfying is rural life? Fact and value.

Veenhoven, R. (2011). Happiness: Also known as "life satisfaction" and "subjective well-being". In *Handbook of social indicators and quality of life research* (pp. 63-77). Springer.

Wagle, S. (2019). Women's Representation in Bureaucracy: Reservation Policy in Nepali Civil Service. *Journal of Education and Research*, *9*(2), 27-48.

Walker-Springett, K., Butler, C., & Adger, W. N. (2017). Wellbeing in the aftermath of floods. *Health & place*, *43*, 66-74.

Wang, F., & Wang, D. (2016). Geography of urban life satisfaction: An empirical study of Beijing. *Travel behaviour and society*, *5*, 14-22.

Wang, X., Gao, L., Shinfuku, N., Zhang, H., Zhao, C., & Shen, Y. (2000). Longitudinal study of earthquake-related PTSD in a randomly selected community sample in north China. *American Journal of Psychiatry*.

Wannous, C., & Velasquez, G. (2017). United nations office for disaster risk reduction (unisdr)—unisdr's contribution to science and technology for disaster risk reduction and the role of the international consortium on landslides (icl). Workshop on World Landslide Forum,

Warsini, S., Mills, J., & Usher, K. (2014). Solastalgia: living with the environmental damage caused by natural disasters. *Prehospital and disaster medicine*, *29*(01), 87-90.

Watson, V. (2009). 'The planned city sweeps the poor away': Urban planning and 21st century urbanisation. *Progress in Planning*, *72*(3), 151-193. https://doi.org/https://doi.org/10.1016/j.progress.2009.06.002

WeD. (2007). *Wellbeing and International Development*. Wellbeing in Developing Countries Research Group.

Welton-Mitchell, C., James, L., & Awale, R. (2016). Nepal 2015 Earthquake: A Rapid Assessment of Cultural, Psychological and Social Factors with Implications for Recovery and Disaster Preparedness. *International Journal of Mass Emergencies & Disasters*, *34*(3).

Welton-Mitchell, C., James, L. E., Khanal, S. N., & James, A. S. (2018). An integrated approach to mental health and disaster preparedness: a cluster comparison with earthquake affected communities in Nepal. *BMC psychiatry*, *18*(1), 296-296. https://doi.org/10.1186/s12888-018-1863-z

Wendelbo, M., La China, F., Dekeyser, H., Taccetti, L., Mori, S., Aggarwal, V., Alam, O., Savoldi, A., & Zielonka, R. (2016). The crisis response to the Nepal earthquake: Lessons learned. *European Institute for Asian Studies (EIAS), Research Paper. Brussels, Belgium*.

West, H. M., & Scott-Samuel, A. (2010). Creative potential: mental well-being impact assessment of the Liverpool 2008 European capital of culture programme. *Public health*, *124*(4), 198-205. https://doi.org/https://doi.org/10.1016/j.puhe.2010.01.012

Westerhof, G. J., & Keyes, C. L. (2010). Mental illness and mental health: The two continua model across the lifespan. *Journal of adult development*, *17*(2), 110-119.

What works wellbeing. (2017). Job quality and wellbeing. *www.whatworkswellbeing.org*.

White, S. C. (2010). Analysing wellbeing: a framework for development practice. *Development in Practice*, *20*(2), 158-172. https://doi.org/10.1080/09614520903564199

White, S. C. (2015). *Relational wellbeing: A theoretical and operational approach*.

Wisner, B. (2003). *Changes in capitalism and global shifts in the distribution of hazard and vulnerability*. Routledge.

Wisner, B. (2020). Five Years Beyond Sendai—Can We Get Beyond Frameworks? *International Journal of Disaster Risk Science*, *11*(2), 239-249. https://doi.org/10.1007/s13753-020-00263-0

Wisner, B., Blaikie, P. M., Blaikie, P., Cannon, T., & Davis, I. (2004). *At risk: natural hazards, people's vulnerability and disasters*. Psychology Press.

Wisner, B., Gaillard, J. C., & Kelman, I. (2012). *Handbook of hazards and disaster risk reduction and management*. Routledge.

Woolcock, M., & Narayan, D. (2000). Social capital: Implications for development theory, research, and policy. *The world bank research observer*, *15*(2), 225-249.

World Bank. (2009). *World Development Report 2009 : Reshaping Economic Geography*. https://openknowledge.worldbank.org/handle/10986/5991

World Bank. (2013). *Global Monitoring Report 2013: Rural-Urban Dynamics and the Millennium Development Goals*. http://hdl.handle.net/10986/13330

World Bank Group. (2018). *Nepal Schematic Country Diagnostic*.

World Health Organisation. (2001). *Mental Health: Strengthening mental health promotion* (Fact sheet no. 220).

World Health Organisation. (2004). *Promoting Mental Health : concepts, emerging evidence, practice*. Summary report, Issue.

World Health Organisation. (2005). *Facing the challenges, Building Solutions* (report from the WHO European Ministerial Conference, Issue.: http://www.euro.who.int/document/MNH/edoc06.pdf

World Health Organisation. (2008). *Social cohesion for mental well-being among adolescents*.

World Health Organisation. (2010). *A conceptual framework for social determinants of health* (Social determinants of health discussion paper 2, Issue.

World Health Organisation. (2011). *Mental Health Atlas 2011:Nepal*.

World Health Organisation. (2012). *Social determinants of health and well-being among young people* (Health behaviour in school-aged children (HBSC) study: International report from the 2009/2010 survey, Issue.

World Health Organisation. (2013). *Building back better: sustainable mental health care after emergencies*. World Health Organization.

World Health Organisation. (2014). *Social determinants of mental health* (9241506806).

Yadav, P. (2016). *Social transformation in post-conflict Nepal: A gender perspective*. Routledge.

Yadav, P. (2020). Can women benefit from war? Women's agency in conflict and post-conflict societies. *Journal of Peace Research*, 0022343320905619.

Yadav, P., Saville, N., Arjyal, A., Baral, S., Kostkova, P., & Fordham, M. (2021a). A feminist vision for transformative change to disaster risk reduction policies and practices. *International Journal of Disaster Risk Reduction*, 102026.

Yadav, P., Saville, N., Arjyal, A., Baral, S., Kostkova, P., & Fordham, M. (2021b). A feminist vision for transformative change to disaster risk reduction policies and practices. *International Journal of Disaster Risk Reduction*, *54*, 102026.

Yamamura, E. (2016). Natural disasters and social capital formation: The impact of the Great Hanshin-Awaji earthquake. *Papers in Regional Science*, *95*(S1), S143-S164. https://doi.org/doi:10.1111/pirs.12121

Yokoyama, Y., Otsuka, K., Kawakami, N., Kobayashi, S., Ogawa, A., Tannno, K., Onoda, T., Yaegashi, Y., & Sakata, K. (2014). Mental health and related factors after the Great East Japan earthquake and tsunami. *PloS one*, *9*(7), e102497.

Zautra, A. J., Hall, J. S., & Murray, K. E. (2010). Resilience: A new definition of health for people and communities. *Handbook of adult resilience*, *1*.

Zhang, Z., Shi, Z., Wang, L., & Liu, M. (2011). One year later: Mental health problems among survivors in hard-hit areas of the Wenchuan earthquake. *Public health*, *125*(5), 293-300.

Zhao, Y. (2013). Social Networks and Reduction of Risk in Disasters: An Example of the Wenchuan Earthquake. In W.-J. J. Yeung & M. T. Yap (Eds.), *Economic Stress, Human Capital, and Families in Asia: Research and Policy Challenges* (Vol. 4, pp. 171-182). Springer Netherlands. https://doi.org/10.1007/978-94-007-7386-8_10

Zoe Hildon, G. S., Gopalakrishnan Netuveli and David Blane. (2008). Understanding adversity and resilience at older ages. *Sociology of Health & Illness 30*, 726-740. https://doi.org/10.1111/j.1467-9566.2008.01087.x

Zuo, K., Wilkinson, S., & Potangaroa, R. (2008). *Supply chain and material procurement for post disaster construction: the Boxing Day Tsunami reconstruction experience in Aceh, Indonesia* CIB International Conference on Building Education and Research Building Resilience, Heritance Kandalama, Sri Lanka.

1. Appendix A Outputs from the PhD

Conference proceeding and presentations

1. Presentation in IHRR Annual Conference, 10th October 2019 on, "Geographies of Wellbeing, Post-disaster Mental health and Wellbeing of Women: A case study of the Gorkha earthquake, Nepal."
2. Presentation in IHRR Annual Conference, 10th October 2018 on, "Geographies of Wellbeing of women in Post-earthquake Nepal, Resilience in the Face of Adversity."
3. Presentation in Conference on, "The Impact of Hazard, Risk and Disasters on Societies and Dealing with Disasters," organised by Institute of Hazard, Risk and Resilience held from 19th - 22nd September 2017, Durham University, UK.
4. Participated and presented preliminary research findings from qualitative data collection in the 17th International Medical Geography Symposium held from 2nd till 7th July 2017, in Angers France.
5. Received the "Best poster award" for the poster presented in Wolfson Research Institute for Health and Wellbeing Early-Stage Research Conference, June 2016.
6. Poster presentation on "Post-disaster Mental Health & Wellbeing: Geography of Psychological Vulnerability and Resilience, Gorkha earthquake in Nepal" in 'Wolfson Research Institute for Health and Wellbeing Early-Stage Research Conference,' June 2016.
7. Presented in IHRR Postgraduate Forum on "Understanding Psychosocial Resilience of Women to Trauma" held on 11th of November 2016.

2. Appendix B Methodology

Letter of support from supervisor

To,

Nepal Health Research Council (Nepal) 24th November 2016

Ramshah path Kathmandu, Nepal

Subject: Request for ethical approval

Dear Sir/Madam,

This is to inform you that Chandika Sherstha, a PhD student in Durham University is conducting her fieldwork in Nepal as a part of her PhD in "Understanding mental health and well-being of women in post-earthquake context". She has obtained the ethical clearance here in Durham University. Her work in the field is to conduct focus group discussion and In-depth interviews with women in the community to explore the impact of life events, including the 2015 earthquakes which have shaped their mental well-being. While the study focuses on identifying the factors that make women resilient and takes a positive and empowering approach to mental wellbeing.

I believe, she will consider all the ethical terms and conditions in her practical field work. I humbly request you to permit her the ethical clearance from your organisation too, once she complies with all the requirements of your organisation and help her to move forward with her field work. Thank you for your time and consideration.

Thanking you,

Professor Sarah Atkinson (Lead supervisor)

Deputy Head of Faculty – Research Operations

Faculty of Social Science and Health

Durham University, UK

Ethical approval letter from Nepal Health Research Council

Government of Nepal

Nepal Health Research Council (NHRC)

Estd. 1991

Ref. No.: 1576

01 March, 2017

Ms. Chandika Shrestha
Principal Investigator
Durham University
United Kingdom

Subject: Approval of Research Proposal entitled **Understanding the post-disaster Psychological resilience of women to trauma, Dolakha Nepal**

Dear Ms. Shrestha,

It is my pleasure to inform you that the above-mentioned proposal submitted on **01 January 2017 (Reg.no. 01/2017** please use this Reg. No. during further correspondence) has been approved by NHRC Ethical Review Board on **01 March, 2017**.

As per NHRC rules and regulations, the investigator has to strictly follow the protocol stipulated in the proposal. Any change in objective(s), problem statement, research question or hypothesis, methodology, implementation procedure, data management and budget that may be necessary in course of the implementation of the research proposal can only be made so and implemented after prior approval from this council. Thus, it is compulsory to submit the detail of such changes intended or desired with justification prior to actual change in the protocol before the expiration date of this approval. Expiration date of this study is **October 2017.**

If the researcher requires transfer of the bio samples to other countries, the investigator should apply to the NHRC for the permission. The researchers will not be allowed to ship any raw/crude human biomaterial outside the country; only extracted and amplified samples can be taken to labs outside of Nepal for further study, as per the protocol submitted and approved by the NHRC. The remaining samples of the lab should be destroyed as per standard operating procedure, the process documented, and the NHRC informed.

Further, the researchers are directed to strictly abide by the National Ethical Guidelines published by NHRC during the implementation of their research proposal and submit progress report and full or summary report upon completion.

As per your research proposal, the total research amount is **NRs. 4,90,000.00** and accordingly the processing fee amount to **NRs. 10,000.00.** It is acknowledged that the above-mentioned processing fee has been received at NHRC.

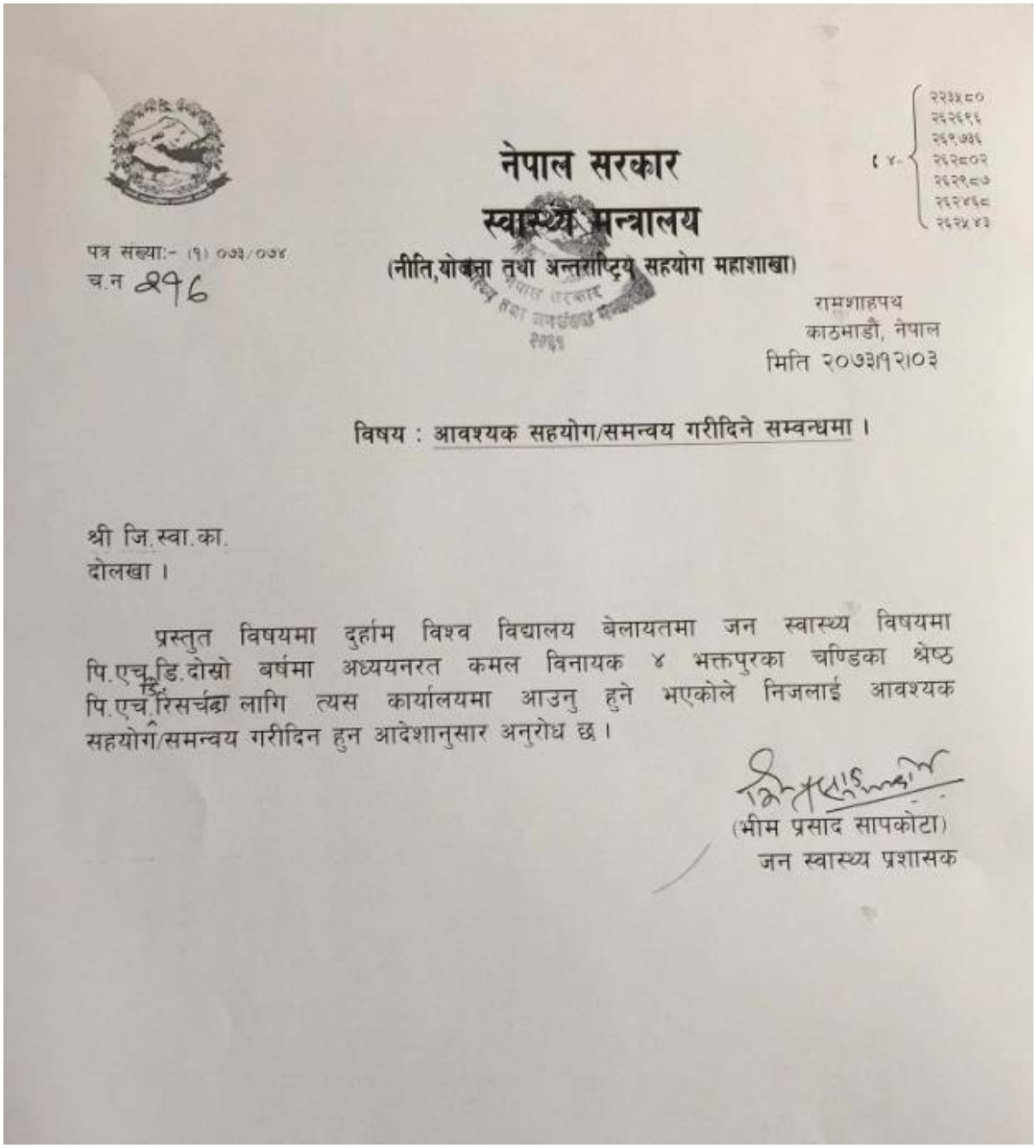
If you have any questions, please contact the Ethical Review M & E section of NHRC.

Thanking you,

.....

Dr. Khem Bahadur Karki
Member Secretary

Letter of support from Ministry of Health and Population, Nepal



नेपाल सरकार
स्वास्थ्य मन्त्रालय
(नीति,योजना तथा अन्तर्राष्ट्रिय सहयोग महाशाखा)

पत्र संख्या:- (१) ०७३/०७४
च.न 296

रामशाहपथ
काठमाडौं, नेपाल
मिति २०७३।१२।०३

विषय : आवश्यक सहयोग/समन्वय गरीदिने सम्वन्धमा ।

श्री जि.स्वा.का.
दोलखा ।

प्रस्तुत विषयमा दुर्हाम विश्व विद्यालय बेलायतमा जन स्वास्थ्य विषयमा पि.एच.डि.दोस्रो बर्षमा अध्ययनरत कमल विनायक ४ भक्तपुरका चण्डिका श्रेष्ठ पि.एच.रिसर्चका लागि त्यस कार्यालयमा आउनु हुने भएकोले निजलाई आवश्यक सहयोग/समन्वय गरीदिन हुन आदेशानुसार अनुरोध छ ।

(भीम प्रसाद सापकोटा)
जन स्वास्थ्य प्रशासक

Focus group discussion Guideline

Participants: Survivor women possibly household head
Expected numbers of FGDs: 6-9 in 3 VDCs
FGD Guideline

1. **Introduction:** Researchers and participants, share aim and objective of the research, verbal consent with the participants
2. **Community context:** Basic structures and background
3. **Significant life changing events:** natural hazards they faced until now, significance of Gorkha earthquake
4. **Everyday life of the women in the community**
    - Life before the earthquake/ Pre earthquake life: How was it like before the earthquake (detailed of changes)?
5. **Experience of Gorkha earthquake**
    - Post-earthquake life: How is it now? Any changes following the earthquake (e.g., social structure, economy, gender roles…)?
    - Different problems faced
6. **Health and wellbeing issues**
    - List all post-earthquake health issues, if mental health issue come in the list, divert conversation towards type of general mental health and psychological symptoms/problem faced, risk groups
    - Their understanding of meaning of mental health and wellbeing
    - Perception of mental health and wellbeing in post-earthquake life
    - Possible trajectories of recovery of stress responses
    - Current status of mental wellbeing
    - Impact of challenges they faced on mental wellbeing
7. **Coping strategies to mental wellbeing**
    - Same or different to what normally people do in normal circumstance
    - Any form of gendered coping
8. **Resilience factors**
    - Factors that matters for post-event psychological wellbeing (Individual factors, community factors, wider determinants
    - Factors giving rise to different trajectories of mental wellbeing
    - Role of different local settings

9. **Interventions**
    - Services/systems available to support people with problems
    - Effectiveness/usefulness of services available
    - Activities or things which would be helpful for women in a similar scenario
10. **Take questions and queries from respondents**

In-depth Interview Guideline

Target Participants

- Women who were good at expressing as well as those who were very quiet during FGD, or some women with peculiar cases
- Female health volunteer or teachers or health worker or politically active women in the community

Expected numbers of In-depth interviews: 10-12

Checklist for the In-depth Interview

1. Background information: Family, her personal experience of earthquake and
2. Individual experiences of the event
3. Challenges faced post-event: gendered problem, day to day problem, changing role as a result of crisis
4. Coping strategies for post-event stress management
5. Mechanism contributing psychological resilience: what matter most?

Key Informant interview Guideline

Key informants: District health officer, health, disaster and women related I/NGO's representatives, representative from Women development and disaster management committee, health post in-charge in VDC, FCHVs, social workers

Expected numbers of Key informant interviews: 5 to 10

Checklist for Key Informant Interview

1. Background of the research community
2. Scenario of the district before and after the earthquake
3. Challenges faced by the community and by women post-earthquake
4. Broad perspective on health and wellbeing: how significant the problem of mental health and wellbeing issue appear to be, the gendered perspective of health and wellbeing,
5. General coping mechanisms observed in the community post-disaster
6. Broader idea on resilient factors for mental health in the community
7. Engagement of different Community based organisations in post-event period, their usefulness and effectiveness

Table 1: List of FGDs conducted

Sn	Name of VDCs and ward no. where FDGs were conducted	code	Number of participants	Ethnic composition of participants
1.	Sunkhani-2	S02	10	Chhetri-9, Newar-1
2.	Sunkhani-7	S07	9	Chhetri- 7, Brahmin-2
3.	Suspachhemawati-4	S04	13	Thami-13
4.	Suspachhemawati-	S01	11	Thami-6, Dalit-4, Newar-1
5.	Suspachhemawati-2	S03	10	Thami-10
6.	Laduk-2	L02	13	Tamang-13
7.	Laduk-5	L05	9	Chhetri-9
8.	Laduk-7	L07	11	Chhetri-8, Tamang-3
9.	Mali-5	M05	7	Sherpa-7
10.	Mali-6	M06	9	Dalit-2, Brahmin-5, Tamang 2
	Total=**10**		102	Chhetri-33, Thami-29, Tamang-18, Dalit-6, Sherpa-7, Brahmin-7, Newar-2

Table 2: List of Key informants in the study

Sn	Key Informants	Codes	Area of expertise	Topics covered
1.	Research Manager-1	RM1	Mental health in Nepal	MH research, Tools
2.	Chief District Officer-1	C1	District Development Office	District Overview on the economy, health, disaster, and development
3.	District Health Officer-1	D1	District Health Office	Priority health programs, health concerns of the district, status of mental health and status after the earthquake of the district as he was handling as a focal person of mental health programs, role of I/NGOs post-earthquake
4.	Statistic Officer-1	S01	Local development Office	District population data, data on the impact of the earthquake
5.	Visiting mental health specialist-1	M1	Central Mental Hospital, WHO field office, Dolakha	Policies and programs in mental health, mental health status of the community, impact of the earthquake in mental health
6.	Representative of WDO-1	W1	Women Development Office	Status of women in Dolakha challenges women faces in everyday, impact of the earthquake on women, recovery, and reconstruction
7.	Program officer and Field Officer-2	T1	TPO (NGO working on MH), Dolakha	Mental illness in the disaster affected areas, psychosocial counselling and training on MH, approach used to support population MH
8.	Social workers-2	SW1	Aawaz NGO, working on women rehabilitation	Status of women, Violence against women, the impact of the earthquake on women, recovery, and rescue activities
9.	In-charge of local health posts in ward level-4	H1, H2, H3, H4	Health Post of Sunkhani, Suspa, Laduk, and Mali	Community health issues, pre-and post-disaster change on mental health cases in the community, Disaster response
10.	Social worker-1	S1	Owner of community microfinance	Disaster response, the status of women in the community, rescue, recovery, and reconstruction activities
	Total participants=15		Total interviews=13	

Information tables on study areas

Table 3: Demographic characteristics of four selected VDCs for FGDs according to National Population Census, 2011

Sn	Criteria	Laduk	Mali	Sunkhani	Suspa-chhemawati
1	No of households	928	693	1194	864
2	Household headed by female population %	44.50	54	31	29
3	Total population	3663	2749	4675	3437
4	Absent male % of total male	14	28	11	5.50
5	Absent female % of female population	4.6	3	2	0.8
6	Major ethnic groups in percent	Chhetri 39, Tamang 38	Chhetri 42, Sherpa 34	Chhetri 49, Brahmin 27	Thami 70, Chhetri 1
7	Literacy rate of population >5yrs	62 (M 74, F 52)	57 (M 66, F 50)	65 (M 76, F 55)	65 (M 75, F 57)

Table 4: Demographic characteristics of selected wards for FGDs

	HH	**Total population**	**Male**	**Female**
Selected wards in Suspachhemawati VDC				
2	65	263	110	153
3	83	334	148	186
4	122	415	205	246
Selected wards in Sunkhani VDC				
2	174	628	265	363
7	100	402	177	225
Selected wards in Jiri municipality				
5	197	801	369	432
6	180	673	361	315
Selected wards in Laduk VDC				
2	70	245	116	129
5	100	375	179	196
7	142	576	261	315

Sampling process of the Survey

Step 1. ***Sample size calculation***
Sample size for the study was determined by the statistical formula used to calculate sample size.
Where,

Prevalence, p = 50% or 0.5
z = 1.96
Margin of error, e = 5% or 0.05
Sample population, N = 45,688 total household in a district

Sample size = $$\frac{\frac{z^2 \times p(1-p)}{e^2}}{1+(\frac{z^2 \times p(1-p)}{e^2 N})}$$

Hence, according to the formula, **Sample size (n) = 657**

Step 2. ***Proportionate distribution of sample household***

a. Urban - rural distribution of sample,

Total household in Dolakha district = 45,688
Urban households = 12493
Rural households = 33,195

i. Sample size for urban

= 27% of total sample size

= 27/100*657
= **178**

ii. Sample size for rural

= 77% of total sample size

= 77/100*657
= **480**

b. Further subdivision of number of sample households among wards,

i. Total number of households in **Bhimeshwor Municipality**; ward 5 = 1163

Only one urban ward is selected, therefore all 178 urban households are taken from this ward

ii. Two wards from rural municipalities were selected for the study, therefore, to divide the total of 480 samples to be collected from the two wards making

it proportionate to household size in each ward, sample interval was calculated:

Sample interval = (Total households of Malu + total households of Chilankha) / Total sample size required from rural municipalities
= 789+584/480

= 2.86

Total number of households in **Bigu Rural Municipality**, ward 5 Chilankha is 789
Therefore, Sample size for Chilankha = Total HH/sample interval
= 789/2.8
= **276**
Total number of households in **Tamakoshi Rural Municipality**, ward 2 Malu is 584
Similarly, Sample size for Malu, Tamkoshi = Total HH/sample interval
= 584/2.86
= **204**

c. Ethnic strata

In each ward, required sample size is proportionately divided as per the ethnic composition of that ward e.g., in Chilankha there are 25% Chhetri HH, therefore number of Chhetri HH to be sampled will be:

= 25% of total sample allocated for Chilankha (276)

Survey Questionnaire

Durham University, Department of Geography
PhD research
Household Questionnaire
2018

All personal information asked within this questionnaire will be kept confidential according to university ethics. This information will be used only for statistical purposes.

Date:

Name of Interviewer:

Signature of Interviewer:

District:

Locality: Urban (1)/rural (2)

Name of local level:

Ward no:

GPS Coordinates

Latitude (North)

Longitude (East)

Section 1: Socio-demographic Information

Sn	Question	Response	Code	Skip options	Sn	Guideline notes for enumerators
1.1	Who is a household head in your house?	Myself	1	If me, go to question no. 1.2 otherwise skip to 1.3	1.1	This question is referring to knowing who an entitled household head in the family is.
		Husband	2			
		Father-in-law	3			
		Mother-in-law	4			
		Anyone else	5			

1.2	If you do, do you make all the main decisions in the house?	Yes	1		1.2	This question is referring to see if a woman is the household head, is she the de facto/official head of the household i.e., the main decision-maker in the household or just given the head title?
		No	2			
1.3	How old are you?	……..Years			1.3	Please clarify the respondent's year of birth.
1.4	What is your education/literacy status?	Non-literate	1		1.4	Literacy status refers to her ability to read and write to the highest level of education completed. If the respondent is still studying, please clarify the highest level of education completed to date.
		Can read and write but no formal education completed	2			Non-literate – the respondent is unable to read or write Can read and write but has no formal education completed
		Primary level	3			Primary school completed – the respondent can read, write and calculate
		Secondary level	4			Middle and High school completed (12-18years)
		Higher secondary level	5			Technical college following high school completed
		University Level	6			BA/BSc or higher degree completed
1.5	What is your occupation?	Housewife	1		1.5	This question is referring to the work she is allocating most of her time in. Housewife-doing household chores, work of career of family and farming-related work like looking after cattle and agricultural work.
		Formal employment	2			Formal employment – employment with regular hours and wages, with taxes paid on the income earned e.g. teaching, local government, office-based work.
		Casual labour	3			Casual labour – employment without regular hours or wages, where taxes are not paid on the income earned e.g. farm labouring, construction labour

		Self-employed	4			Own-business small or big e.g.: tea shop, own a jeep and earn
		Unemployed (seeking work)	5			Not doing anything neither household chores nor other employment but willing to work
		Unemployed (not seeking work)	6			Not doing anything neither household chores nor other employment as unable to work due to physical capacity
		Student	7			Still spending most of her time attending education
		other *(please specify)*	8			any other than the above given options then please note what it is.
1.6	Which caste do you belong to?	Hills Brahmin (upper caste)	1		1.6	This question is referring to the caste she belongs to. I have listed the common caste group identified in advance. In Nepal caste usually determine their occupation. Brahmins are considered as upper caste hill people and also wearers of the sacred thread.
		Chhetri (upper caste)	2			Considered as upper caste hill people, including Thakuri and Sanuyasi
		Janjati (Thami)	3			Considered as Alcohol drinkers (enslavable)
		Janajati (Tamang)	4			
		Janajati (Sherpa)	5			
		Janajati (Jirel)	6			
		Janajati (Newar)	7			
		other Janajatis	8			May be Kumal, Sunuwar, Mahji, Danuwar, Magar, Rai, Thakali, Gurung, Limbu, Bhujel, Gharti,
		Dalit (so-called untouchable)	9			They are marginalised/lower ranking and poorest ethnic groups who are considered as water un-acceptable like Badi, Damai, Kami, Sarki, Musahar, Chamar
		Other *(please specify)*	10			
1.7	What is your religion?	Hindu	1		1.7	

		Buddhist	2			This question is referring to the religious faith they follow. Most of the population follows the Hindu religion in Nepal.
		Muslim	3			
		Christian	4			
		Kirat	5			
		Other *(please specify)*	6			
		None	98			Not following any religious faith
1.8	What is your marital status?	Unmarried	1		1.8	Please clarify the marital status of the respondent. Never married.
		Married	2	If married go to Q# 1.9 otherwise skip		she is married, living together or he is away for work or some good purpose
		Widow/widower	3			married but the husband has expired
		Divorced	4			married but has left her husband legally
		Separated	5			married but not willing to live together with her husband for some reason so living on her own. It doesn't mean living alone because he is away for work.
1.9	Where is your husband?	Home/within the district (Dolakha)	1		1.9	This question is concerned with the availability of the husband to support her at home or away.
		Another city in Nepal	2			other cities like Kathmandu, Bhaktapur, Pokhara or others for employment
		India	3			Indian cities: as they usually go for labour work
		other SAARC countries (except India)	4			ME: Arabian countries; Qatar, Dubai, Kuwait,

		Middle East countries	5			Western countries: developed countries like Australia, Europe, and America
		Asian countries	6			Likely, Malaysia, Korea, Japan
		Western countries	7			EU, America, Canada, Australia
		Others specify	8			Like Africa…
1.10	Type of family	Nuclear	1		1.10	Herself, her husband, and their kids
		Joint	2			Her family with her in-laws or husband's sibling
		Living alone with regular visits from kids and family	3			May have other family members too but she is living alone there, and other members visit once in a regular pattern like once a month of the year, or frequently
		Living alone without regular visits from her kids and family	4			May have other family members too but she is living alone there, and other members visit once in a while only which is not regular
1.11	Any dependent people you need to take care of?	Yes	1		1.11	This question is concerned with the caretaker status of the woman if she had any dependent child below 5 years, an old member with restricted mobility and a disabled member of the family she needed to take care of.
		No	2	If no skip Q# 1.12	1.12	This question is concerned with the caretaker status of the woman and whether she had any children living with her of 5 years or less.
1.12	If yes, who are they?	Kids below 5 years	1			Old in-laws who have limited mobility Any member who needs complete care/assistance for daily activities due to health issues
		In-laws	2			
		A disabled member of a family	3			
		other (please specify)	4			

1.13	What is the main source of income in your household and how reliable is it?	Please specify…… All year 1 seasonal 2 None 3	1 2 3		1.13	This question is concerned with the single main source of income for her house as well as the adequacy of mentioned income to fulfil their family consumption needs. And tick one of the options for how reliable the source was.
1.14	What are the other sources of income in your family and how reliable are they?				1.14	This question is concerned with other additional sources of income for her house.
	Formal employment within the country	All year seasonal None	1 2 3			Formal employment – employment with regular hours and wages, with taxes paid on the income earned e.g. office-based work, school teacher, clerk in VDC office, Army, Manager, Technicians, I/NGO worker, Health worker etc
	Remittance from formal employment outside the country	All year seasonal None	1 2 3			Formal employment – Remittance as a source of income by regular hours wages
	Casual labour within a country	All year seasonal None	1 2 3			employment without regular hours or wages, where taxes are not paid on the income earned e.g., farm labouring, construction work, working in brick factories, Potter, Driver, maintenance workers etc
	Remittance from casual labour outside the country	All year seasonal None	1 2 3			Remittance as a source of income with employment without regular hours or wages
	Agriculture/farming	All year seasonal None	1 2 3			Farming and the sale of surplus produce - the sale of surplus agricultural products in addition to their own subsistence use or farming cash crops and selling, animal raring and the sale of surplus cattle or cattle product
	Social assistance	All year seasonal None	1 2 3			Old age pay, widow pay, Disability allowance, Job Pension, ethnic pension, Marty's/victim pay

	Self-employed	All year seasonal None	1 2 3			Own business like shops, vehicles etc
	Shared farming	All year seasonal None	1 2 3			Taking other's land in a kind of lease and paying back to the landowner in 50% share of whatever grown in the land but not in cash
	None		98			
	other (please specify)	……..				
1.15	How much will you score overall, on a scale of (1-5) for your economic status in comparison to other households in the community?	Very poor 1 poor 2 normal 3 Well enough 4 Very well 5	1 2 3 4 5		1.15	This question is concerned with how the respondent perceives the level of her economic status overall on a scale of 1 to 5. More the score the better it reflects.
1.16	What is the average monthly cash income of your family?	< 10,000	1		1.16	Average approximate monthly cash income of all members in total in range if not exact. Nepal's Average Monthly Household Income is Rs. 28,756.00/ $280.To see if it is below national average or above. Way to low cash income than the average/cash poor
		< 28,000	2			
		28,000- 50,000	3			
		>50,000	4			
		Don't know	999			
1.17	Observe and rank 1(worst) to 5(very good) the economic status of the household in comparison to others.	…….. Observation notes		To be done by the enumerator	1.17	Despite the other measures of economic status this is to cross-check with what the respondent says and what we see. The enumerator should estimate the economic status of the household relative to other households in the community using the information gathered above and their observation. We have to look for any visible signs of bad or good status like an advanced mobile phone, having a vehicle, having many castles, having a better dish home etc
1.18	How long have you been living in this community?	3 years (only those who were there during eq were respondents)			1.18	
		< 5 years				

		10 years or more				
1.19	What type of location is your neighbourhood?	Cluster			1.19	The question is concerned with if the house of the respondent lies within a cluster or scattered Clustered houses attached in the neighbourhood or just within a < minute distance
		Scattered				Scattered: houses in a neighbourhood far than a minute or 2 walk
	Access to facilities	**Mode**		**Duration**		
1.20	How do you normally travel to the closest facility and how long does it take to get there from your house?	Bus 1 Foot 2 Foot +Vehicle 3 Present next to household 4	1 1 2 2 3 3 4 4 5	<15 minutes 1 15-30 minutes 2 31-60 minutes 3 1-2 hours 4 More than 2 hrs 5	1.20	This question is concerned with access to different facilities from her house.
	Health post/sub-health post					This question is concerned with how close the basic health care providing centre is to her house.
	School					
	Bus Stop					
	Paved Road					This question is concerned with how close the motorable road from her house by walking. A motorable road means a road that has regular public transport around the year.
	Dirt Road, vehicle passable					This question is concerned with how close the dirt road is where at least a private vehicle can pass from her house at any time of the year.

	Dirt Road, vehicle impassable					This question is concerned with how close the dirt road where a vehicle cannot pass anytime around the year is from her house.
	Local Shop/Shops					This question is concerned with how close the regular market is to buy groceries and other essential daily living items from her house.
	Market Centre for construction materials					This question is concerned with how close the big market is to buying clothing and other construction materials from her house.
	Bank					This question is concerned with how close any bank is to her house.
	Source of Drinking Water in the rainy season					This question is concerned with how close the source of drinking water for the rainy season is to her house.
	Source of Drinking Water in the dry season					This question is concerned with how close the source of drinking water for the dry season is to her house.
	Internet access					This question is concerned with how close the internet access point is to her house.
	District headquarters					This question is concerned with how close the district headquarters is to her house.
	Municipality office					This question is concerned with how close the municipality office is to her house.
	Ward office					This question is concerned with how close the ward office is to her house.
	Temple/Monastery/Place they worship					
	Your closest friend's house					

Below are some questions about feelings. Please give a score of 0 to 10 where 0 means extremely dissatisfied/ unhappy or not at all anxious/ worthwhile and 10 means extremely satisfied/ happy/ anxious/ worthwhile.

		0	1	2	3	4	5	6	7	8	9	10
1	Overall, how satisfied are you with your life nowadays?											
2	Overall, how happy did you feel yesterday?											
3	Overall, how anxious did you feel yesterday?											
4	Overall, to what extent do you feel the things you do in your life are worthwhile?											

Section 2: Life before, during and after the Earthquake, life stressors and resources

Let us talk a bit about your personal experience during the time of the earthquake and life after

Pre-earthquake life and stressors						
Sn	**Questions**	**Response**	**Code**	**Skip options**	**Sn**	**Guideline for Enumerator**
2.1	When you recall your life before the earthquake, how was it overall?	Very hard (1)	1	If 1 skip qsn 2.1.2	2.1	This question is concerned with how the respondent perceives her quality of life overall before the earthquake which will be judged by the score, she entirely allocates herself on a scale of 0-10. If respondents answer as 0,1 and 2
		Hard (2)	2	If 2 skip qsn 2.1.2		If the respondent answers as 3 or 4
		Neither hard nor good (3)	3	If 3 skip qsn 2.1.1		If the respondent answers as 5 or 6
		Good (4)	4	If 3 skip qsn 2.1.1		If the respondent answers as 7 or 8
		Very good (5)	5	If 3 skip qsn 2.1.1		If the respondent answers as 9 or 10
		NA	98			Do not know what to say

2.1.1	If hard, can you share why so?	Lack of enough food			2.1.1	This question is trying to explore the reasons which made her think her life was below normal. Here we are expecting different options related to her daily living like housing, food, income source, water, and all. E.g., Scarcity of water, food, economic hardship, and many others
		Lack of enough drinking water and for other daily activities				This question is concerned with what the issues were back then in their everyday life. These listed options are probable if other than this please list them.
		Lack of appropriate housing				If she does not have access to enough water to drink for her family and doing other activities like cooking, cleaning, washing
		Lack of sanitation facilities				The housing condition is not good, either the quality of the building was not good/fragile, not enough space,
		Lack of Safety and Security				Lack of access to a toilet, no toilet or poor condition to use
		Lack of enough income				Do not feel secure personally at the locality, or house, a house not strong enough,
		Other specify…..				
2.1.2	If good, can you share why so?	Better House			2.1.2	Lack of enough money earned by family or resources for fulfilling their subsistence needs
		Better income				This question is trying to explore the reasons which made her think her life was better in the past. Better house than what her current house is.
		No additional work				Better income than her current household income
		Others specify…….				
2. 2	How stressful (fear, anxiety, sleeplessness, loss of appetite) was your life	Very stressful (1)	1		2. 2	This question is trying to explore how stressful she perceives her life before the earthquake on a

	back then? How much would you score on a (1 -5) scale?	stressful (2)	2			scale of 1-5. The better the score lesser the stress.
		Normal (3)	3			
		Not much stressful (4)	4			
		Not at all (5)	5			
2. 3	Have you been through any significant traumatic experiences/events in your life which still bother you?	Yes	1		2. 3	Respondents are asked to list the traumatic experience they had faced. This can be anything that the respondent perceives as a traumatic event to her including personal issues to natural hazards like Gorkha EQ.
		No	2	if no skip to qsn 2.6		
2.3.1	If yes, what were those experiences?	…… ……. Specify			2.3.1	This question is expecting different traumatic experiences she has had experienced she thinks are significant for her wellbeing.
		Gorkha earthquake				The recent bid earthquake she faced in 2015
		other previous natural disasters				Any other natural hazards she faced she think is important except the earthquake.
		Experience of Maoist civil war				Any bitter experiences she faced during the civil political conflict between the government and Maoist.
		Serious accident or injury				Any personal physical accident she faced of any kind or exposure to life-threatening conditions she had been through
		Loss of a loved one				Loss of a loved one which she still can't get out of her head
		Others *(please specify)*				Any other experiences which are not listed above
Life during the earthquake (April 25th/12th May), 2015						
The physical loss suffered, personal and community						
2.4	Did the earthquake cause any harm to your house?	No damage to the house			2.4	This question is concerned with the extent of damage caused to her house by the earthquake.

		Minor structure damage or cracks				
		Partly collapsed but liveable				
		Completely collapsed				
2.5	What other physical losses did you face as a result of the earthquake?	Loss of valuable belongings like jewellery			2.5	This question is concerned with the extent of physical damage they had to their property. If the damage was caused or lost to valuable goods like jewellery, television, vehicles
		Loss of important legal documents				If they lost or damage caused to legal documents like house and land ownership, citizenship, academic certificates, and other identity verifying cards
		Loss of Livestock				If their cattle (cow, buffalo, goats etc) died because of the earthquake.
		Cracks/damage to farmlands				If the land they used o farm sustained major cracks living it no more cultivable
		Loss of business premises or tools				If there is a loss to any kind of business they were running before like, the collapse of the shop, or damage to their poultry farms and tools they used for that work
		Others (please specify)				Anything else than the given options
2.6	Where did you live the first month of the earthquake?	Self-made temporary shelters			2.6	This question is concerned with where they managed to live after their houses were no more liveable or what temporary shelters they used. Shelter made of tents, trampoline, plastic, and other local material like woven wooden nets by themselves
		Government buildings like schools, health centres or VDC office				
		others specify……..				

						school, health centre or VDC buildings for shelter
2.7	With whom did you live in a temporary shelter?	Own family members only			2.7	This question is concerned with whom they lived in the temporary shelters. Her family only
		With relatives				Her family with other relatives in the neighbourhood
		collectively with neighbours				Jointly with her neighbours not necessarily her relatives
2.8	How did you manage to provide food to eat while you were living in a temporary shelter?	Ate what we had personally			2.8	This question is concerned with how they managed food to survive when they lived in the temporary shelter. Ate food which they have pulled out of the houses before or after houses collapsed
		Shared in a group in the community				Food shared with whatever is available within family, friends, and neighbour
		Dependent on relief food				Waiting for relief food to survive
		Slaughtered livestock they had				Slaughtered livestock they had to survive
		Dependant on market food				Bought foods available in shops to eat and feed the family
		other specify….				
2.9	When did you build your semi-permanent shelter?	In a week			2.9	This question is concerned with when they managed to build their semi-permanent houses.
		After 2 weeks				
		After a month				
		After 2 months or more				
2.10		Less than 6 months			2.1	This question is concerned with how long they lived in their semi-permanent houses or

	How long did you live in your semi-permanent shelter?	Less than a year				indirectly see the post-earthquake reconstruction status of permanent houses Hy76t
		1-2 years				
		2-3 years				
		Till now				
2.12	Were there any other losses caused by the earthquake in your community impacting your everyday life?	Dried source of drinking water			2.12	This question is concerned with the loss caused beyond the household level to the community level, which still may have an impact on the household level. The previous regular water source they had dried, and water is no more regular afterwards
		Disruption to the road network				Damage caused to the motor road or the walking pathways
		Increased migration				Migration is induced by the earthquake in the community making the community less liveable
		Others specify……				
Earthquake related experiences						
2.13	Were you pregnant or was a newly delivered mother (<6 months after delivery) during the time of the earthquake?	Yes			2.13	This question is concerned with the special/vulnerable condition of women such as pregnancy and childbirth at the time of disaster. Either pregnant or new mother having a child below 6 months
		No				Neither pregnant nor having a child below 6 months
2.14	Did you suffer any physical injury during the earthquake?	Yes			2.14	This question is concerned with if she suffered any injury because of the earthquake.
		No				
2.14.1	If yes, what was it?	Minor injuries & lacerations			2.14.1	
		Head injury				
		fractured limb				

		others specify…..				
2.14.2	How long did it take to recover from your injury?	< 1 week			2.14.2	This question is concerned with the extent of injuries she suffered any injury because of the earthquake. It is a minor one recovering in a few days or taking weeks to recover or she had lost function of any organ or resulted in permanent disability.
		1-4 weeks				
		> a month				
		Still ongoing				This resulted in a form of disability
2.15	Did any of your family members or friend suffer any injury during the earthquake?	Yes	1		2.15	This question is concerned with if any of her close friends or a family member was injured as a result of the earthquake.
		No	2			
2.16	Were any of your close friends or family killed in the earthquake?	Yes	1		2.16	This question is concerned with if she had lost any close friends or family members because of the earthquake.
		No	2			
2.18	How would you score from (1-5) if you had to rank how stressful (fear, anxiety, sleeplessness, loss of appetite) your life was in the immediate life after the earthquake?	Very stressful (1)	1	If 3, skip qsn no. 2.19 - 2.20; If 4 skip qsn no. 2.19 - 2.20 If 5 skip qsn no. 2.19 - 2.20	2.18	This question is concerned with how the respondent perceives the level of stress she faced in the immediate aftermath of the earthquake which will be judged by the score she entirely allocates herself on a scale of 1-5. The lower the score higher the level of stress.
		stressful (2)	2			
		Normal (3)	3			
		Not much stressful (4)	4			
		Not at all (5)	5			
2.18.1	What were the reasons behind your stress?	Fear of aftershock			2.18.1	This question is trying to explore the reasons behind her stress. Fear or returning aftershocks after the major ones
		Fear of dying				The feeling of taking their lives by the earthquake or any other hazards induced by the earthquake.

		Fear of the wellbeing of her family				Concern about her family living with her and away in the aftermath
		Lack of shelter				No proper roof or shed to live in
		Lack of enough food to eat				Not enough food for her and her family
		Hard to cope with the weather				Rain and sun or wind bothered their life when they were living in temporary shelter
		Lack of personal security				Do not feel secure personally at the locality, or house, a house not strong enough,
		Lack of communication facilities				Not being able to communicate with her family who is not in the village with her
		Unable to carry out everyday tasks				Not being able to carry out everyday tasks like, washing, cooking, and cleaning in the place they lived
		Concerned with the wellbeing of kids				Not being able to manage proper shelter, food, and care for their kids at that time
		Managing livestock				No place to keep livestock and were not able to manage grass/fodder for them
		Loss of house and other properties from the earthquake				House collapsed by the earthquake and not being able to save other belongings in the house
		Loss of a loved one				Loss/death of anyone near her because of the earthquake
		…….others specify				If any reasons for stress other than above mentioned reasons
2.18.2	How long did you feel heightened stress/anxiety?	A week			2.18.2	This question is trying to see how long they lived in a stressful situation.
		Almost a month				
		up to 3 months				

		up to 6 months				
		up to a year				
		> year				
2.18.3	What do you think was helpful for you to cope with the stress you had at that time?	Talking and spending time with friends		If not skip qsn no.2.18.3.1	2.18.3	This question is concerned with the way of coping with their stressful time. Meeting or gathering with friends and enjoy talking to them
		Living collectively in a large group				Many families live together under one roof and cook on one stove, sharing food and shelter
		Neighbourhood support				If neighbourhood support in rescue, and recovery activities and showing their concern for post-disaster wellbeing was important to them
		Emotional support from friends and family				Emotional support from friends and families living together or away
		Self-realisation/generalising yourself with others				The feeling of everyone going through the same pain and feeling that it is also the same for me
		Having all your family members together				Having all your family members together in the aftermath to fight with a hard time. Having helpful family members at home or neighbourhood
		Having fun and enjoying good food by slaughtering livestock				Entertainment by singing, dancing and having good food by slaughtering livestock they had in a hard time
		Religious faith/ spirituality				Engaging in religious activities and organising offerings to the god
		Negative coping (staying away from people, substance		If not skip qsn no.2.18.3.2 to 2.18.3.3		Distancing yourself from other people, using substances like cigarettes and alcohol more than usual consumption (Tick one of the options in the bracket)

		abuse like alcohol or smoking)				
		……. others specify				If anything, else than the above-mentioned options please list it down
2.18.3.1	If talking with friends then, do you have good friends in your neighbourhood?	Yes	1		2.18.3.1	
		No	2			
2.18.3.2	If negative coping then, did you start any new consumption behaviour?	Yes	1		2.18.3.2	This question is concerned with if they have started new behaviour for coping like smoking, alcohol consumption
		No	2			
2.18.3.3	If yes, please specify what was it.	…….			2.18.3.3	
2.19	Were there any active male members in your house to help you in the immediate aftermath?	Yes	1		2.19	To see the presence of active males to help in rescue and recovery activities.
		No	2			
		NA	98			
2.2	If yes, who were they?	Husband	1		2.2	This question is concerned with who the male in the family was available to help her in the aftermath
		Father-in-law	2			
		Brother-in-laws	3			
		Son	4			
		…….others specify	5			
2.21	During the earthquake, who was more willing to offer you help in the community?	Neighbour in general			2.21	This question is concerned with who she received help most from that time. From her neighbour, whoever it is may or may not be relative or of her caste.
		People of your caste				People from her caste were helpful

		Members of other caste groups				People from other than her caste were helpful
		Relatives				Her blood relatives were helpful
		Friends				Her friends in the neighbourhood were helpful
		others specify…..				
2.22	How comfortable were you seeking help from others at that time?	Very comfortable			2.22	This is to see if she is perceived well in the community or marginalised.
		Comfortable				
		Normal				
		Not comfortable				
		Not comfortable at all				
2.23	Did you help others in your community to respond to the earthquake/disaster?	Yes	1		2.23	This question is concerned with how actively she engages with the community.
		No	2			
2.23.1	If yes, what kind of help did you offer?	Rescue activities			2.23.1	This question is concerned with what kind of help she was able to offer. Rescue activities like pulling out buried people, and stuff, carrying people to safe places.
		Communal work while living in a group				Offering help in a recovery activity like managing food and water, cooking, cleaning, and caring for children and old people while living together
		Building temporary shelters for others				Helped in building shelters for old people and whoever needed help
		others specify…..				
2.24	How influential were your community members to influence the government and other authorities to	Very much			2.24	This question is concerned with how much access her community has to the higher-level authorities to request the help they needed in the aftermath.
		little bit				
		Not at all				

	help you after the earthquake?					
2.25	During the earthquake did any social leaders or politicians work actively to help your community recover?	Yes	1		2.25	This question is concerned with how active social leaders and politicians in her community were to help them with different relief and recovery activities in the aftermath.
		No	2			
2.26	Did many organisations come to your community to offer help after the earthquake?	Yes	1	If no skip qsn 2.26.1 and 2.27	2.26	This question is concerned with external help or the role of I/NGOs in the aftermath apart from the government.
		No	2			
2.26.1	If yes, what type of help did they offer?	Supply of essential items			2.26.1	Supply of food, bedding, clothes, shelter items, solar panels for electricity
		Training and counselling activities				Capacity building pieces of training to community people in different fields like preparedness training, mental counselling, agricultural training
		Monetary help to a selected group				Short-term funds for old, disabled, single women for different purposes like livelihood, reconstruction
		Livelihood projects				Projects on cash crop farming, livestock, a new way of farming, and other small scale income generating programmes
		Enhancing women empowerment				Helped in empowering women via training, engagement in groups, activating dormant groups
		others specify…..				
2.27	Overall, how happy/satisfied are you with the support they	Very happy			2.27	This question is concerned with how well she perceived the support provided in her community by different organisations in the aftermath
		Happy				
		Okay				

	provided to your community?	Not happy				
		Not happy at all				
Life after the earthquake/current life						
2.28	If you have to judge your current life overall, how much will you rate it on a scale of 1-5?	Very hard (1)	1	If 1 skip qsn no. 2.28.1	2.28	This question is concerned with how the respondent perceives her quality of life overall before the earthquake which will be judged by the score, she entirely allocates herself on a scale of 0-10.
		Hard (2)	2	If 2 skip qsn no. 2.28.1		
		Normal (3)	3	If 3 skip qsn no. 2.28.2		
		Good (4)	4	If 4 skip qsn no. 2.28.2		
		Very good (5)	5	If 5 skip qsn no. 2.28.2		
		NA	98			
2.28.1	If it is good, can you share what the reasons are?	Better earning			2.28.1	This question is concerned with the reasons for making her life better than it was before the earthquake.
		Better House				
		Better learning opportunities				
		None				
		…… specify				
2.28.2	If it is below normal, can you share what are the reasons?	Lack of enough Food			2.28.2	This question is concerned with everyday issues she is facing in her current day-to-day life. Lack of enough food to eat
		Lack of water for drinking and daily activities				Lack of enough water for her family to drink, wash, clean, cook etc

		Lack of appropriate housing				Houses they live in are still semi-permanent with no proper lighting, not enough space, no weatherproof, leakage in the house or not strong enough, lack of privacy, no place to accommodate guest
		Lack of sanitation facility				Lack of or poor toilet
		Lack of Safety and Security				Fear of personal safety and security because of inappropriate housing, unsafe community etc
		Lack of enough income to live				Not enough money to fulfil basic needs, education, health, and reconstruction of houses
		Weather-related stress				Due to poor housing conditions, they fear even if the weather is not severe, like when it is windy, rainy, too sunny, or too cold
		Have an illness, injury or disability				Physically not fit
		Worried about loan taken for reconstruction/added loan				A loan taken for reconstruction is an added tension
		Decreased visits of kids back home due to lack of house				Their kids studying in other cities are not willing to come home because of poor housing
		Additional work burden of reconstruction				Added workload related to reconstruction and additional money making for earning to reconstruct a house
		Lack of support from family				Family members are not being cooperative in reconstruction work
		Lack of support from the community				Feel leftover in the community

		Being displaced from home				Displace to the new place
		Others specify…….				
Employment opportunities/Economic transformation						
2.29	Do you think the earthquake brought any positive changes or betterment in your community?	Yes	1		2.29	This question is concerned with if the respondent notices any benefit community had as a result of the earthquake.
		No	2	If no skip qsn 2.29.1		
2.29.1	If yes, what were they?	Employment opportunities created			2.29.1	Any kind of formal or informal earning opportunities created as a result of the earthquake-like Mason, construction Labour, NGO worker, Clerk in any office
		Increase in overall income				After the earthquake income has been increased due to employment or rise in a pay due to high demand like that of mason wage increase
		Advanced farming				Introduction of new farming like cash crops and fruits by different organisations after the earthquake
		Reactivated existing community groups				Due to the increased flow of different awareness activities or other activities existing but dormant groups in the community were activated as they got programmes to implement
		Engagement in active groups, microfinance				Became a member of any old or new groups created because of earthquake-like microfinance group, mothers' group
		Family members back home from elsewhere				After the earthquake family member who was in another city or abroad came back home and lived there then onwards for different purposes

		Learning skills like using Bank accounts				Got an opportunity to develop different formal and informal skills like participating in meetings, using bank accounts, getting to know government procedures
		Increased number of men in the community				The increase in the availability of a higher number of men in the community after the earthquake may be due to return home for reconstruction or employment opportunities
		Improved neighbourhood ties				After surviving the earthquake, they feel more connected to their neighbour and community
		Reduced caste discrimination				Feels less discrimination between different caste groups than it was before the earthquake
		Building back better homes				Houses in the community look better as a result of the reconstruction
		Building back better community infrastructures				Schools, Health centres and other government office got reconstructed in better forms
		Exposure to I/NGOs				
		Others specify……..				
2.30	Did your household benefit from any of them?	Yes	1		2.3	This question is concerned particularly to her household if it was beneficiary of any of those opportunities brought by the earthquake
		No	2	If no skip qsn 2.30.1 to		
2.30.1	If ‘yes’, how did they benefit?	Job opportunities created			2.30.1	Any kind of formal or informal earning opportunities created as a result of earthquake-like, Mason, construction Labour, NGO worker, Clerk in any office
		Increase in overall income				After the earthquake income has been increased due to employment or rise in a payment due to high demand like that of mason wage increase

		Advanced farming				Introduction of new farming like cash crops and fruits by different organisations after the earthquake
		Reactivated existing community groups				Due to the increased flow of different awareness activities or other activities existing but dormant groups in the community were activated as they got programmes to implement
		Engagement in active groups, microfinance				Became a member of any old or new groups created because of the earthquake-like microfinance group, mothers' group
		Family members back home from elsewhere				After the earthquake family member who was in another city or abroad came back home and lived there then onwards for different purposes
		Learning of skills				Got an opportunity to develop different formal and informal skills like participating in meetings, using bank accounts, getting to know government procedures
		Increased number of men in the community				The increase in the availability of a higher number of men in the community after the earthquake may be due to return home for reconstruction or employment opportunities
		Improved neighbourhood ties				After surviving the earthquake, they feel more connected to their neighbour and community
		Reduced caste discrimination				Feels less discrimination between different caste groups than it was before the earthquake
		Building back better homes				Houses in the community look better as a result of the reconstruction
		Others specify……..				
2.30.2	Who was a direct beneficiary of each of them in your family?	Male: Husband, Son, In-law			2.30.2	This question is concerned with which family member benefited in specific option her house in the above-mentioned options.

		Female: Me, Daughter, In-law				
	Employment opportunities created					If any member got any new paid work of any kind formal or informal
	Engagement in active groups, microfinance					Became a member of any old or new groups created as a result of earthquake-like microfinance group, mothers' group
	Enhancement of skills					Got an opportunity to develop different formal and informal skills like participating in meetings, using bank accounts, getting to know government procedures
	Improved neighbourhood ties					After surviving the earthquake, they feel more connected to their neighbour and community
	Others specify……..					
2.30.3	If employment opportunities were created, what kind of job was it?	Please specify…..			2.30.3	If that applies to her family in the above question, what type of job opportunities did they get?
2.30.4	Has there been any shift in other working priority to agricultural work you were doing before because of this?	Yes	1		2.30.4	This question is concerned with if priority has been shifted to other jobs (source of income) to agriculture which was the main before.
		No	2			
2.30.5	If yes, have you abandoned farming now?	Yes	1		2.30.5	This question is concerned with if they had left farming due to other opportunities created for earning
		No	2			
2.30.5	If improved neighbourhood ties, how?	Please specify…..			2.30.5	How did the neighbourhood ties improve?
2.30.5	If decreased discrimination, how?	Please specify…..			2.30.5	what made her feel less discriminated against?

2.30.5	If opportunities to learn, what were they?	Please specify…..			2.30.5	What kind of skills did they get to learn?
2.31	Did you have formal sources of savings (e.g., in a bank or credit union) before the earthquake, which you could draw on after the earthquake?	Yes	1		2.31	If she or anyone in her house had a savings in bank or finance which she can draw later to use in the aftermath of the disaster.
		No	2			
Living environment and housing						
2.32	Overall, how safe do you feel in the place you are living now? Rate on a scale of 1 not safe at all to 5 very safe.	Unsafe (1)	1		2.32	This question is concerned with her social environment of the community and landscape of the location of the house but not the house itself which comes later.
		Not very safe (2)	2			
		Normal (3)	3			
		Safe (4)	4	If 4 skip qsn no. 2.32.1		
		Very safe (5)	5	If 5 skip qsn no. 2.32.1		
2.32.1	If safe, what are the reasons?	Community cohesion			2.32.1	If they feel safe what are the reasons? They do not feel any risk from anyone in their community.
		Close neighbour				Houses in the neighbourhood are in a cluster
		others specify…..				
2.32.2	If unsafe, what are the reasons?	The risky area due to earthquake-induced landslide nearby			2.32.2	They feel the risk of a landslide is close to their house or farmland
		The risky area due to earthquake-induced cracks in the land				They do not feel the place safe as the land has cracks in many places which make their place and house not safe to live

		living in a new neighbourhood				They were displaced by the earthquake or earthquake-induced other hazards like landslides and living in new places with new neighbours
		The danger of wild animal				The risk of attack by wild animals is high in that place
		others specify…..				
2.33	Have you been affected by any other earthquake-induced hazards?	Yes	1		2.33	This question is concerned with if any new hazards have been introduced to the family by the earthquake which may be natural hazards like landslides or other human-induced hazards like unsafe community
		No	2			
2.33.1	If yes, what were they?	Landslide			2.33.1	If yes, what hazard is induced to her household?
		Displacement				
		others specify…..				
2.34	Have you been displaced by the earthquake?	Yes	1		2.34	This question is concerned with if her household has been displaced by the earthquake for some reason.
		No	2			
2.35	Have you reconstructed your house?	Yes	1	If yes skip qsn 2.35.1	2.35	This question is concerned with the reconstruction of her damaged house by the earthquake.
		No	2			
2.35.1	If not, why?	Shortage of labour			2.35.1	This question is concerned with if her house is not yet reconstructed what are the reasons behind it?
		lack of construction materials				
		Lack of money for reconstruction				
		lack of men at home				
		Inability to handle the money				

		Waiting for government fund				
		Hassell technical assessment of government				
		others specify…..				
2.35.2	If yes, how happy are you with the reconstruction? Rate from 1 not happy at all to 5very happy?	Extremely unhappy 1	1		2.35.2	This question is concerned with if her house has been reconstructed and how happy is she to have a new house.
		Not happy 2	2			
		Fine 3	3			
		Happy 4	4	If not skip qsn 2.35.2		
		Very happy 5	5			
2.35.3	If happy, why?	Nice new house			2.35.3	This question is concerned with the reasons for her happiness in having a new house.
		Children visit often				
		Feels well off than other				
		Have enough place to host guests				
		others specify…..				
2.35.4	If not happy, why?	Very small house, not enough space			2.35.4	A small house as we needed to follow the government code of reconstruction and size is not enough for her family. The added burden of loan taken to reconstruct a house Any of her family members migrated to earn and pay the debt of reconstruction which was not the case before
		Added loan due to reconstruction				
		The family migrated to pay the debt of reconstruction				
		others specify…..				
2.36		Yes	1		2.36	

	Does your household frequently participate in *Perma* (communal work groups)?	No	2	If no skip qsn 2.36.1		This question is concerned with if her household participates in communal work which is common cultural practice in the rural village
2.36.1	If yes, then for what kind of work?	Reconstruction			2.36.1	This question is concerned with if her household participates in communal work, and for what kind of work they usually do.
		Agriculture				
		others specify…				
	Engagement of women					
2.37	Are you engaged in any formal or informal community groups?	Yes	1		2.37	This question is concerned with if she is a member of any formal group in the community. If she is engaged in any group existing in a community like a volunteer (FCHV), Mother's/women group, microfinance group, ward citizen forum, or any others
		No	2			
2.37.1	If yes, what type of group is it?	Please specify…..			2.37.1	This question is concerned with the type of group she is engaged with.
		Mother's/women's group				Mother group which is usually formed for engaging in mother and child health-related issues
		Microfinance group				member of a community-run microfinance group to manage their money on a small scale
		Ward citizen forum				Formed in each ward
		Water management group				A group was formed to manage the water supply of her village
		Community forest management				A group formed to manage a forest which belongs to that village which they use for grass, firewood timber collectively
		Volunteer for the health sector				

2.37.2	Do you actively participate in the activities conducted in that group?	Yes	1		2.37.2	This question is concerned with if she is an active member or a dormant member of that group like attending meetings, training etc.
		No	2			
	Health status					
2. 38	How much would you score from (1-5) if you had to rank how stressful (fear, anxiety, sleeplessness, loss of appetite) you are in the last 15 days?	Very stressful (1)	1		2. 38	This question is concerned with how the respondent perceives the level of stress she faced in her current life based on her judgement on a scale of 1-5. The lower the score higher the stress.
		stressful (2)	2			
		Normal (3)	3			
		Not much stressful (4)	4			
		Not at all (5)	5			
2.38.1	Can you share what the reasons are for that?	Please specify…..			2.38.1	This question is concerned with any personal reasons for the recent stress she is facing
2.39	Do you have any of these Chronic diseases COPD, CVD; HTN, Diabetes, Cancer, Disabilities, or others?	Have	1		2.39	This question is concerned with any chronic disease she has, and she knows
		Do not have	2			
2.4	Are you taking any medicine now for any other disease?	Yes	1		2.4	If she has any other physical or mental health issues, she is taking medicine currently
		No	2			

Appendix C

Descriptive tables

Cross-tabulation tables of different variables with ethnicity

Table 1: Ethnic composition of respondents in percent (number)

Ethnicity	Urban M	Rural M	District Total	Census 2011
Chhetri/Brahmin	42.4(78)	49(220)	47(298)	42.6
Newar	37.5(69)	4.7(21)	14.2(90)	9.4
Janajati	14.1(26)	22.7(102)	20.2(128)	34.3
Hill Dalit and others	6.0(11)	23.6(106)	18.5(117)	13.7

Table 2: Cross-tabulation of ethnicity with religion

Caste group		Hindu	Buddhist	Others	Total
Chhetri/Brahmin	Count	293	0	5	298
	% within the caste group	98.3%	0.0%	1.7%	100.0%
Newar	Count	88	0	2	90
	% within the caste group	97.8%	0.0%	2.2%	100.0%
Janajati	Count	57	64	7	128
	% within the caste group	44.5%	50.0%	5.5%	100.0%
Dalit	Count	112	0	5	117
	% within the caste group	95.7%	0.0%	4.3%	100.0%
Total	Count		64	19	633
	% of the total respondents		10.1%	3.0%	100.0%

Table 3: Cross-tabulation occupation of respondents with ethnicity

		Agri and Housewife	Service	Labour	Self-employed	Unemployed/ student	Total
Chhetri/Brahmin	Count	254	15	6	15	8	298
	% within the caste group	85.2%	5.0%	2.0%	5.0%	2.7%	100.0%
Newar	Count	81	2	2	5	0	90
	% within the caste group	90.0%	2.2%	2.2%	5.6%	0.0%	100.0%
Janajati	Count	106	2	13	5	2	128
	% within the caste group	82.8%	1.6%	10.2%	3.9%	1.6%	100.0%
Dalit	Count	92	5	17	1	2	117
	% within the caste group	78.6%	4.3%	14.5%	0.9%	1.7%	100.0%
Total	Count	533	24	38	26	12	633
	% of the total respondents	84.2%	3.8%	6.0%	4.1%	1.9%	100.0%

Table 4: Cross-tabulation of ethnicity with the type of family

Caste		Nuclear	Extended	Living alone	Total
Chhetri/Brahmin	Count	177	93	28	298
	% within the caste group	59.4%	31.2%	9.4%	100.0%
Newar	Count	44	38	8	90
	% within the caste group	48.9%	42.2%	8.9%	100.0%
Janajati	Count	94	15	19	128
	% within the caste group	73.4%	11.7%	14.8%	100.0%
Dalit	Count	85	27	5	117
	% within the caste group	72.6%	23.1%	4.3%	100.0%
Total	Count	400	173	60	633
	% of the total respondents	63.2%	27.3%	9.5%	100.0%

Table 5: crosstabulation of the main source of household income with ethnicity

		Agriculture	Remittance	Construction labour	Self-employment	Service	Social welfare
Chhetri/ Brahmin	Count	189	34	25	11	33	6
	% within the caste group	63.4%	11.4%	8.4%	3.7%	11.1%	2.0%
Newar	Count	56	9	7	4	12	2
	% within the caste group	62.2%	10.0%	7.8%	4.4%	13.3%	2.2%
Janajati	Count	70	19	24	8	2	5
	% within the caste group	54.7%	14.8%	18.8%	6.3%	1.6%	3.9%
Dalit	Count	44	13	43	11	4	2
	% within the caste group	37.6%	11.1%	36.8%	9.4%	3.4%	1.7%
Total	Count	359	75	99	34	51	15
	% of the total respondents	56.7%	11.8%	15.6%	5.4%	8.1%	2.4%

Table 6: Cross-tabulation of living in a big group after the earthquake with ethnicity

DHS-type caste group		Yes	No	Total
Chhetri/Brahmin	Count	113	185	298
	% within the caste group	37.9%	62.1%	100.0%
Newar	Count	37	53	90
	% within the caste group	41.1%	58.9%	100.0%
Janajati	Count	66	62	128
	% within the caste group	51.6%	48.4%	100.0%
Dalit	Count	49	68	117
	% within the caste group	41.9%	58.1%	100.0%
Total	Count	265	368	633
	% of the total respondents	41.9%	58.1%	100.0%

Table 7: Cross-tabulation of ethnicity with comfortable in seeking help during the time of the earthquake

Caste group		Not at all	Fair	Comfortable	Total
Chhetri Brahmin	Count	28	95	175	298
	% within the caste group	9.4%	31.9%	58.7%	100.0%
Newar	Count	5	22	63	90
	% within the caste group	5.6%	24.4%	70.0%	100.0%
Janajati	Count	11	35	82	128
	% within the caste group	8.6%	27.3%	64.1%	100.0%
Dalit	Count	7	32	78	117
	% within the caste group	6.0%	27.4%	66.7%	100.0%
Total	Count	51	184	398	633

Table 8: Crosstabulation of help received from the overall community during the time of earthquake with ethnicity

Caste group		Yes	No	Total
Chhetri/Brahmin	Count	151	147	298
	% within the caste group	50.7%	49.3%	100.0%
Newar	Count	57	33	90
	% within the caste group	63.3%	36.7%	100.0%
Janajati	Count	77	51	128
	% within the caste group	60.2%	39.8%	100.0%
Dalit	Count	49	68	117
	% within the caste group	41.9%	58.1%	100.0%
Total	Count	334	299	633
	% within total respondents	52.8%	47.2%	100.0%

Table 9: Crosstabulation of help received from the same caste group during the time of earthquake with ethnicity

Ethnic group		Yes	No	Total
Chhetri/Brahmin	Count	142	156	298
	% within the caste group	47.7%	52.3%	100.0%
Newar	Count	19	71	90
	% within the caste group	21.1%	78.9%	100.0%
Janajati	Count	67	60	127
	% within the caste group	52.8%	47.2%	100.0%
Dalit	Count	79	38	117
	% within the caste group	67.5%	32.5%	100.0%
Total	Count	307	325	632
	% within total respondents	48.6%	51.4%	100.0%

Table 10: Crosstabulation of opportunities received by the households as a result of an earthquake with ethnicity

Ethnic group		Yes	No	Total
Chhetri/ Brahmin	Count	144	154	298
	% within the caste group	48.3%	51.7%	100.0%
Newar	Count	27	63	90
	% within the caste group	30.0%	70.0%	100.0%
Janajati	Count	97	31	128
	% within the caste group	75.8%	24.2%	100.0%
Dalit	Count	81	36	117
	% within the caste group	69.2%	30.8%	100.0%
Total	Count	349	284	633
	% within the total respondents	55.1%	44.9%	100.0%

Table 11: Crosstabulation of employment opportunities as a positive change in households after the earthquake with ethnicity (N=349)

Ethnic group		Yes	No	
Chhetri/Brahmin	Count	78	66	144
	% within the caste group	54.2%	45.8%	100.0%
Newar	Count	15	12	27
	% within the caste group	55.6%	44.4%	100.0%
Janajati	Count	47	50	97
	% within the caste group	48.5%	51.5%	100.0%
Dalit	Count	65	16	81
	% within the caste group	80.2%	19.7%	100.0%
Total	Count	205	144	349
	% within the total responses	58.7%	41.3%	100.0%

Table 12: Crosstabulation of male return as a positive change in households after the earthquake with ethnicity

Ethnic group		Yes	No	Total (N=349)
Chhetri/ Brahmin	Count	32	112	144
	% within the caste group	22.2%	77.8%	100.0%
Newar	Count	4	23	27
	% within the caste group	14.8%	85.2%	100.0%
Janajati	Count	22	75	97
	% within the caste group	22.7%	77.3%	100.0%
Dalit	Count	19	62	81
	% within the caste group	23.5%	76.5%	100.0%
Total	Count	77	272	349
	% within the total responses	22.1%	77.9%	100.0%

Table 13: Crosstabulation of opportunities received by the households, improved social cohesion as a result of an earthquake with ethnicity

Ethnic group		Yes	No	Total
Chhetri/ Brahmin	Count	59	85	144
	% within the caste group	41.0%	59.0%	100.0%
Newar	Count	4	23	27
	% within the caste group	14.8%	85.2%	100.0%
Janajati	Count	39	58	97
	% within the caste group	40.2%	59.8%	100.0%
Dalit	Count	33	48	81
	% within the caste group	40.7%	59.2%	100.0%
Total	Count	135	214	349
	% within total responses	38.7%	61.3%	100.0%

Table 14: Cross-tabulation of a learning opportunity as a positive change in households after the earthquake with ethnicity

Ethnic group		Yes	No	Total (N=349)
Chhetri/ Brahmin	Count	111	33	144
	% within the caste group	77.1%	22.9%	100.0%
Newar	Count	17	10	27
	% within the caste group	63.0%	37.0%	100.0%
Janajati	Count	45	52	97
	% within the caste group	46.4%	53.6%	100.0%
Dalit	Count	49	32	81
	% within the caste group	60.5%	39.5%	100.0%
Total	Count	222	127	349
	% within total responses	63.6%	36.4%	100%

Table 15: Crosstabulation of self-assessed quality of life before and after the earthquake with ethnicity

Caste	Self-assessed QoL	Not good	Fair	Good
Chhetri/Brahmin	Life before earthquake	12.8(38)	12.8 (38)	74.5(222)
	Life after earthquake	19.1(57)	32.6(97)	48.3(144)
Newar	Life before earthquake	7.8(7)	21.1(19)	71.1(64)
	Life after earthquake	18.9(17)	28.9(26)	52.2(47)
Janajati	Life before earthquake	17.2(22)	15.6(20)	67.2(86)
	Life after earthquake	8.6(11)	18(23)	73.4(94)
Dalit	Life before earthquake	31(36)	16(19)	53(62)
	Life after earthquake	20.5(24)	34.2(40)	45.3(53)

Table 16: Ethnic distribution of households who completed reconstruction

Caste group		Yes	No	NA	Total
Chhetri/ Brahmin	Count	179	99	20	298
	% within the caste group	60.1%	33.2%	6.7%	100.0%
Newar	Count	42	30	18	90
	% within the caste group	46.7%	33.3%	20.0%	100.0%
Janajati	Count	90	27	11	128
	% within the caste group	70.3%	21.1%	8.6%	100.0%
Dalit	Count	61	47	9	117
	% within the caste group	52.1%	40.2%	7.7%	100.0%
Total	Count	372	203	58	633
	% within total respondents	58.8%	32.1%	9.2%	100.0%

Table 16.1 : Cross tablulation ethnicity and practising informal labour for reconstruction

Caste group		Yes	No	Total
Brahmin/Chettri	Count	71	204	275
	% within caste group	25.80%	74.20%	100.00%
Newar	Count	13	65	78
	% within caste group	16.70%	83.30%	100.00%
Janajati (Thami and Tamang)	Count	45	64	109
	% within caste group	41.28%	58.72%	100.00%
Hill Dalits	Count	39	70	109
	% within caste group	35.80%	64.20%	100.00%
Total	Count	168	403	571
	% within caste group	29.40%	70.60%	100.00%

The average score of different characteristics with wellbeing

Table 17: Average mean score (SD) of wellbeing according to ethnic groups

	Urban M				Rural M			
Ethnicity	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
Chhetri/ Brahmin	6.9(2.4)	6.5(2.9)	6.6(3.2)	6.5(2.9)	4.1(2.4)	4.3(2.5)	4.1(2.5)	3.5(2.5)
Janajati	6.8(2.6)	8.7(1.3)	8.1(2)	5(2.1)	6.6(2.5)	6.5(2.7)	6.5(2.4)	5(2.8)
Newar	6.6(2.4)	6.7(2.5)	7.3(2.5)	6(3.5)	4.1(2.3)	4.5(2.7)	4(2.7)	3.4(2.9)
Dalit	6.6(1.9)	8.3(2)	5.9(3.2)	6.2(2.1)	4.1(2.3)	3.9(2.6)	4.0(2.8)	3.1(2.7)

Table 18: Average scores and educational attainment of respondents

	Urban				Rural			
Education	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
Illiterate	6.5(2.6)	6(3)	6.7(3)	6.5(3.3)	4.7(2.9)	4.9(3.1)	4.7(3.1)	4.4(3)
Primary	6.6(2.3)	7(2.6)	6.5(2.8)	5.6(3.1)	4.4(2.3)	4.4(2.4)	4.3(2.4)	3.2(2.3)
Secondary	7.3(1.6)	7.4(1.8)	7.8(3)	6.5(3.3)	5(2.4)	4.9(2.5)	4.3(2.9)	3.6(3.1)
+12 or above	6.5(3)	7.2(3)	6.9(3.1)	5.2(2.9)	4(2.4)	4.4(2.3)	4.6(2.5)	3(2.9)

Table 19: Average score (SD) of wellbeing by the occupation of respondents

	Urban				Rural			
Occupation	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
Agriculture/housewife	6.5(2.5)	6.5(2.8)	6.7(3)	5.9(3.2)	4.5(2.4)	4.5(2.6)	4.3(2.6)	3.7(2.7)
Job/contracted service	9.3(1.5)	8.3(2.1)	9(1.4)	7(2.9)	4.8(2.3)	4.9(2.4)	5.4(2.4)	2.8(2.8)
Labour	7.2(1.7)	7.8(1.8)	8.3(2.1)	7(2.1)	4.2(3.3)	4.6(3.5)	4.9(3.5)	3.2(2.7)
Business	8(2)	8.2(2)	7.4(3.5)	6.6(3.9)	7.4(2.2)	7.4(2.6)	6.2(2)	5.2(2.8)
Unemployed/student	8(0)	8(0)	9(0)	6(0)	3.6(3)	3.7(3)	3.7(2.9)	3.3(3)

Table 20: Marital status of survey respondents and wellbeing

	Urban				Rural			
Marital status	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
Married	6.5(2.5)	6.6(2.8)	6.7(3)	6(3.1)	4.7(2.5)	4.9(2.6)	4.7(2.7)	3.6(2.7)
Unmarried	6.3(0.6)	7.7(0.6)	7(1.7)	6.3(2.3)	4.4(2.8)	4.8(3.2)	4.4(2.1)	4.8(2.8)
Widow/divorced	7.8(1.9)	7.3(2.5)	8.1(2.4)	5.9(3.8)	3.7(2.7)	3.7(2.8)	3.5(2.8)	3.5(2.7)

Table 21: Family structure of sample households, mean wellbeing scores (SD)

	Urban				Rural			
Family structure	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
Nuclear	6.6(2.5)	6.7(2.9)	6.7(3.1)	5.7(3.1)	5.1(2.6)	5.1(2.7)	4.9(2.8)	3.8(2.8)
Extended	6.8(2.5)	6.7(2.5)	7.2(2.8)	6.5(3.3)	3.3(1.8)	3.4(2)	3.6(2)	3(2.2)
Living alone	6.8(1)	6.2(3.5)	5.8(3)	6.3(3)	4.4(2.8)	4.3(3.1)	4.1(2.8)	3.7(2.7)

Table 22: Average scoring of wellbeing of women taking the role of household head

	Urban				Rural			
Head of household	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
Self	6.9(2.2)	6.7(2.8)	7.3(2.7)	6.4(3.1)	4.6(2.9)	4.6(3.1)	4.4(3)	4.3(3.2)
Mother-in-law	6.4(2.4)	6.8(2.7)	7.3(2.7)	6(3.4)	1.6(1.3)	1.6(1.3)	2.4(1.7)	3.6(3.7)

Table 23: Wellbeing score of women and Pre-disaster self-assessed quality of life

	Urban				Rural			
	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
Quality of life before								
Good	6.6(1.6)	6.9(2.4)	6.6(2.9)	6.3(2.8)	4.1(2.6)	4.3(2.3)	4.2(2.9)	4.1(3)
Fair	6.8(2.7)	6.8(2.9)	7(2.9)	5.8(3.1)	5(2.6)	5.1(2.7)	4.8(2.7)	3.6(2.6)
Not good	6.8(2.1)	6.5(2.4)	6.3(3)	6.2(3.2)	4.2(1.9)	4(2)	4.2(2.2)	2.9(2)
Reason for a good life before the Earthquake								
Better house	7(2.2)	7(2.6)	7(2.9)	6(3.1)	4.8(2.4)	5(2.6)	4.7(2.6)	3.8(2.7)
Good income	6.1(2.4)	6.4(2.5)	6.3(2.5)	5.1(3)	5.4(2.5)	5.4(2.6)	5(2.6)	3.6(2.6)
No added work burden	5.7(3)	5.5(3.3)	6(2.6)	4.3(2.7)	5.5(2.6)	5.6(2.8)	5.6(2.6)	4(2.8)

Table 24: Wellbeing of women and history of traumatic events

	Urban				Rural			
	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
Past traumatic life event								
Had one	5.7(2.4)	5.9(2.8)	5.6(3.3)	5.6(3.1)	4(2.4)	4.1(2.6)	4(2.6)	3.2(2.5)
No	7.4(1.9)	7.3(2.5)	7.8(2.3)	6.3(3.1)	6(2.4)	5.9(2.5)	5.8(2.5)	4.6(2.9)

Table 25: Impacts of the earthquake on wellbeing, average wellbeing score (SD)

	Urban				Rural			
	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
Damage caused to house by the Gorkha earthquake								
Partial damage	6.8(2.4)	6.6(2.7)	6.5(3.2)	6.1(3.4)	6.5(2.2)	6.1(2.6)	5.7(2.6)	4.8(2.3)
Complete collapse	6.6(2.5)	6.7(2.6)	7(2.9)	6(3.1)	4.5(2.5)	4.6(2.7)	4.4(2.7)	3.6(2.7)
Injured by the earthquake								
Yes	6.6(2.1)	7.1(2.2)	7.7(1.9)	6.7(2)	5.3(2.3)	5.7(2.1)	5(3)	5.1(3.1)

No	6.7(2.5)	6.7(2.8)	6.8(3)	6(3.3)	4.5(2.6)	4.5(2.7)	4.4(2.7)	3.6(2.7)

Table 26: Access to social capital and wellbeing score

	Urban				Rural			
	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
Comfortable in seeking help								
Uncomfortable	4.8(2.8)	5(3.5)	5.6(3.4)	5.3(3.1)	3.1(2.1)	3.6(2.6)	4.2(2.9)	3.6(3.2)
Comfortable	6.8(2.3)	7(2.3)	6.9(2.9)	6(3.2)	5.1(2.5)	5.1(2.7)	4.8(2.7)	3.9(2.7)

Table 27: Average wellbeing score and opportunities created by the earthquake

	Urban				Rural			
	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
HH received opportunities								
Yes	5.4(2.4)	5.8(3.2)	6.2(2.9)	4.5(2.7)	5(2.6)	5.1(2.8)	5(2.8)	3.6(2.6)
No	7(2.4)	6.9(2.6)	7(2.9)	6.4(3.2)	3.6(2)	3.6(2)	3.3(2.2)	3.7(2.9)
Who received employment opportunities at home?								
Men	6.3(2)	7.2(2.3)	6.7(2.6)	4.6(2.4)	3.7(2.6)	3.7(2.6)	3.4(2.2)	3.3(2.4)
Women	3.9(2.6)	3.8(3.4)	6.3(3.1)	5.1(3.6)	5.2(2.2)	5.2(2.5)	5.5(2.7)	3.3(2.4)
Women who were members of any community group								
Yes	6.6(2.5)	6.7(2.9)	6.7(3.1)	5.7(3.1)	4.8(2.5)	4.9(2.6)	4.7(2.7)	3.6(2.6)
No	6.8(2.5)	6.7(2.5)	7.2(2.8)	6.5(3.3)	3.8(2.4)	3.7(2.7)	3.7(2.7)	3.7(2.9)

Table 28: Level of current stress and wellbeing score, average score (SD)

	Urban				Rural			
	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
History of chronic disease								
Yes	6.2(2.5)	6.1(2.8)	6.1(3.2)	7(2.8)	3.8(2)	3.9(2.3)	3.5(2.2)	4.2(3)
No	6.8(2.4)	6.9(2.7)	7.1(2.8)	5.6(3.2)	4.8(2.6)	4.8(2.8)	4.8(2.8)	3.4(2.6)
Stress in last 2 weeks								
Not in stress	7.7(2.5)	7.4(2.9)	7.3(3.2)	4.8(3.6)	6.8(2.4)	7.2(2.3)	6(2.4)	3.9(3.3)
Stressed	5.3(2.7)	5.9(2.5)	5.7(3.2)	6.7(2.8)	3.3(2.6)	3.3(2.8)	3.1(2.8)	3.6(3.6)

Table 29: Reconstruction and wellbeing in average score (SD)

	Urban				Rural			
	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
Household completed reconstruction								
Yes	6.9(2.5)	7.3(2.5)	7.2(2.6)	5.3(3.3)	4.9(2.5)	4.9(2.6)	4.6(2.6)	3.6(2.6)
No	6.3(2.4)	6.2(2.9)	6.8(3.1)	6.7(2.6)	3.7(2.5)	3.8(2.6)	4(2.8)	3.5(2.9)
NA	-	-	-	-	6.6(2.2)	6.2(2.5)	6(2.7)	4.9(2.3)
Satisfaction with reconstruction								
Yes	7.8(2)	8.1(1.9)	8(1.8)	5.7(4.1)	5.2(2.4)	5.4(2.5)	4.9(2.5)	3.8(2.6)
No	7.3(2.5)	7.6(2.4)	7.6(2.7)	5(3.2)	3.5(2.6)	3.3(2.6)	4.1(2.9)	3.3(2.8)

Table 30: Average score and self-assessed quality of current life

	Urban				Rural			
	Happiness	Satisfaction	Worthwhile	Anxiety	Happiness	Satisfaction	Worthwhile	Anxiety
Quality of current life								
Good	7.2(2.4)	7.3(2.5)	7.2(2.9)	5.1(3.2)	5.4(2.6)	5.5(2.8)	5.4(2.6)	4(2.7)
Fair	6.4(2.1)	6.3(2.8)	6.5(2.8)	7(2.7)	4(2.2)	4(2.2)	3.7(2)	3.7(2.6)
Not good	4.8(2.8)	5.1(3.1)	6.1(3.6)	7.4(3)	3.1(2.1)	3.2(2.2)	2.8(2.4)	2.5(2.4)
Reason for good/not good life								
Better house	6.7(2.4)	6.8(2.6)	6.9(2.9)	6.2(3.1)	4.8(2.4)	5(2.6)	4.7(2.6)	3.8(2.7)
Poor living condition	3.7(2.7)	3.4(3.2)	5.2(4.4)	6.2(3.9)	2.9(1.9)	2.9(1.9)	2.6(2.2)	2.1(2.1)
Good income	6.8(2.5)	6.5(2.5)	8.4(1.1)	4.6(2.3)	5.4(2.5)	5.4(2.6)	5(2.6)	3.6(2.6)
Financial issues	4.6(2.2)	4.7(2.8)	6.2(3.6)	7.3(2.7)	3(2.1)	3(2.2)	2.6(2.2)	2.6(2.5)

Outcome table of Multiple Regression stepwise Backward model building process

Table 31: Final model from the Stepwise Backward MR model building for Happiness

Variables	Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)		5.333	.000	1.360	2.945		
Ethnicity: Janajati (ref: Chhetri)	.093	3.055	.002	.223	1.026	.853	1.173
Occupation: Self-employed (ref: unpaid domestic work)	.087	2.980	.003	.400	1.948	.940	1.064
Not having an unforgettable event, (ref: having one)	.159	4.704	.000	.514	1.251	.694	1.440
Existing chronic disease (ref: yes)	.069	2.322	.021	.066	.786	.908	1.101
Family composition - nuclear (ref: extended)	.108	3.691	.000	.281	.919	.936	1.068
Main source of income: Remittance (ref: agriculture)	.095	3.116	.002	.292	1.289	.855	1.170
Main source of income: Service (ref: agriculture)	.080	2.715	.007	.218	1.356	.923	1.084
Residence: urban (ref: rural)	.106	2.936	.003	.207	1.044	.614	1.629
Stress before (ref: no)	.105	3.188	.002	.224	.943	.728	1.373
QoL: fair (ref: not good)	.131	3.236	.001	.305	1.245	.483	2.071
QoL: good (ref: not good)	.269	6.197	.000	.991	1.910	.421	2.373
Current stress (ref: no stress)	.114	3.672	.000	.388	1.282	.822	1.217
Help received from same caste (ref: no)	-.112	-3.595	.000	-.932	-.273	.818	1.222
fair	.146	2.786	.006	.254	1.469	.291	3.434
comfortable	.256	4.912	.000	.855	1.995	.292	3.420
Learning opportunities (ref: no)	-.125	-3.819	.000	-1.069	-.343	.738	1.356
Increased male return (ref: no)	-.082	-2.481	.013	-.793	-.092	.737	1.356
Coping: having the family together (ref: no)	-.107	-3.421	.001	-.904	-.245	.816	1.226
Current stress (ref: stressed)	-.099	-3.128	.002	-.869	-.199	.795	1.259
Happy with reconstruction (ref: no)	.101	3.099	.002	.200	.890	.753	1.328

a. Dependent Variable: Level of happiness with current life

Table 32: Final model from the Stepwise Backward MR model building for Satisfaction

Variables	Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
	Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
(Constant)		11.097	.000	2.579	3.688		
Ethnicity: Janajati (ref: Chhetri)	.074	2.380	.018	.092	.964	.868	1.152
Occupation: Job (ref: unpaid domestic work)	.074	2.511	.012	.241	1.972	.974	1.027
Occupation: Self-employed (ref: unpaid domestic work)	.092	3.070	.002	.478	2.174	.939	1.065
Not having an unforgettable event, (ref: having one)	.113	3.305	.001	.271	1.067	.716	1.397
Existing chronic disease (ref: yes)	.064	2.111	.035	.030	.818	.911	1.098
Family composition - nuclear (ref: extended)	.088	2.963	.003	.176	.868	.954	1.048
Main source of income: Remittance (ref: agriculture)	.164	5.311	.000	.919	1.997	.876	1.141
Residence: urban (ref: rural)	.094	2.568	.010	.139	1.045	.629	1.590
Stress before (ref: no)	.115	3.428	.001	.291	1.071	.742	1.347
QoL: good (ref: not good)	.184	5.707	.000	.697	1.427	.800	1.250
Current stress (ref: no stress)	.119	3.763	.000	.446	1.420	.830	1.204
Help received from same caste (ref: no)	-.160	-5.035	.000	-1.280	-.562	.826	1.211
Comfortable in seeking help (ref: Not at all)	.149	5.051	.000	.540	1.228	.964	1.038
Duration in cottage	-.101	-3.266	.001	-1.002	-.249	.877	1.141
Happy with reconstruction (ref: no)	.155	4.806	.000	.531	1.264	.801	1.248
Learning opportunities (ref: no)	-.171	-5.204	.000	-1.418	-.641	.774	1.293
Increased male return (ref: no)	-.115	-3.460	.001	-1.048	-.289	.754	1.326

a. Dependent Variable: Level of satisfaction with current life

Table 33: Final model from the Stepwise Backward MR model building for Worthwhile

Variables	Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)		9.908	.000	2.207	3.299		
Residence: urban (ref: rural)	.226	6.037	.000	1.000	1.964	.680	1.470
Occupation: Job (ref: unpaid domestic work)	.123	3.681	.000	.896	2.946	.851	1.176
Occupation: Labour (ref: unpaid domestic work)	.062	1.985	.048	.008	1.547	.975	1.025
Occupation: Remittence (ref: unpaid domestic work)	-.067	-1.941	.053	-1.233	.007	.812	1.232
Occupation: Service (ref: unpaid domestic work)	-.073	-2.104	.036	-1.540	-.053	.796	1.256
QoL: good (ref: not good)	.267	8.158	.000	1.208	1.975	.892	1.121
Existing chronic disease (ref: yes)	.104	3.287	.001	.287	1.140	.953	1.050
Not having an unforgettable event, (ref: having one)	.207	5.966	.000	.853	1.690	.792	1.263
Support received post earthquake: community (ref: relatives)	.120	3.727	.000	.338	1.091	.922	1.085
Support received post earthquake: friends (ref: relatives)	.082	2.481	.013	.158	1.354	.861	1.161
No stress due to family concern (ref: yes)	.072	2.194	.029	.061	1.105	.893	1.120
Coping: having the family together (ref: no)	-.089	-2.705	.007	-.919	-.146	.872	1.146
Learning opportunities (ref: no)	-.184	-5.283	.000	-1.572	-.720	.789	1.267
Improved social cohesion (ref: no)	.115	3.381	.001	.306	1.155	.816	1.225

a. Dependent Variable: The level of worthwhile her life is

Table 34: Final model from the Stepwise Backward MR model building for anxiety

Variables	Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)		28.351	.000	7.337	8.429		
Ethnicity: Dalit (ref: Chhetri)	-.072	-2.055	.040	-1.103	-.025	.941	1.063
Occupation: Service (ref: unpaid domestic work)	-.106	-3.089	.002	-1.935	-.431	.982	1.019
Multiple HH incomes, (ref: single source)	-.119	-3.419	.001	-1.199	-.324	.951	1.052
Coping: having the family together (ref: no)	-.151	-4.251	.000	-1.348	-.496	.907	1.103
Help received from same caste (ref: no)	-.146	-3.961	.000	-1.331	-.449	.846	1.181
Change in the Community (ref: no)	-.227	-5.398	.000	-2.385	-1.113	.649	1.540
Learning opportunities (ref: no)	-.156	-3.574	.000	-1.490	-.433	.606	1.651

a. Dependent Variable: Level of anxiety in current days