"You're like a salesman or a saleswoman, you're trying to sell that person exercise": How the socioeconomic position of an area influences General Practitioners' engagement with physical activity as a treatment pathway for mild to moderate mental health conditions

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Material Abstract

***"You're like a salesman or a saleswoman, you're trying to sell that person exercise"*: How the socioeconomic position of an area influences General Practitioners' engagement with physical activity as a treatment pathway for mild to moderate mental health conditions**

Patrick William Eveleigh

Overview: Mental health problems affect one in four people in the UK (Farmer and Dyer, 2016). Socioeconomic position (SEP) has impacted both lifestyle and the quality of general healthcare (Office of National Statistics, 2016). This study was the first to specifically explore how the socioeconomic area of a General Practitioner's (GP's) practice, impacts the use of physical activity (PA) as a treatment for mental health conditions. It aimed to: (i) Explore GPs' experiences of physical activity and other provisions for mental health, in their local area; (ii) Understand perceived problems regarding access to physical activity to support mental health; and (iii) Understand how existing socioeconomic inequalities may impact the mental health treatment approach of GPs.

Methodology: Participants (n=6) were recruited using convenience sampling. The inclusion criteria for this study were that GPs had to be based in England and currently working in general practice. The participants represented different socioeconomic areas, allowing comparison and contrast across findings. Interviews focused on the provision of and access to mental health treatment pathways, barriers that GPs encountered and the healthcare inequalities that exist. A reflexive thematic analysis was undertaken (Braun and Clarke, 2019).

Results: The first theme, 'Precedence of pharmaceutical and psychological approaches as treatment pathways', focused on the growing mental health cases that GPs are experiencing. There were narrow treatment options for GPs, despite acknowledgement of PA benefits. The 'Insufficient implementation of PA schemes' theme identified perceived problems with PA schemes and the multifaceted reasons for patients' lack of engagement. The SEP was perceived to influence the GPs' and patients' attitudes to treatment pathways. The 'Complexity of barriers to PA for GPs and patients' theme outlined difficulties that lead to restricted PA engagement, with COVID-19 exacerbating these. There was also inadequate interaction between GPs and stakeholders.

Conclusion: GPs working in lower socioeconomic areas experienced greater difficulties in referring and engaging patients in PA; challenges were complex and differed across localities. Findings highlight a training need around PA for GPs who work in higher socioeconomic status areas and a need for improved communication between GPs, external healthcare professionals, providers and patients.

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How the socioeconomic position of an area influences General Practitioners’ engagement with physical activity as a treatment pathway for mild to moderate mental health conditions

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List of Abbreviations

BMI - Body Mass Index

CCG – Clinical Commissioning Group

COVID-19 - Coronavirus disease

GP – General Practitioner

IMD – Index of Multiple Deprivation

NHS – National Health Service

PA – Physical Activity

SEP – Socioeconomic Position

WHO – World Health Organisation

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Chapter One: Introduction

1.1 Mental health in England

One in six adults in England is estimated to have experienced a common mental health disorder within the previous week (Baker, 2021). Mental health cases are increasing and as of 2017, there was a 13% rise in mental health problems and pharmaceutical use worldwide over the previous 10 years (WHO, 2020a). There has recently been an economic cost of approximately £117.9 billion due to mental health conditions and productivity losses in the UK, which equivalates in 2019 to 5% of the UK GDP (McDaid *et al*., 2022). This signifies the impact that mental health problems have on patients and general practitioners (GPs) and also the economy. Due to this increasing problem, there has been an improvement in the total funding that local Clinical Commissioning Groups (CCG) have spent on mental health services. As of 2020/2021, a total of £14.3 billion was spent by the local CCGs on mental health, learning disability and dementia services and specialised commissioning for mental health services (Baker, 2021). This is an increase in funding from the previous years (Baker, 2021), illustrating the significance of mental health problems in England.

National Health Service (NHS) funding is essential and despite there being an overall improvement, investment for GPs has not increased, something which needs to be addressed (British Medical Association, 2022). Mental health problems can have a wide impact on an individual, both psychologically and physiologically. Individuals who have mental health issues can experience either neurotic or psychotic symptoms. Neurotic refers to mental health problems that involve regular mental health experiences, such as depression and anxiety (NHS Digital, 2022). Neurosis can be referred to as ‘common mental health problems’ (NHS Digital, 2022). Psychotic symptoms are more severe and can include individuals having hallucinations and delusions, resulting in a change of behaviour (NHS Digital, 2019a). There are further side-effects of mental health problems that can impact an

individual's life. This can vary from common psychological moods, such as increased stress, panic and loneliness, to behaviours, including self-harm and suicidal thoughts (NHS Business Service Authority, 2022). Therefore, there are several approaches to treating mental health problems.

Globally, pharmaceutical interventions for mental health conditions have been reported to be available in over 75% of primary care centres in 39% of responding countries, compared to only 21% for psychological interventions (WHO, 2021). Antidepressants are one of the most utilised treatment pathways for mental health problems in England, with 7.3 million patients being prescribed antidepressants between 2017 and 2018 (Public Health England, 2020). As acknowledged by the NHS, antidepressants are not advised for patients who are being treated for mild depression and psychological therapy should be prioritised initially (NHS Digital, 2021). As of the third quarter of the 2021/2022 financial year, there were 21.2 million antidepressant drugs prescribed in England, which is a 27.2% increase from the third quarter of 2016/2017 (NHS Digital, 2022). Furthermore, an estimated 6.43 million patients have been prescribed at least one antidepressant drug item in the third quarter of 2021/2022, an increase of 1.21 million from 2016/2017's third quarter (NHS Digital**,** 2022). This illustrates the high prevalence of antidepressant drug use in England and the rapid increase that has occurred as a treatment for mental health conditions. Another well-used treatment pathway in England is the Improving Access to Psychological Therapy programme which began in 2008 and is a form of talking therapy aimed at patients with mental health problems, such as anxiety and depression (Hofmann *et al*., 2016). As of 2020/2021, there were 1.21 million referrals to the programme in England, which is down 15% from the previous year (Baker, 2021). There was an aim for 75% of patients to be seen within six weeks of referral which was exceeded in 2021 and an improvement from the previous year (Baker, 2021). The

socioeconomic area has been identified to impact the referral rate, with the more deprived areas having a higher number of referrals in comparison to the least deprived areas (Baker 2021). However, the use of physical activity (PA) A being utilised as a treatment method for mental health problems has been a controversial and a much-disputed subject within the field of effective treatment pathways for mental health. There is very little knowledge on how often PA is used to treat mental health and this project aims to contribute to the evidence-base by exploring GPs' opinions on the use of PA and other treatment pathways for mental health conditions.

1.2 Importance of physical activity and the relation to mental health problems

Physical activity is defined by the World Health Organisation (WHO, 2020b) as "any bodily movement produced by skeletal muscles that requires energy expenditure". Physical activity can be undertaken in a variety of ways, such as walking, running, sports and recreational activity (WHO, 2019a). In 2020, the WHO updated the global PA guidelines with new guidelines that state that every adult should aim to be physically active every day (Bull *et al.*, 2020). Specifically, each week, adults should be involved in at least 150 minutes of moderate-intensity activity (e.g. brisk walking or cycling) or 75 minutes of vigorous activity (e.g. sprinting). Adults should aim to develop or maintain muscle strength by engaging in activities such as resistance exercise (Department of Health, 2019). A report by Sport England (2022) found that in 2021 only 63% of men and 60% of women met the UK recommendations for activity levels. Furthermore, they found only 31% of men and 23% of women met the guidelines for muscle-strengthening activities. Consequently, physical inactivity is responsible for a cost of £7.4 billion annually and is associated with one in every six deaths in the UK (Public Health England, 2019). However, PA has been a prescribed treatment method for a range of physiological problems and has also been shown to improve psychological problems (Warburton *et al.*, 2006).

Evidence suggests that PA is becoming a well-investigated treatment method that could be an alternative pathway for treating mental health conditions (Busch *et al*., 2015). The existing body of research on the impact that PA has to treat mental health problems indicates that PA is an effective treatment and has fewer side effects in comparison to antidepressants (Field, 2017). Physical activity has been discovered to have a positive impact on an individual's mental health, whilst mental health problems have been found to affect an individual's engagement in PA (Ohrnberger *et al*., 2017). The rise in the level of hormones, endorphins and serotonin in the blood are positive outcomes for individuals that engage in PA, consequently impacting their mental health. However, physical inactivity can affect an individual and lead to the development of mental health problems such as depression (Ströhle, 2008). Physical inactivity has further been found to be associated with an impact on an individual's mental health as it can be a preventative factor for Alzheimer's disease and Parkinson's disease (Paillard *et al*., 2015). Moreover, sedentary behaviours can result in an increased chance of cardiovascular diseases, such as diabetes (Carter *et al*., 2017). Therefore, PA has the potential to play an important role in addressing the issue of mental health problems.

Primary healthcare facilities, such as general practices, are appropriate settings for a patient to seek health advice on factors such as lifestyle changes (Dorner *et al*., 2019). According to Wepner (2009), gaining knowledge and recommendations from their GP is an important factor in increasing a person's PA. Due to this, as the guidelines are changing, medical professionals should be obligated to keep their knowledge and understanding up to date. Therefore, due to a majority of people seeking advice from their GPs, medical professionals, such as GPs, are appropriate participants for this research study as they play an important role for patients seeking treatments for mental health (Komiti *et al*., 2006). Despite the

existing literature that has explored the impact that PA has on an individual's mental health, it is still an underused treatment pathway (Saxena *et al.*, 2005). It is hoped that this research will contribute to a deeper understanding of a GP's opinion on the use of PA as a treatment method for common mild to moderate mental health conditions, and also explore potential problems within the healthcare system that may limit the use of PA in the GP setting.

1.3 Socioeconomic inequalities

Socioeconomic inequalities are an important issue across social sciences, politics and public health research (Reiss *et al.*, 2019). There is a growing body of literature that recognised the impact that socioeconomic position (SEP) has on health inequalities. The SEP is used to describe the social class of an individual or group and is commonly used in health research (Galobardes *et al*, 2006). The SEP of an area is generally characterised by three main determinants: education, income and employment (Glymour *et al*., 2014). The SEP is graded by a three-level variable: high (administrative), intermediate (professional or executive), and low (clerical or support) grades (Stringhini *et al*., 2010). Socioeconomic inequalities in healthcare are an important public health issue (Demakakos *et al*., 2008). In the UK, the NHS is a publicly tax-funded healthcare system which is free to use and makes up 85% of the national health care expenditure (Cookson *et al*., 2016). However, those from lower socioeconomic areas are more inclined to use the public NHS service as they have a higher probability of being ill (Cookson *et al*., 2016). Additionally, those in higher socioeconomic areas are more likely to seek medical attention at earlier stages of illness in comparison to those from lower SEPs. This may be partly influenced by the unhealthy lifestyles that are associated with living in lower socioeconomic areas (Zhang *et a*l., 2021). For example, those in more deprived areas are more likely to have unhealthy diets and higher alcohol intake which has been identified to impact their levels of obesity, diabetes and hypertension (Psaltopoulou *et al*., 2017).

The SEP of an area can impact healthcare inequalities for both physical health and mental health treatments. Cardiovascular diseases have been identified to be strongly associated with SEP, with Schröder et al. (2016) concluding that patients in low socioeconomic areas lacked access to coronary heart disease treatment in comparison to patients from higher socioeconomic areas. A similar socioeconomic inequality that exists is increased waiting times for coronary heart disease treatment, for those residing in more deprived areas (Moscelli *et al*., 2018). In terms of mental health, for patients who get referred to see an NHS psychological therapist, there is a higher referral rate in lower socioeconomic areas. Recent mental health statistics show that referrals are 76% higher in more deprived areas (Baker, 2021). However, patients are less likely to start treatment and have a completion rate of 37%, compared to the least deprived areas who have almost half the referrals but better start and completion rates (NHS Digital, 2021). An overarching concern is the health inequalities that exist between different socioeconomic areas and the impact that these can have on the availability and success of treatment pathways.

It is considered important for individuals to meet recommended PA guidelines as these can be preventative in terms of mental health conditions (WHO, 2019a). However, existing research recognises the critical factor that the SEP plays in PA engagement. Lower socioeconomic areas can have a deleterious effect on PA engagement, with residents less likely to reach the recommended PA guidelines (Lindgren *et al*., 2016). Subsequently, insufficient PA engagement will result in higher health risks. The SEP has further consequences for adolescents as those who are from more affluent areas are more likely to engage in PA (Veselska *et al*., 2011). This is important as PA is a fundamental part of a healthy lifestyle for adolescents (Veselska *et al*., 2011). However, those from lower socioeconomic areas experience more barriers in comparison to individuals from more

affluent areas. For example, it has been discovered that lack of resources and time are limitations to PA engagement (Herazo-Beltrán *et al*., 2017). There is an urgent need to explore the socioeconomic inequalities that exist within utilising PA as a treatment pathway for mental health and the barriers that restrict the use of PA more often.

1.4 Impact of COVID-19 on access to mental health services

The Coronavirus disease (COVID-19) is an infective disease produced by the SARS-CoV-2 virus (WHO, 2020c). COVID-19 was discovered in Wuhan, China in 2019 and at the beginning of 2020, the WHO declared COVID-19 a Public Health Emergency of International Concern (WHO, 2020c). The WHO (2022a) recently reported that COVID-19 has caused almost 15 million excess deaths, either directly or indirectly. In an attempt to slow the death rate and the number of cases, the UK went into a series of lockdowns, resulting in the population isolating and working from home if possible (WHO, 2020c). A majority of people who tested positive for COVID-19 experienced mild to moderate respiratory illness and would recover without any need for treatment (WHO, 2020d). Although anyone could become severely ill, the elderly population and those with underlying health issues were more likely to be hospitalised (WHO, 2020d). However, COVID-19 was further identified to impact an individual's mental health and PA levels (Violant-Holz *et al*., 2020). It impacted other sectors of public healthcare as the patients were only to seek medical care when necessary and this should be carried out remotely if possible (NHS England, 2020a). Before the pandemic, GPs' appointment times with patients had an average of 10.3 minutes (Holt *et al*., 2016). However, during the pandemic, GPs worked remotely as an emergency response to COVID-19 to minimise infectious risk (NHS England, 2020b).

The COVID-19 pandemic had a psychological impact on many individuals, causing increased mental health conditions, such as stress, anxiety and loneliness (Xiong *et al.*, 2020). Due to COVID-19, there was a 25% increase in the prevalence of anxiety and depression globally (WHO, 2022b). Particular groups were seen to be impacted more severely with their mental health by COVID-19; patients who have tested positive for COVID-19, individuals who are more vulnerable to psychological and biological stressors, health professionals due to the exposure, and those who gather their news through media channels (Fiorillo and Gorwood, 2020). Mental health services moved primarily online to continue their services to ensure that patients can use their services whilst in lockdown (NHS England, 2020c). However, there have been mixed reviews on the effectiveness and experiences of mental health services (Liberati *et al.*, 2021). There were various barriers that GPs experienced, such as difficulty to identify risk, patient involvement with treatments and inequalities of access for certain patients (Liberati *et al*., 2021). COVID-19 has caused more problems and difficulties with treatment pathways for both patients and healthcare professionals.

As discussed, PA engagement is important for an individual's health. However, PA and sedentary levels were also impacted by COVID-19, especially during the periods of lockdown. This is important to understand as PA and sedentary behaviour are critical for a healthy lifestyle and they further help structure health interventions (Stockwell *et al*., 2021). Due to the restrictions on outdoor activity and the closure of public facilities, PA levels were found to decline over the course of the pandemic and sedentary behaviours increased (Stockwell *et al.*, 2021). However, research suggests that high levels of engagement in PA during the lockdown period have an association with improved mental health status (Jacob *et al*., 2020). Sport England (2020) stated how between mid-March to mid-May of 2020, the

beginning of the pandemic, figures showed that the overall number of physically active adults declined by 7.1%. However, COVID-19 impacted the inequalities by causing existing PA inequalities to widen with those from deprived areas finding it harder to be active (Sport England, 2021). Consequently, inactivity levels increased by 7.4% which equivalates to 3.4 million adults (Sport England, 2020). It has recently been observed that there is a strong association between PA reducing the likeliness of an individual being infected with severe COVID-19 symptoms, as well as being less likely to be hospitalised (Sallis *et al*., 2021). Physical inactivity is a risk factor for COVID-19 and was found to have an increased likelihood of a person showing symptoms of COVID-19 (Sallis *et al*., 2021).

1.5 Research aims

This research study will explore how SEP influences the use of PA as a treatment pathway for mild to moderate common mental health problems by GPs. Three key aims have been identified to guide the research project. The project, therefore, aims to:

(I) Explore GPs' experiences of physical activity and other provisions for mental health, in their local area

(II) Understand perceived problems regarding access to physical activity to support mental health

(III) Understand how existing socioeconomic inequalities may impact the mental health treatment approach of GPs

It is hoped that new knowledge and understanding generated from these aims, will have useful implications for PA and mental health treatment policies and recommendations.

1.6 Thesis structure

The next section of this thesis will provide a comprehensive literature review by critically reviewing literature relevant to this study. This chapter analyses the impact that PA has on various mental health conditions and lifestyles. Physical activity schemes are further explored by looking at the literature and challenges that are experienced by both GPs and patients. This takes into consideration why PA has certain barriers to being utilised more often as a treatment pathway for common mental health conditions. Socioeconomic inequalities are explored by focusing on the impact that the SEP has on general healthcare and a patient's lifestyle. The influence that SEP has on both mental health and PA is explored to gain an understanding of existing literature that investigates the health inequalities between various socioeconomic areas. Due to the recent COVID-19 pandemic, this chapter also considers the impact of COVID-19 by exploring recent papers that have focused on the effect that it has had on mental health and PA, as well as socioeconomic inequalities.

Chapter Three considers the methodological approach that was used in this study and includes an explanation and justification for the methods used. Given the qualitative approach, semi-structured interviews were carried out with six qualified GPs who were equally disrupted amongst various SEPs. There is a justification for the analysis used, and details of the ethical consideration that were taken into account are specified.

Chapter Four presents the findings of the research, focusing on the key themes that developed from the data. Given the thematic analysis approach, themes were identified for general topics with sub-themes being formed to develop specific codes. The results provided an in-depth perception of the GPs' opinion on the use of PA as a treatment pathway for mental health and the socioeconomic inequalities that exist in their area. Quotes are presented to illustrate the themes.

Chapter Five discusses the themes that were presented in respect of the project aims and in the context of existing research. The remaining part of the thesis presents a conclusion with practical policy recommendations for both healthcare professionals and the local areas. The conclusion also draws on what this study has brought to the academic field and what needs to be further acted upon to strengthen the research. The policy recommendations have been suggested based on the findings and propose ways that have the potential to make the public healthcare system more efficient and effective for those presenting to GPs with mild-to-moderate mental health conditions.

Chapter Two: Literature review

This chapter has been divided into three parts, each focusing on specific academic literature areas to help understand related research. Part one will focus on explaining the association between PA and various mental health conditions and behaviours. Part two will explore the use of PA schemes and how effective they are seen to be. Furthermore, it will consider literature focusing on medical professionals' and patients' opinions on the use of PA as a treatment for mental health. Lastly, part three will review the impact that the SEP of an area may have on the quality of healthcare and the inequalities that already exist. As well as a focus on general healthcare, it will look deeper at the impact that COVID-19 has had on mental health and PA.

2.1 Physical activity and mental health

In the UK, there has been an increase in those presenting with a mental health disorder (McManus *et al.*, 2016). Mental health is a common illness that affects one in every four people in the UK (Farmer and Dyer, 2016). Mental health has impacted the workplace and resulted in a total of 72 million working days lost and an economic cost of £117.9 billion (Centre for Mental Health, 2017; McDaid *et al.*, 2022). Those with mental health conditions are more likely to have a lower life expectancy of between 12-15 years compared to the general population, as well as being at greater risk of developing health conditions such as heart disease, however, engaging with PA can reduce this risk (Krishnamurthi *et al.*, 2019; Rosenbaum *et al.*, 2014)

2.1.1 Physical inactivity and mental health

The Department of Health and Social Care's (2019) most recent guidelines have stated that adults should engage in at least 150 minutes of moderate-intensity exercise, such as a brisk walk; or 75 minutes of vigorous exercise, such as running. Additionally, adults should participate in activities that develop or maintain strength in their major muscle groups (Department of Health and Social Care, 2019). The WHO update (Bull *et al*., 2020) is important as it identifies how physically inactive the population are and that change is needed to engage the population. Physical inactivity is common in the adult and adolescent population, with the WHO estimating that one in four adults and more than three-quarters of adolescents do not meet the recommended PA guidelines (Bull *et al*., 2020). There are major healthcare consequences of physical inactivity, such as type 2 diabetes, obesity, cardiovascular disease and breast cancer (Gaetano, 2016). As a consequence, there have been various mental health conditions that have been associated with physical inactivity (Harris, 2018). However, despite efforts to tackle this issue globally and increase PA levels by governments and charities, there has been no sustained increase in the levels of PA over the last two decades (Bull *et al*., 2020).

Although the majority of research in this field focuses on the time patients engage in PA, there is a large body of literature that recognises the health risks related to physical inactivity. Harris' (2018) research found that there is both a substantial and statistically significant difference in mental wellbeing between completely physically inactive participants and those who engage in any form of PA. This emphasises the importance of engaging in PA, even if not reaching the recommended PA levels. Although in the cited study the sample size was strong (n=1686) for the mental wellbeing outcome, this research would perhaps have been more persuasive if there was a lower drop-out, as there was a response rate of only

9.9% of the original participants. Conversely, physical inactivity from exercise withdrawal or cessation has an impact on an individual's mental health (Weinstein *et al*., 2017). This systematic review discovered that exercise withdrawal and injuries, which both result in physical inactivity, have a negative impact on individuals who previously regularly exercise (Weinstein *et al*., 2017). It was concluded that the duration of inactivity was another substantial factor that affected mental health, with the longer an athlete was inactive, the more severe their symptoms became (Weinstein *et al*., 2017). The main limitation of this paper is that the longest exercise scheme period studied in this systematic review was six weeks, with over 50% of the papers reviewed being less than one week. This is an important limitation as it is more likely that participants would develop negative psychological symptoms over a longer period of withdrawal from PA. A contemporary research study by Currier *et al*. (2020), consisting of 13,884 participants, focused on the relationship between men with depression who met the PA guidelines compared with men who did not have depression. Results found that men who met the guidelines were less likely to develop symptoms of moderate to severe depression. This has identified the impact that mental health conditions, such as depression, can have on their engagement in PA and the increased likelihood of living a physically inactive lifestyle. However, as participants self-reported their PA levels in this research, it can have an impact on the results as they may not be as accurate as objective measures. Furthermore, this research does not get an understanding of the reasons that individuals with depression do not engage in PA and the barriers that exist in preventing this. It is argued that to develop this paper, it could further focus on team sports as opposed to generic PA or running. This could focus on participants who may have mental health problems due to physical inactivity and not being in a competitive environment.

2.1.2 Mechanisms for physical activity and mental health

A psychological consequence of PA is the creation of endogenous opioids, such as endorphins, which are produced in the brain and have various physiological functions (Zagon and McLaughlin, 2017). Endogenous opioids affect an individual's mood and emotional responses (Anderson and Shivakumar, 2013). There have been multiple research studies that have focused on the positive impact that PA has on the level of endorphins that are produced (Anderson and Shivakumar, 2013; Dinas *et al*, 2011; Dishman and Connor, 2009). The opioid system can affect levels of depression due to an association between endorphins and depressive symptoms (Dinas *et al*., 2011). An increase in PA results in the secretion of endorphins being produced and as a result, can lead to improvements in acute and chronic depression (Dinas *et al*., 2011). This outcome is further supported by Anderson and Shivakumar (2013) who state that acute exercise and PA cause there to be a release of endorphins to their receptor sites in the brain. Overall, this supports how beneficial PA is and what occurs when an individual engages in exercise.

Some literature has specifically focused on utilising PA as a treatment for those who have a diagnosis of certain mental health disorders, ranging from mild to severe (Hallgren *et al*., 2019; Machado *et al*., 2019; Nystrom *et al*., 2015; *Stults-Kolehmainen and Sinha, 2014*). There have been various studies that have explored depression (Mammen and Faulkner, 2013; Nystrom *et al*., 2015), anxiety (Hallgren *et al*., 2020; Machado *et al*., 2019; McDowell *et al*., 2019), stress (*Lehavot et al., 2018; Oppizi and Umberger, 2018; Stults-Kolehmainen and Sinha, 2014)* and the impact that PA has for treating these conditions. Existing literature has further investigated the impact that PA has on the link between sedentary behaviour and mental health (Hallgren *et al*., 2019; Hoare *et al*., 2016)

The next section of the literature review will focus on the general relationship between PA and various specific mental health conditions and the opinion of various stakeholders.

2.1.3 Depression disorder

According to the definition provided by the WHO (2017, p.7) 'Depression' is characterised by; 'sadness, loss of interest or pleasure, feeling of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness and poor concentration'. Depression is the second most common illness worldwide and affects three in every hundred people in any given week in England (McManus *et al*., 2016). There have been several common strategies that are currently used to treat patients with depression. These include Cognitive Behavioural Therapy and selective serotonin reuptake inhibitors as the most common first-line treatments (Hofmann *et al*., 2016). However, many analysts have argued that the use of antidepressants can be a rather problematic approach. Jick *et al*. (2004), for example, argued that non-fatal suicidal behaviour is four times as likely to occur up to ten days following the start of their medication and three times as likely from days 10 to 29 since starting medication, regardless of the specific antidepressant (Jick *et al*., 2004). This study perhaps contradicts common beliefs about antidepressants, illustrating the worst-case consequences that a pharmaceutical approach can have. A study by Field (2017) concluded that there are negative effects to prenatal antidepressants, yet other treatments, such as yoga and aerobic exercise, were seen to be more effective and beneficial, with fewer side effects. More recently, a questionnaire focused on the views of antidepressants on people (n=867) from 31 countries (Read, 2020). The main findings concluded that patients found 55% of participants struggled to come off or reduce their medication (Read, 2020). Furthermore, for those who did, 61% reported withdrawal effects from the medication with 40% of participants being addicted (Read, 2020). This paper illustrates how although antidepressants can be a useful treatment for

mental health conditions, there are dangers to using medication as a treatment pathway. Thus, this illustrates how PA can be an alternative treatment method for different sub-group populations, including those who may not particularly be suitable for pharmaceutical interventions, such as women with prenatal depression.

Much research has identified that PA has a positive impact as a treatment for patients with depression. There are certain forms of PA that are more suitable and effective for treating depression as time and intensity are often important factors to take into consideration when treating patients with depression. Nystrom *et al.* (2015) undertook a systematic review that focused on using PA as a treatment for depression and explored the most effective type of PA. Results found that both aerobic and anaerobic treatment PA were effective due to causing a reduction in depressive symptoms. A limitation of the studies reviewed is that other forms of treatment were included, such as relaxation training, alongside PA. Therefore, this cannot entirely recognise if PA is an effective individual treatment pathway and future research needs to focus on using PA as a stand-alone treatment. A systematic review examined previous research showing the relationship between mental health and lack of PA (Saxena *et al*., 2005). The type, intensity and minimal duration of PA are required to significantly reduce the symptoms of depression. It was concluded that the relationship between PA and anxiety, mood disorders and mental wellbeing has been well recognised (Saxena *et al*., 2005). Research has explored the use of PA in the prevention of depression through a systematic review (Mammen and Faulkner, 2013). After 30 studies were analysed, there was a strong amount of evidence suggesting that all intensities of *PA* can help prevent and lower the risk of depression. Mammen and Faulkner (2013) acknowledge as a criticism of their work that a majority of the studies included self-report measurement, which can be subject to bias or over-reporting. A more recent systematic review of 49 studies found that

those who were engaged in high PA levels and met the recommended PA guidelines each week were less likely to develop depressive symptoms (Schuch *et al*., 2018). However, studies defined high and low PA levels differently and therefore, harder to analyse what is the most effective method for treating depression. Gathering this information would gain a better understanding of the levels of PA that would be beneficial for patients with depression and the likeliness to reduce the severity of symptoms.

However, mental health professionals underuse the promotion of PA as a treatment for an improvement in an individual's mental health (Saxena *et al*., 2005). Selection bias is a potential concern as in the articles reviewed, the participants were non-clinical volunteers as opposed to involving patients with existing mental health problems. This suggests that the participants are more likely to have a positive attitude towards PA as they were volunteering and willing to participate in the research. Therefore, a limitation of the studies in Saxena *et al.*'s (2005) paper is the study designs. Using patients with existing mental health disorders would help gain a greater understanding of the impact that PA may have on reducing their existing mental health conditions. This paper is further supported by recent research exploring mental health professionals' knowledge, beliefs, barriers and behaviours on the use of PA to treat mental illnesses (Kleemen *et al*., 2020). An interesting finding was that out of 73 participants, 41.4% stated that they never use PA prescriptions. Kleemen *et al*. (2020) concluded that there is a lack of knowledge on promoting PA to treat mental health conditions and is an important barrier to overcome due to the importance and benefits of PA for patients. Current literature has justified the use of PA as a treatment for mental health conditions, such as depression. However, medical professionals are not using PA to promote mental health and it is an 'underrated and underused' resource, despite the extensive research (Kleemen *et al*, 2020, p. 271; Saxena *et al*., 2005).

With an estimated 10-20% of adolescents experiencing mental health conditions and recommended PA levels not being met, adolescents need to be physically active as it is beneficially for psychological and physiological wellbeing (Kessler, 2007). A systematic review examined how effective PA was in reducing symptoms of depression amongst adolescents (Carter *et al*., 2016). Carter *et al.* (2016, p.17) concluded that *PA* is a 'promising antidepressant strategy for adolescents aged 13 to 17 years old'. Furthermore, the study noted that in clinical trials, PA may be more beneficial for treating depression in adolescents compared to the general population as they exercised more often than adolescents without existing mental health conditions. This study focused on the impact of group-based interventions on adolescents, so findings cannot be extrapolated to individual-level referral, for example. Furthermore, in Carter *et al.*'s (2016) systematic review, not all of the studies identified exercise intensity, thus it is not possible to derive full information on the types of activity that might be recommended by healthcare professionals. These papers highlight and emphasise the positive impact that PA can have on depression. *Physical activity* can not only be used as a treatment but can also be used as a preventative measure for depression.

It could be argued that PA is not always the best and most appropriate method of treatment. Whilst it has been acknowledged that PA can be an effective treatment for depression, various studies have found that there are limitations, barriers and disadvantages to using this method of approach (Glowacki *et al.*, 2017; Craft and Perna, 2004). Antidepressant prescription is the most common treatment for depression and therefore, it may be appropriate to have PA adjacent to other treatments, such as antidepressants or psychotherapy (Craft and Perna, 2004). However, patients diagnosed with depression are less likely to be physically active. Recent research has examined the barriers and facilitators of PA for treating adults with depression through a systematic review (Glowacki *et al.*,

2017). Knowledge, social situation, environmental costs and resources, intentions and beliefs of capabilities were all identified to be the main barriers. These are common limitations that prevent people with depression from engaging in PA and are important obstacles that need to be taken into account when treating a patient. Despite research identifying barriers, existing research fails to focus on how to tackle these barriers and facilitators from a patient's perspective. The main conclusion that can be drawn on the use of PA as a treatment for depression is that despite there being limited limitations to the treatment method, most literature (Carter *et al.*, 2016; Field, 2017; Kleemen *et al.*, 2020) has supported the use of PA and how effective it can be for patients with depression. However, whilst PA is not always the most suitable treatment, it should not be eliminated but rather collaborate with other forms of treatments, such as antidepressants or psychotherapy. Therefore, future research should be devoted to understanding the perspectives of GPs in terms of prescription, or the recommendation of PA for depression.

2.1.4 Anxiety disorder

Anxiety can be defined as "an emotion characterized by feelings of tension, worried thoughts and physical changes like increased blood pressure" (American Psychological Association, 2020, p.1). It is one of the most prevalent mental disorders with 3.8% of the world's population diagnosed with anxiety in 2017 (Dattani *et al.*, 2021; Kessler *et al.*, 2009). Anxiety can have a significant impact on an individual's quality of life and wellbeing (Stubbs *et al.*, 2017). Compared to research on the association between PA and depression, anxiety and its relationship to PA are not as frequently studied (Carek *et al.*, 2011). Currently, antidepressants are one of the frontline treatments for the symptoms of anxiety (Carek *et al.*, 2011). On the current NHS website, treatments for generalised anxiety disorder have included Cognitive Behavioural Therapy, referral to a specialist, relaxation and getting prescribed selective serotonin reuptake inhibitors, such as sertraline (NHS Digital, 2018a).

There is no suggestion or acknowledgement of using PA as a treatment to reduce levels of anxiety. However, sedentary behaviour is a risk factor for developing anxiety (Teychenne *et al.*, 2015).

Several studies have suggested that PA has a positive impact on anxiety and is an effective treatment pathway (Hallgren *et al.*, 2020; Machado *et a*l., 2019; McDowell *et al*., 2019). It has been reported that being active at 70%-90% of an individual's maximum heart rate for 20 minutes, three times a week, can significantly reduce the severity of anxiety symptoms (Smits *et al*., 2008). Focusing on the impact that PA had on anxiety in the adult population, it was concluded that the systematic review showed biological plausibility for the association between PA and a reduction in anxiety symptoms in the adult population (McDowell *et al*., 2019). Thus, the use of PA may protect patients from anxiety symptoms in the future. This study would be more relevant if the authors had addressed the duration of PA that a patient needs to engage to be beneficial. Recent research has concluded that PA reduces anxiety symptoms and it could be an effective treatment for people with an anxiety disorder (Hallgren *et al*., 2019). This cited study had a strong sample size (n=43,863) which allowed there to be a stronger understanding of the effects that PA has on anxiety due to increased accuracy. This study corroborates McDowell *et al.*'s (2019) findings as they both identified the use of PA as being an effective treatment pathway for patients with anxiety disorder.

Further research has focused on conditions within anxiety disorder, specifically looking at panic disorder. Panic disorder is a type of anxiety that manifests as an uncontrolled reaction to an often mildly stressful situation (Perrotta, 2019). It is characterised as an intense fear of having another panic attack, worrying about the consequences due to the attack, changes in behaviour or a combination of the aforementioned (American Psychological Association,

2020). PA can be a beneficial treatment pathway for those who experience panic attacks as it reduces anxiety symptoms. However, the most common treatments for panic disorder are pharmacotherapy or cognitive behavioural therapy (Machado et al., 2019). Several studies have examined the use of PA and how it can be utilised as an effective treatment for patients with panic disorder. One study compared participants who had a panic disorder diagnosis with those who were seen as typically healthy, with results findings that aerobic exercise can be an anxiolytic for those with panic disorder (Ströhle *et al*., 2009). Specifically, the results concluded that 30 minutes of mild to moderate aerobic exercise was an effective anxiolytic that reduced symptoms overall, and these symptoms were reduced significantly during an engagement in the PA itself (Ströhle *et al*., 2009). Many researchers do not take into consideration the duration of PA when concluding the impact it has on mental health. However, this research addresses the duration of PA that is most effective for patients' mental health. However, one major drawback of this approach was that the sample size was only 12 healthy subjects and 12 subjects with a panic disorder. This is a low number of participants in quantitative research and this makes the results less reliable. The crossover design was strong and therefore, this study needs to be replicated to see whether similar results are found are there is a clear correlation. This research is supported by a more recent mini-review that explored the impact that exercise has on anxiety and a neurobiological mechanism in panic disorder (Machado *et al*., 2019). The review found that both aerobic and regular exercise can be an effective intervention for treating patients with panic disorder. However, an improvement in the control of the prescription of aerobic exercise is needed to develop a more promising argument regarding the efficacy of PA (Machado *et al*., 2019). It should be noted that both papers concluded that there needs to be further research in this field.

Similar to the findings for the relationship between PA and depression, PA is not necessarily always the most appropriate treatment and has its limitations for treating patients with any form of anxiety disorder. A qualitative analysis was carried out, focusing on the barriers and facilitators that PA has on a variety of anxiety disorders (i.e. generalised anxiety disorder, panic disorder and social anxiety disorder), with a focus on exercise anxiety by Mason *et al*. (2019). Similar themes emerged, regardless of the type of anxiety disorder, which consisted of embarrassment, negative reaction to exercise, loss of facilitator and other common barriers (Mason *et al*., 2019). This research failed to engage male participants and thus findings cannot be generalised to males. Whilst females are more likely to experience anxiety disorders, males are more likely to engage in PA (Hagstromer *et al*., 2007). This means that there may be certain barriers that females perceive to have that males may not, something which future research should address. In summary, this research discovered that despite the multiple benefits of utilising PA as a treatment for those with anxiety disorder, there are barriers that limit medical professionals from using PA as a treatment for these types of patients (Mason *et al*., 2019). Furthermore, amongst a small number of patients, PA may not be an appropriate treatment method as it may exacerbate the patient's symptoms.

To conclude previous research can only be considered the first step towards a more profound understanding of PA being an effective method for treating patients with anxiety disorder, but it may not be suitable for all patients with anxiety. It may be more appropriate to use PA in collaboration with other treatments, such as cognitive behavioural therapy. There needs to be further research to support the use of PA as a treatment and the benefits that it can have on patients with various anxiety disorders.

2.1.5 Stress disorder

Hernandez *et al*. (2018, p.1) used the term 'stress' to refer to "an emotional response with an adaptive function that can obstruct both academic performances, psychosocial and physiological functioning when it is recurrent, persistent, and intense'. It is a common mental health disorder and is highly prevalent, with the majority of the population experiencing some level of stress during their lifetime (Tomiyama, 2019). According to the Mental Health Foundation (2018), of the 4,619 participants surveyed, 74% stated that they had felt excessively stressed and struggled to cope sometime within the previous year, highlighting how frequently stress occurs within the general population. There can be both physical and psychological consequences as a result of stress and this can lead to a negative impact on both health and wellbeing (Glazer and Liu, 2017). A high level of stress is associated with an increase in the chance of getting diagnosed with dementia, cognitive dysfunction and excessive fatigue, as well as other common mental health conditions *(*Stults-Kolehmainen and Sinha, 2014). There is also an association between stress and obesity and cardiovascular disease (Holmes et al., 2010). Higher levels of stress are seen to have a negative impact on an individual's PA engagement, and this has been supported by multiple studies (Koo and Kim, 2018; Stults-Kolehmainen and Sinha, 2014). Stress can be identified as a significant and common barrier to engagement in PA and can impact an individual's mental health.

As well as improving various mental health conditions, PA has a positive association with reducing stress levels and improving mood and quality of life (Koo and Kim, 2018). A systematic review by Stults-Kolehmainen and Sinha (2014) focused on the impact that stress has on PA engagement. The majority of included papers concluded that PA was seen to be beneficial in reducing levels of stress (Stults-Kolehmainen and Sinha, 2014). However, it was established that high-stress levels can negatively influence the levels of PA that an

individual will engage in. Several studies in the systematic review found that this was due to barriers, such as negative body image and fitness, which increased their levels of pre-existing stress (Stults-Kolehmainen and Sinha, 2014). Despite these barriers, the review noted that the most effective way to tackle stress was to combine a stress management programme with a PA intervention as PA is understood to have a positive psychological impact on individuals who experience stress disorders (Stults-Kolehmainen and Sinha, 2014). In this important examination, Stults-Kolehmainen and Sinha (2014) identified how although PA may not be an appropriate individual approach, it will be beneficial alongside another treatment method. Their systematic review focused on the influences of stress and the impact that it has on engagement in PA. Stults-Kolehmainen and Sinha (2014) discovered that there was a positive association between a higher engagement in PA with a decrease in stress levels. However, as Stults-Kolehmainen and Sinha (2014) point out, there is a limited amount of research that focuses on stress and PA in adolescents. Therefore, future research should focus on the levels of stress that occurs in adolescents and the influence that PA has. Further research has examined the effect that the type of PA may have on reducing the levels of stress for people with activity limitations (Koo and Kim, 2018). Although all forms of PA, including walking, strength and flexibility exercises, were seen to reduce levels of stress, certain types of PA were more effective depending on gender. For males, walking exercises were found to be the most effective in reducing stress levels when they were engaging more than five days a week. Whereas, for women, flexibility exercises were most beneficial to reducing their stress levels when then engaging for five or more days (Koo and Kim, 2018).

Overall, these findings outline how PA is beneficial for those who experience stress as it is understood to improve the quality of life. Although PA has certain barriers as a treatment, it is still effective when used alongside other coping mechanisms, such as stress management. Current research and literature support the use of PA as a treatment for stress disorder.

2.1.6 Sedentary behaviour and mental health

Sedentary behaviour has been shown to have a negative impact on an individual, both psychological and physiological. Pate *et al.* (2011, p. 906) define sedentary behaviour as being 'a slight increase in expenditure above resting metabolic rate but below the expenditure seen with light-intensity PA'. There is an association between sedentary behaviour and cancer mortality, type 2 diabetes, weight status and other cancers in adults (Dempsey *et al.*, 2020). Sedentary behaviour is typically associated with cardiovascular disease mortality (Bull *et al.*, 2020). As a consequence, a sedentary lifestyle can reduce an individual's life expectancy. People with mental health conditions, such as depression and anxiety, often display sedentary behaviour and lack the motivation to begin exercise programmes (Craft and Perna, 2004). Therefore, those who live a less sedentary and more physically active lifestyle are less likely to experience these physical and psychological health conditions.

Physical activity recommendations are likely to overwhelm a sedentary patient who experiences depression (Craft and Perna, 2004). A systematic review indicated that patients with depression are more likely to see a reduction in their symptoms if they engage in shorter, but more regular sessions. A follow-up appointment with a physician is important for patients as it is more likely to keep them motivated and engaged (Craft and Perna, 2004). As previously outlined, sedentary behaviour has a negative association with mental wellbeing (Teychenne *et al.*, 2015). Although research to date is limited, there is increasing evidence

to support a relationship between sedentary behaviour and poor mental health. Hoare *et al.* (2016) explored the association between sedentary behaviour and the influence that it has on an individual's mental health through a systematic review. There was a strong association between increased time spent on screens and depressive symptoms in adolescents, as well as other mental health conditions. This research is important as it has identified that reduced screen time could potentially be used to mediate mental health conditions. This is essential research as adolescents are increasingly having more screen time which may result in long-term health issues and a reduction in PA levels (Stiglic and Viner, 2019).

An increased engagement in PA and less sedentary behaviour can result in individuals being less likely to experience various mental health conditions, such as depression. Hallgren *et al.* (2020) aimed to see the impact that an increase in PA and less sedentary time can have on adults who are diagnosed with depression. Findings concluded that an increase in sedentary behaviour resulted in an increased chance of individuals developing symptoms of depression and anxiety (Hallgren *et al.*, 2020). Moreover, Hallgren *et al.* (2020) established that mentally active behaviours, alongside PA, could reduce the symptoms of depression in adults. A systematic review focused on the association between sedentary behaviour and the risk of depression (Zhai *et al.*, 2015). This included 24 observational studies, between 2003-2013 and had a large sample size of 193,166 participants. Results similarly found that sedentary behaviour is associated with an increased risk of depression ($p=<0.01$) (Zhai *et al.*, 2015). Furthermore, as the studies were more current, 12 of the studies had taken computer and internet time, as well as TV viewing, into consideration and found a significant relationship between sedentary behaviour and depression. This is important as screen time is a significant influence in modern society (Nagata *et al.*, 2020). This research also included studies from four continents which gives a better universal representation Overall, this study

found that there is a strong association between an individual being sedentary and showing symptoms of depression.

These findings show that there is a strong association between levels of sedentary behaviour and a negative impact on mental health. Those who have pre-existing mental health conditions are less likely to engage in PA. Research has shown that sedentary behaviour negatively impacts both the physiological and psychological wellbeing of an individual. This has been an ongoing issue and the WHO (Bull *et al.*, 2020) is still emphasising the importance of staying active and reducing sedentary behaviour. Conversely, the majority of these studies focus on the impact that sedentary behaviour has had on PA levels but have failed to explore the barriers that limit patients with mental health conditions from engaging in PA. Investigating this field will potentially help tackle some of these barriers and improve the potential for PA change in patients with mental health problems. Overall, these studies have emphasised the importance of engaging in PA, the health consequences if an individual is sedentary, and how PA can be used as a preventative measure for various mental health conditions.

2.1.7 Part one summary

This section has explained how beneficial PA can be on general mental health and further explored the impact on specific common mental health conditions. Part one has shown that the use of PA is seen to be beneficial for various mental health conditions. Despite this, PA is not consistently used by medical professionals and the reasons for this will be explored, including the effect of SEP. The next chapter will investigate PA schemes and both medical professionals' and patients' opinions on the use of PA to treat mental health conditions.

2.2 Challenges with prescribing physical activity schemes

2.2.1 Physical activity schemes

Physical activity has been defined as "any bodily movement produced by skeletal muscles that results in energy expenditure" (Casperson *et al.*, 1985, p. 126) and is still used by many authors and organisations, including WHO. Moreover, a wider and more inclusive definition of 'physical activity schemes' is defined by Hanson *et al.,* (2020, p.2) as "schemes that offer supported PA options/choices for individuals with a health condition, recognises [such] recent innovation in supporting PA uptake". Due to the increase in physical inactivity, PA schemes have become a common treatment pathway utilised by healthcare professionals (Morgan *et al*., 2016). The objective of PA schemes is to increase a patient's PA levels and therefore, to improve both their physical and mental health (National Institute for Health and Care Excellence, 2014). Physical activity schemes intend to improve an individual's PA levels by providing them with the opportunity to engage in a structured scheme, as opposed to PA recommendations. In addition, PA schemes provide other benefits, including helping people socialise, tackle financial issues, and providing access to facilities (National Institute for Health and Care Excellence, 2014). There is a diverse range of PA schemes that have been used, for various audiences, such as supervised individual gym sessions to group walking sessions (Rowley *et al*., 2018). Research has explored PA schemes that have been used for physiological treatment, such as cardiovascular diseases, and psychological treatments, including depression and anxiety (Howlett *et al*., 2019; Rowley *et al*., 2018; Stults-Kolehmainen and Sinha, 2014).

As discussed previously, PA has been shown to have a positive impact on an individual's lifestyle and general health and wellbeing. On the contrary, some limitations prevent

individuals from engaging in PA schemes. Research focusing on physically inactive adults has examined participants' adherence to exercise referral schemes by exploring the barriers and facilitators (Morgan *et al*, 2016). The systematic review concluded that sufficient support for the participants from various groups, such as family, friends and providers, is a substantial facilitator for adherence (Morgan *et al*., 2016). Multiple studies found that language can affect PA uptake. Other barriers and preferences, including cost, location, setting, travel and timing were identified as important background information for helping the participants change their behaviour. In addition, although studies have illustrated that PA schemes are effective, there are specific groups that encounter further barriers which impact their uptake and adherence to PA schemes. For example, Morgan et al. (2016) found that parents struggled to attend as they were looking after their children and thus, lacked leisure time. This illustrates how PA programmes need to be personalised in order to tackle barriers. However, there was restricted information on participants from lower socioeconomic areas. Thus, certain barriers that may be experienced due to socioeconomic inequalities were not explored and are missing key information about who might adhere. Physical activity schemes are further used to facilitate physiological problems as part of rehabilitation. One study explored the effects of exercise referral schemes on those with cardiovascular, musculoskeletal and mental health conditions in the UK (Rowley *et al*., 2018). The systematic review found that there was a positive relationship between exercise referral schemes and an improvement in cardiovascular and mental health conditions. However, there is a lack of evidence for showing the effectiveness of schemes for patients with musculoskeletal disorders (Rowley *et al*., 2018). Although all schemes were seen to be beneficial to a certain extent, longer PA schemes (20+ weeks) were seen to be the most effective and beneficial as they improved health outcomes and improved healthy behaviours (Rowley *et al*., 2018). Moreover, although Rowley *et al*. (2018) discovered that individual

training was the most effective approach, they did not explore the actual content of these programmes and how they were appropriate and effective for individuals. Overall, Rowley *et al*. (2018) concluded that PA schemes help improve multiple health conditions, are more beneficial the longer they are in place and there needs to be an improvement in the referral process. This research suggests that further training may be required for healthcare professionals who are involved in the referral process. Future research should focus on the impact that schemes have over a longer period on various health conditions, as the current study has discovered that longer PA schemes (20+ weeks) may improve patients' health outcomes. More recently, Howlett *et al*. (2019) explored whether PA schemes are effective for promoting healthy behaviour and maintenance in adults who are inactive. The systematic review focused on any intervention that aimed to improve PA levels or reduce sedentary behaviour (Howlett *et al*., 2019). Interventions that aimed to improve PA levels were found to be effective in improving healthy behaviour and long-term habits (Howlett *et al*., 2019). This study reported a positive impact that the PA schemes had on healthy behavioural change for adults who were previously physically inactive. However, this research fails to take into consideration the impact that PA schemes would have on adults with pre-existing medical conditions or those who are classed as 'unhealthy'. These groups of people tend to encounter more barriers to PA and therefore, exploring the impact that PA schemes have on these groups is important. A recent paper examined the effectiveness of PA schemes delivered by health professionals (Kettle *et al*., 2022). The systematic review concluded that such PA schemes were effective in increasing PA levels, leading to a weight reduction in adults (Kettle *et al.,* 2022). Physical activity schemes with at least five contacts with the patients were found to be more effective on the patient's s self-reported minutes of moderate-to-vigorous PA in comparison to patients with less contact with the intervention leaders. This illustrates the importance of the patient connection whilst engaging in PA schemes. To

conclude, multiple studies have concluded that PA can be beneficial for certain audiences to increase their fitness and health.

Some existing research has focused on the association between PA schemes and mental health conditions. With a growing body of research that has focused on non-pharmacological alternatives, the use of PA as a treatment has been explored. Physical activity schemes need to be appropriate for patients with mental health illnesses as they may be less likely to engage in regular PA. Sessions may need to be adapted, such as the frequency, intensity and length of time, to greater engage these individuals and can play an important role in obtaining participants in PA schemes (Giménez-Meseguer *et al*., 2020). With a focus on the effectiveness of PA schemes for patients with mental illnesses, Rosenbaum *et al*. (2014) concluded in a systematic review that PA can be offered as a treatment for those with mental health illnesses as an effective treatment. One major drawback of their systematic review is that although a majority of papers stated the type of PA and duration of the programme, over a quarter (26.1%) of the papers analysed did not state the level of activity intensity that the patients were involved in. Moreover, the paper was limited in identifying intervention adherence which is an important aspect as it is vital to understand how patients continue to engage with the interventions to which they have been referred. This is an important factor to take into consideration as it may determine what is the best intervention for patients with mental health illnesses. Physical activity schemes have focused on improving an individual's levels of stress. One approach to a reduction in stress levels is through PA and a more recent systematic review examined how effective an exercise intervention can be for coping with stress (Sharon-David and Tenenbaum, 2017). The systematic review demonstrated that exercise interventions resulted in there being a reduction in the levels of stress in real-world settings (Sharon-David and Tenenbaum, 2017). However, there was a problem with the

methodological approach as there was not a constant review of the time, intensity and frequency of exercise. Further research should aim to look at these factors to maximise effectiveness. Nonetheless, this study has proven the positive relationship that PA schemes can have on an individual's levels of stress and the improvement in the quality of life. These studies support the use of PA schemes as treatment pathways for those with mental health conditions.

There have been effective PA schemes that have been successful in multiple countries. An example of a successful worldwide public PA intervention is the Bike Share Scheme (Bauman *et al*., 2017). The Bike Share Scheme is different to traditional PA schemes that medical professionals have had access to in the past as it is open to the public, can be used in various locations and there is no referral process. The Bike Share Scheme aims to give accessible bicycles throughout urban areas (Bauman *et al*., 2017). Moreover, this intervention is also used to create a sustainable mode of transport, reduce traffic, improve air pollution and improve the health of the population (Bauman *et al*., 2017). According to Meddin and DeMaio (2016), this PA intervention has been successful and has resulted in there being over 1,000 Bike Share Schemes over the world. Meddin and DeMaio (2016) examined the economic contribution and benefits of the Bike Share Scheme in Dublin. Findings discovered that there is a significant association with the Bike Share Scheme resulting in the participants being more physically active (Bullock *et al*., 2017). The Bike Share Scheme also resulted in multiple health benefits, such as an increase in PA levels and motivation. Bauman *et al*. (2017) state that this intervention may contribute to an increase in PA and may achieve a pro-cycle culture in cities which will help develop the number of people cycling. To conclude, this has shown that public PA intervention that include cycling can be successful and improve an individual's mental health. Moreover, this intervention

has identified that there are further benefits, such as being more economically effective and reducing levels of pollution. The Bike Share Scheme is an example of a worldwide successful intervention that is accessible and efficacious due to its cost-efficiency and psychological benefits. This illustrates an example of the type of PA scheme which can be accessible and effective for various participants, resulting in an increase in PA levels.

2.2.2 Group versus individual physical activity schemes

There has been an ongoing debate as to what approach and mode of PA are the most effective and beneficial (Kessler *et al,* 2005; Mortazavi *et al*., 2013; Pluhar *et al*., 2019). Various psychological factors are experienced, depending on the type of PA an individual engages in. Examining the comparison of psychological skills, emotional intelligence and athletic success of 400 athletes in either team or individual sports, results indicated that team sports have higher levels of emotional intelligence and motivation. Similarly, Pluhar *et al*. (2019) found that depression and anxiety are more likely to occur in young athletes who participate in individual sports. The individuals are more likely to experience loneliness and higher levels of anxiety, especially during periods of failure. This is another factor to be considered and could be significant to GPs as it may influence the type of PA they recommend to an individual. As the participants in this study were athletes who were diagnosed with anxiety or depression, a self-reported questionnaire may not be the most accurate measurement and there is a need for verification from their local healthcare professionals. Both group and individual PA intervention schemes have been used as a treatment for individuals with mental health conditions. A comparison of how effective both group and home-based PA schemes are in the elderly population discovered that generally, PA schemes had a positive impact on the participants' mental health (Mortazavi et el., 2013). However, when comparing the two approaches, the group-based PA schemes were more effective as somatization, anxiety, depression and social dysfunction levels were reduced more

significantly after three months in comparison to home-based PA. This research looked at participants aged 60-89 years old and therefore, failed to focus on the younger adults which is important as 75% of mental health problems are established by the age of 24 (Kessler *et al,* 2005). Multiple studies have emphasised that group PA, whether that is in sports or general PA, is seen to be more beneficial for an individual's mental health (Kessler *et al*, 2005; Mortazavi et el., 2013; Pluhar *et al.*, 2019). This should be taken into consideration when implementing a PA scheme. However, group PA may not be appropriate for all patients due to certain barriers and preferences.

2.2.3 A medical professional's perspective and knowledge of physical activity as a treatment pathway

According to the NHS guidelines, if someone is concerned about their PA levels due to their mental health, then they should go to their GP for an exercise prescription (NHS Digital, 2018b). The NHS state that a high amount of "GP surgeries across the country prescribe exercise as a treatment for a range of conditions, including depression" (NHS Digital, 2018b, p.1). Although there is a wide range of treatments for people with mental health issues, receiving an accurate diagnosis can be difficult (Rush, 1990). Primary care practitioners play an important role in recognising and managing mental health problems for children, adolescents and adults (O'Brian, 2016; Wittchen *et al*., 2022). However, according to van Rijswijk *et al*. (2009), there are factors such as knowledge, skills and attitude that play a significant role in a family practitioner's recognition of depression and anxiety. The research looked at how family practices perceive their ability to recognise, diagnose and manage depression and anxiety disorders, as well as looking at their own experiences (van Rijswijk *et al*., 2009). Focus groups were conducted, and it was concluded that practitioners should focus more on patient empowerment than on prescribing antidepressants. Lastly, they concluded that family practitioners need additional training for approaches to be more

effective and appropriate (van Rijswijk *et al.*, 2009). It could be argued that focus groups were not the most appropriate approach as it a potentially a sensitive subject. This has emphasised that lack of education and training is a substantial barrier to utilising PA as a treatment for mental health and requires further development.

Several authors have recognised a GP's opinion on the use of PA as a treatment method for mental health. Being the first to carry out this empirical research, a study by Searle *et al.* (2012) aimed to obtain GPs' views about the use of PA for managing depression in primary care (Searle *et al.*, 2012). Results found that a majority of GPs thought that PA was an effective treatment for depression but thought it was best promoted in conjunction with antidepressants. Searle *et al.* (2012) suggested that GPs should talk to the patient about their treatment as this shows the importance of patient autonomy in a therapeutic approach. This research does not necessarily give a good representation of GPs as it may be biased due to recruiting GPs that were participating in a separate study that focuses on facilitating PA and usual care for depression, in comparison to just usual care (Searle *et al.*, 2012). Although some GPs may support the use of PA as a treatment, there is still a barrier that limits them from using it as a first-choice option. A study by Stanton *et al.* (2015) examined GPs' perspective on PA as a treatment for those with depression via a survey of 220 respondents. Results showed that GPs had a positive mindset towards the effectiveness of using PA as a treatment for people with depression but also identified that fewer than half of GPs were either confident or competent to prescribe PA as a measure against depression (Stanton *et al.*, 2015). Again, this suggests that more training is needed for GPs, though further studies are needed to confirm this. More recent studies have supported these findings as Albert *et al.* (2020) discovered that GPs underutilised PA schemes due to barriers such as inadequate time with the patient, knowledge of the benefits of PA, and confidence in the promotion of

PA. Consequently, there is a lack of utilisation of PA which has an impact on promoting PA to patients when managing chronic and complex diseases (Albert *et al.*, 2020). Additional research needs to explore how medical professionals could utilise PA as a treatment more often as a treatment and overcome the barriers that they experience.

Further evidence supporting GPs' lack of understanding has been presented by Chatterjee *et al*. (2017). Through questionnaires, they compared GPs' knowledge, use and confidence in PA as a treatment, with health guidelines in England. With 1,013 responses, they found that GPs were unfamiliar with the national PA guidelines and there was a lack of skill, knowledge and confidence to utilise these guidelines. Their lack of training prevented them from using PA schemes where which could be a priority for a patient with mild to moderate depression. Despite a response rate of 1,013, the questionnaire was sent out to 47,761 GPs which suggests low compliance. As outlined previously, the WHO (Bull *et al.*, 2020) mentioned how one in four people is not engaged in the recommended PA levels and this emphasises the importance of medical professionals understanding the national PA guidelines. In a similar study, but taking a different approach, Richards *et al*. (2004) examined how the GP's mental health training affected the type of treatment they used for those with mental health problems. Results showed that having mental health training had an impact on the approach that GPs take for treating patients with depression. Those who had training are less likely to use a pharmacological approach, were more confident in the use of PA as a treatment and had a more positive attitude to these patients (Richards *et al.*, 2004). This suggests that training and an increase in knowledge result in a better approach and an ability to make more suitable decisions. In addition, a study by Mind (2016) found that on average, only 46% of trainee GPs have had experience in a mental health setting. Furthermore, a qualified GP is required to have Continued Professional Training but there is no element of mental health

included (Mind, 2016). These studies have shown the effect that lack of knowledge and training has and the impact that it has on how GPs approach patients with various mental health problems. An increase in training in this area could lead to more recommendations and referrals around PA.

To conclude, these research studies have illustrated that there is a lack of knowledge on not only PA but on mental health in general. There has been literature that demonstrates that medical professionals support PA as an approach for treating various mental health conditions but there is little evidence that has shown medical professionals utilising it. It is important to better understand medical professionals' opinions as they are typically the first line of treatment. Although research has focused on a medical professional's perspective, there is limited research that focuses on patients' perspectives. This will be investigated further in the next section.

2.2.4 A patient's view of physical activity as a treatment for mental health

Despite a considerable amount of research concentrating on the relationship between mental health and a medical professional's views and opinion on using PA as a treatment, there has been a limited amount of research focusing on a patient's perspective. Patients may be more likely to engage in a PA scheme as there are multiple health benefits and fewer side effects compared to other antidepressants. Previous research has focused on barriers that general practitioners have experienced (Chatterjee *et al.*, 2017; van Rijswijk *et al.*, 2009). However, the barriers that patients perceive to exist have not been extensively investigated which is equally important. It is important to get this so that a suitable approach is used when planning strategies.

Prior research has focused on a patient's opinion on using PA as a treatment for depression (Searle *et al*., 2011). Through in-depth interviews of 33 patients, various factors were identified. Motivation was seen as an obstacle to using PA as a treatment pathway. However, the most noticeable result was that some patients preferred to use PA as a treatment instead of medication, such as antidepressants, as they saw PA being a long-term treatment (Searle *et al*., 2011). Overall, patients saw PA as a beneficial intervention for treating their mental health. A majority of the participants were white British. This lack of ethnic diversity can be identified as a limitation as research has found that African Americans and Hispanics are more likely to experience depression compared to the white population (Dunlop *et al*., 2003). A strength drawn from this paper is that the participants were from various socioeconomic backgrounds, allowing for balanced demographics and a stronger representation of the US population. Similar to Craft and Perna's (2004) findings, more recent research has concluded that a lack of motivation is a barrier to PA engagement (Busch *et al*., 2016). Through an online survey focusing on exercise preferences and barriers, low mood and fatigue were seen as the main barriers to a patient engaging in a PA scheme. However, despite these barriers, all participants were still interested in PA schemes to treat their mental health conditions. This demonstrates that despite the drawbacks of using PA as a treatment, ~~96% of~~ patients are still interested in participating in a PA scheme.

To conclude, although there are barriers that patients may experience with using PA as a treatment, patients perceived PA to have more positives than negatives. As recognised by Busch *et al*. (2016), although barriers have been acknowledged by participants, it is important to offer PA schemes as a treatment pathway as a majority of participants would either partake in the programme (46%) or potentially engage (49%), illustrating how PA is

a treatment pathway for various mental health conditions. However, there needs to be further research into how to overcome these barriers to increase overall engagement.

2.2.5 Disadvantages of using physical activity as a treatment for mental health conditions

Despite PA having the potential to be used to treat various mental health conditions, it can potentially have a negative effect on a small proportion of the population. As previously outlined, there are generic barriers that may influence and prevent patients' engagement in PA schemes, such as lack of motivation and time. Kelly *et al*. (2017) focused on the dropout and barriers to adherence regarding exercise referral schemes through a retrospective cohort study. The exercise scheme data collected consisted of a large sample size (n=6894), with 50% of participants dropping out by the end of the scheme (Kelly *et al*., 2017). It was found that those who identified as smokers are younger or in Tier 3 (had moderate-high commodities and any body mass index (BMI**)).** Additionally, unhealthy habits were seen to be the strong predictors at the six-week and 12-week marks, with smoking being the highest factor at both. Further barriers to engagement in exercise included lack of motivation and childcare being a difficulty. Reichert *et al*. (2007) focused on personal barriers that affected engagement in PA. Only 26% of participants met the recommended PA guidelines and through the use of questionnaires, it was found that lack of time was a common barrier. However, the most prominent barriers included a lack of disposable income, a shortage of energy and a lack of company (Reichert *et al*., 2007). This research shows that barriers to PA limit participants' engagement and completion of the schemes. Due to having a large sample size and an age range of 20 to 92 years old, this study was able to identify age-specific barriers to engagement in PA and thus, able to identify particular patterns. For example, ageing had a positive association with the fear of injury, dislike for PA and feeling too old (Reichert *et al*., 2007). However, as the measurement was assessing eight-predefined barriers, this limited what can be explored as there may be personal barriers experienced by

certain groups or individuals which were not reported. Interviews could be a more appropriate approach as they would allow further barriers to unpack and be explored in-depth through the use of follow-up questions (Roulston and Choi, 2018).

Conversely, there are consequences of engaging in PA excessively. This can be shown through conditions such as exercise addiction. Although engaging in PA and exercise is seen to be beneficial and positive, an excessive amount of exercise can be dangerous and have physiological and psychological consequences (Lichtenstein and Hinze, 2020). Those who are involved in excessive PA can be seen as having a 'negative addiction' (Landolfi *et al.*, 2013, p.112). Negative addiction involves someone carrying on exercising regardless of their condition or situation, for example after injury or personal disruptions in their life (Landolfi *et al.* (2013). Berczik *et al.* (2014) mention how those who are addicted to exercise do not engage in exercise for enjoyment or benefit, but rather use it to escape their daily difficulties and problems. There can be psychological consequences as a result of exercise addiction, one being changes in mood, such as feeling depressed when they are unable to engage in PA (Landolfi *et al.*, 2013). As well as physiological and psychological impacts, exercise addiction can also have an impact on a participant's social life and potentially worsen their relationships with their family and friends (Landolfi *et al.*, 2013). As previously mentioned regarding the association between PA and an increase in endorphin levels, one theory states how the euphoric feelings that individuals experience, due to increased endorphins, are seen to be the key element of exercise addiction as they can create addictive behavioural tendencies in an individual (Leuenberger, 2006). Lichtenstein and Hinze (2020) explored the main association between eating disorders and quality of life in individuals who are addicted to exercise. The main conclusion was that those who were addicted to exercise were significantly more likely to have an eating disorder in comparison to the control group

(Lichtenstein and Hinze, 2020). The exercise addiction group also experienced higher levels of pain and injuries. This research demonstrated that although it is important to reach the recommended PA levels, there can be negative consequences from overtraining.

Overall, these studies have found that various challenges exist in using PA as a treatment pathway for various mental health conditions. Despite an improvement in awareness and knowledge of the benefits of PA in relation to managing an individual's mental health, there are a number of barriers and challenges that may prevent people from accessing these benefits.

2.2.6 Part two summary

Part Two has reviewed how PA schemes can be an effective treatment pathway for GPs to consider with patients with mental health conditions. However, PA is not consistently used by medical professionals and the reasons for this will be explored, including the influence of existing inequalities such as SEP. Possible causes may be increased rates of mental health conditions, less prescription of PA as a treatment, lower PA levels, and less access to PA schemes. The next chapter will investigate socioeconomic inequalities by exploring the relationship between socioeconomic areas and general healthcare, PA, mental health and COVID-19.

2.3 Part Three – Socioeconomic position and health

The SEP of an individual has been identified to impact their healthcare with those in a higher socioeconomic area less likely to suffer from health problems, both physically and psychologically, due to improved healthcare (Demakakos *et al*., 2008). Lower socioeconomic areas are associated with an increased risk in almost every major cause of premature mortality (Glymour *et al*., 2014). Furthermore, an individual's SEP can have an impact on their lifestyle, healthcare, mental health and PA levels. This section will go into further depth and review relevant literature on the impact that the SEP of an area has on these determinants and its effect on PA. Moreover, it will examine existing research that focuses on the division between the North and South of England and the inequalities that exist within the healthcare system.

2.3.1 Socioeconomic position, health and lifestyle

According to Smith (2007), it has been well documented that those who are in a low socioeconomic area have worse health. The main health risks associated with individuals from more deprived areas are lower life expectancy, increased chance of age-related illnesses and a poorer quality of life (Fiorito *et al.,* 2019). Therefore, the SEP impacts the quality of health and the general lifestyle of the population in that area. Moreover, there are certain barriers that people from a low SEP may experience, resulting in an impact on their access to healthcare. Various health inequalities occur due to the SEP of an individual.

An individual's lifestyle is related to and influenced by SEP (Wang and Geng, 2019). A developing amount of research has discovered the importance of living a healthy lifestyle and the dangers that can occur as a consequence of unhealthy living (Burgoine *et al*., 2017; Fiorito *et al*., 2019; Wang and Geng, 2019). However, a healthy lifestyle includes factors such as a healthy diet, being physically active and avoiding substances such as drugs and

alcohol. Wang and Geng (2019) discovered that there was a significant impact between SEP and physical health with those from a higher socioeconomic area living a healthier lifestyle. Lifestyle was seen to be an important role when comparing the relationship between SEP and health. It was concluded that those living in areas of higher SEP had a healthier lifestyle due to increased motivation and better accessibility to resources (Wang and Geng, 2019). Furthermore, as those from a low SEP area have less access to resources, this will influence their access to PA facilities and thus, influence their lifestyle. However, Wang and Geng (2019) did not take into consideration common health behaviour, such as drinking and smoking. These are substantial daily factors that could identify the difference between various socioeconomic areas. Further research explored the impact that education, as an indication of SEP, had on other risk factors (Fiorito *et al*., 2019). There was a strong association between lower levels of education and poor health factors, such as obesity and alcohol intake (Fiorito *et al*., 2019). This is further supported by a health survey that found that 35% of men and 37% of women living in deprived areas were obese, compared to 20% of men and 21% of women in less deprived areas (NHS Digital, 2019b). These statistics identify the health inequalities that exist in the UK and the impact that the SEP has on various health conditions, such as obesity.

One of the factors that contribute to existing health inequalities is a poor diet. An unhealthy diet is the only factor that has consistently been associated with the SEP (de Ridder *et al*., 2017). Those in low socioeconomic areas are more likely to have lower education with a subsequent lack of nutritional knowledge and cooking skills (Burgoine *et al*., 2017). Due to this, there is an association between an increase in obesity and lower socioeconomic areas. An investigation examined how the association of the distance from the supermarket relates to an increase in the likeliness of obesity and how this aligns with the SEP. The main findings

concluded that the further away an individual lived from a supermarket, the higher their body BMI was (Burgoine *et al*., 2017). Due to the further distance from the supermarkets and the increased cost associated with smaller independent shops for healthy food (Burgoine *et al*., 2017), people in lower socioeconomic areas are more likely to utilise fast food outlets such as McDonald's. There was a strong association between level of education and distance from supermarkets, with levels of obesity and the risk of becoming overweight. This research supports how education and accessibility to supermarkets are substantial factors in increasing the likeliness of those in a lower socioeconomic area becoming overweight or obese. It further suggests that the distance between the supermarkets needs to be shortened and there needs to be a development in this market so that it is more accessible for those in more deprived areas, which are typically on the outskirts of the town and cities. Therefore, future research should focus on whether there would be a positive impact on an individual's diet if they had better access to healthy food at a reasonable price. BMI is a factor that is affected by socioeconomic status and Tyrell *et al*. (2016) explored the relationship between BMI levels and the socioeconomic area. There was an association with those with a higher BMI being less likely to obtain a degree, as well as being more likely to work in a lower-skilled job. BMI was seen to affect annual household income with there being an association between higher BMI and lower annual income. Lastly, the most relevant finding was that those with a higher BMI score were associated with higher levels of deprivation (Tyrell *et al*., 2016). All of these factors contribute to the common factors of those in lower socioeconomic areas. These factors have negatively affected the BMI score, showing that individuals with higher BMI scores are more likely to originate from a lower socioeconomic area.

In addition to lifestyle barriers, there are health inequalities that exist within the public national health service in England (Moscelli *et al*., 2018; Packness *et al*., 2019). SEP impacts the health of an individual, due to the varying degrees of access to treatment and barriers experienced (Packness *et al*., 2019). Therefore, this identifies that as well as lifestyle, those in more deprived areas experience health access inequalities which affect their health. Furthermore, there are additional barriers that those from low socioeconomic areas have to experience which may affect their treatments, such as lack of leisure time and increased waiting times (Packness *et al*., 2019). Research examined the socioeconomic inequalities that exist in access to healthcare in England by focusing on two coronary heart disease treatments (Moscelli *et al*., 2018). One of the main findings was the significant socioeconomic inequalities as patients seeking treatments in more deprived areas had a 35% higher waiting time. Despite being at the same hospital, socioeconomic inequalities still occurred as patients from more affluent backgrounds received better treatments due to better information, networking skills and contacts (Moscelli *et al*., 2018). This research identifies the inequalities that exist due to an individual's SEP and the impact that these may have on their treatment. Those who are from a lower SEP, often work longer hours and therefore, time is a substantial barrier and will impact the treatment that they can receive (Redko *et al*., 2006). This is why patients from more deprived areas would benefit from shorter waiting times (Moscelli *et al*., 2018). Although this research focuses on the statistics of treatment and waiting times, future research should focus on the consequences and barriers that exist for those who are in a lower SEP and the impact that it may potentially have on their treatment.

Existing literature has reported that there may be potential barriers that affect the type of treatment pathway that a patient receives. Physicians perceive patients who are in a low SEP as being less likely to comply with the advice and return for follow-up appointments (Van Ryn and Burke, 2000). Focusing on the patients' view of their healthcare and how the SEP influences the type of treatment received, patients stated how the socioeconomic area affected the types of treatment they received, the accessibility to healthcare and the difference in waiting times (Arpey *et al.*, 2017). Overall, most patients in the cited study found that the socioeconomic status of where they lived influenced the quality of healthcare that they received and increased the barriers that limited them from accessing their treatment. However, although they had 80 in-depth interviews, they were only focused on one geographical area. Consequently, this does not gain a full representation across other areas and populations. Future research should explore other areas in a low SEP and compare and contrasts these areas to conclude what barriers are consistently being brought up for patients from a low SEP. In summary, these papers demonstrate that there are multiple health inequalities that people experience due to their SEP. Furthermore, there are additional barriers that they experience, compared to those from a higher socioeconomic background.

Existing research has illustrated that the socioeconomic area has an impact on an individual's lifestyle and general healthcare. Those that are from more deprived areas are seen to have lower education, quality of health and income. A patient from a lower socioeconomic area is often associated with unhealthy physiological consequences due to general lifestyle and accessibility to healthy food and lower PA. Moreover, there are socioeconomic inequalities that exist within healthcare treatments and there are more barriers that are faced by those who are in less affluent areas. These findings have demonstrated the clear lifestyle and healthcare differences that exist due to the SEP of the area in which the individual lives.

2.3.2 Socioeconomic position and mental health

Research has focused on the influence that SEP has on mental health (Delgadillo *et al*., 2016; Reiss *et al*., 2019). In the UK, those who are in the lowest 20% of household income, are two to three times more likely to experience mental health problems compared to those with a higher income (Marmot *et al*., 2010). Moreover, employment status is understood to have an association with mental health, with those who are unemployed having higher rates of common mental health disorders (Stansfeld *et al*., 2016). This relates to Glymour *et al*.'s (2014) research who stated how employment is one of the key factors that contribute to the socioeconomic area. Further to the physiological impact that an unhealthy lifestyle has on an individual's health, this is usually seen to result in worse mental health compared to those who live a healthy lifestyle (Wang and Geng, 2019). Therefore, socioeconomic status is understood to have a negative effect on an individual's mental health due to their lifestyle. There have been multiple studies that have focused on how the socioeconomic area has an impact on mental health. Various reasons have been identified such as not utilizing the available services (Amone-P'Olak *et al*., 2009; Delgadillo *et al*., 2016; Reiss, 2013). Further to the physiological consequences that an unhealthy lifestyle has on an individual's health, their mental health tends to be worse compared to those who live a healthy lifestyle (Wang and Geng, 2019).

There is an association between the socioeconomic deprivation of an area and the outcomes of counselling and psychological treatments (Delgadillo *et al*., 2016). As previous research has identified, lower socioeconomic areas typically have a lower quality of healthcare and consequently, this is likely to have a negative impact on mental health. Similar to healthcare access and lifestyle, it is likely that the success rate of psychological interventions is lower for those from a more deprived area as they are more likely to have additional barriers. Due

to this, research explored how socioeconomic deprivation relates to the rate of referrals, access to therapy and clinical outcomes (Delgadillo *et al*., 2016). There was an association between patients referred and their SEP, with there being a higher referral rate for psychological care in the more deprived areas. However, the more deprived areas had a lower success rate in recovery. This research included a strong sample size from 211 CCG across England resulting in reliable results and a reliable representation of the impact that the socioeconomic area has on certain healthcare. A similar study examined the impact that the SEP and location have on utilising mental health services and found that patients with lower education and income had fewer mental healthcare visits compared to those with higher education and income (Packness *et al*., 2017). Moreover, there was an association between those with lower income having less contact with their psychiatrist. This study found that those from more deprived areas were less likely to utilise mental health services due to accessibility. Whilst they measure the distance that affected access to health services, one of the limitations of this research is that it fails to consider the mode of transport. Public transport may take longer to access mental health services, which is typically associated with people from less affluent areas using, compared to driving. Future research should consider this to understand the length of time it takes for people to access these services and whether this is associated with the attendance and success rate of patients from various socioeconomic areas. Both studies concluded that there is a lower success rate in mental healthcare for those from more deprived backgrounds. Research should focus on the barriers that limit patients from lower socioeconomic areas from engaging in these mental health services to understand why there is a lower success rate for this socioeconomic group. This will help tackle these barriers in the future and thus, aim to increase the success rate of these mental health services.

Although the impact of the SEP predominantly focuses on adults' health, there is an increasing amount of research looking at the effect on adolescents (Amone-P'Olak *et al.*, 2009; Reiss *et al.*, 2019). It is been discovered that adolescents from more deprived areas tend to have worse mental health due to their SEP (Reiss *et al.*, 2019). Adolescents from low socioeconomic areas are more likely to experience various health problems in addition to having poorer access to medical care (Reiss, 2013). Moreover, they are two to three times more likely to develop mental health problems compared to adolescents from a higher socioeconomic background (Reiss *et al*, 2019). Household income and parental education are seen to have a substantial impact on an adolescent's mental health (Reiss *et al*, 2019). This is an important finding as education and income are part of the main factors that contribute to an individual's SEP. These factors are noteworthy as they are likely to have an impact on an adolescent's mental health due to experiencing more stressful situations. A systematic review of 55 studies focused on the impact that SEP has on children and adolescents' mental health and 52 studies showed that there was a correlation between at least one socioeconomic determinant and mental health in children and adolescents (Reiss, 2013). This demonstrates the impact that SEP has on an adolescent's mental health and is reinforced by the association between socioeconomic determinants and the exposure to stress that impacts children and adolescents' mental health (Reiss *et al.*, 2019). It was reported that there was an association found between stressful situations contributing to children's and adolescents' mental health with it being more likely to occur in families from a lower socioeconomic background (Reiss *et al.*, 2019). The number of stressful situations was seen to have a negative psychological impact on children and adolescents' mental health and thus, those from more deprived areas were more likely to experience mental health problems as a consequence. The results of the adolescents' mental health were collected through the parents' report and therefore, this could be seen as a limitation as it is not

collecting data directly from the adolescents and thus, may not be a true representative of their mental health. Although it may be difficult to conduct for children, the sample size was up to 17 years old and research could be conducted through the older target audience as opposed to the parents. This paper was a longitudinal study over the duration of two years which will assist in identifying the socioeconomic inequalities that occur regarding mental health problems within children and adolescents. These studies are further supported by Amone-P'Olak *et al*. (2009) who found that there are health inequalities that exist due to the SEP and those who were in deprived areas were more likely to experience mental health problems, such as anxiety and depression. They concluded that there needs to be a form of policy or intervention to reduce mental health problems in adolescents from lower socioeconomic areas. These studies have presented the negative psychological impact that low SEP can have on children and adolescents' mental health and it is essential that future research focuses on how to prevent this.

These papers illustrate the impact that SEP has on an individual's mental health. The main determinants that contribute to the SEP of an individual have all been shown to have negative consequences on an individual's mental health. Furthermore, these factors are also seen to further have an impact on adolescents' mental health. Those from a low socioeconomic background have lower attendance with mental health referrals and thus, lower success rates. Future research should consider the barriers that limit individuals from a lower socioeconomic background from seeking support and what can be put in place to improve treatments to improve success in treating mental health for both adults and adolescents.

2.3.3 Socioeconomic position and physical activity

Physical activity is beneficial for both mental and physical health and therefore, people need to be physically active and reach the recommended guidelines in the UK (Warburton and Bredin, 2017). The SEP of an area can have an impact on an individual's physical health due to a lack of PA and there has been a hypothesis that those who live in more affluent areas are more likely to be physically active compared to those in a lower SEP (Stalsberg and Pederson, 2018). Physical inactivity can increase the risk of mortality and certain health problems including heart disease, stroke, certain cancers, type 2 diabetes and obesity (Cleland and Crawford, 2012). Therefore, people from all socioeconomic groups need to engage in PA.

Those in a lower SEP area tend to have less leisure time and are likely to have an impact on their levels of PA (Beenackers *et al.*, 2012). Furthermore, PAs, such as gym memberships and sports teams, have a cost element and can be a financial barrier to those who have limited disposable income (Sowden *et al.*, 2008). Several studies have found a link between the amount of leisure time an individual has with an increase in the amount of PA (Cleland and Crawford, 2012; Gidlow *et al.*, 2006). Research has explored the association between SEP and PA levels among women aged 18-65 years old by looking at a range of neighbourhoods at different socioeconomic levels (Cleland and Crawford, 2012). The most significant finding was the association between SEP and the amount of leisure time (Cleland and Crawford, 2012). All the main determinants that contribute to the SEP (e.g. education, income, and occupation) were seen to be affiliated with the total leisure time of an individual. Cleland and Crawford (2012) established that the SEP has a significant association with the amount of leisure time, with individuals that had lower levels of each indicator typically associated with a lower amount of leisure time. As this research focused on leisure PA levels,

it fails to take into consideration occupations that involve PA and active transport. Although this study did take into account the main indicators that contribute to the SEP and was able to identify any patterns that occurred, it did not take into account all SEP indicators which may impact an individual's leisure time. Therefore, future research should also consider other contributors, such as occupation and the impact of unemployment when focusing on overall PA levels. A similar result focusing on socioeconomic areas and PA engagement discovered that participants from more affluent areas were more active throughout the day due to increased leisure time (Gidlow *et al*., 2006). These studies have concluded that those from higher socioeconomic areas typically have more leisure time compared to those in more deprived areas.

Similar to mental health, adolescents are affected by their SEP and consequently, this impacts their PA levels. It is especially important for adolescents with parents who have low education or income to be physically active, as these stages of their life are crucial for developing a healthy lifestyle (Hallal *et al*., 2006). Those who are from more deprived areas are more likely to experience psychological problems and as shown in part one of this review, PA is beneficial for various mental health conditions and lifestyle problems. Veselska *et al*. (2011) examined the association between SEP and PA in adolescence and the impact that this has on self-esteem. Adolescents from more affluent areas were significantly more likely to engage in PA as well as have higher self-esteem (Veselska *et al*., 2011). This may be due to parents with higher education having a better understanding of the benefits of PA and a healthier lifestyle compared to those from a lower socioeconomic area. This has been supported by Stalsberg and Pederson (2010) who directed their research on the impact that the SEP may have on the levels of PA in adolescents. Their systematic review of 62 articles supports the hypothesis that those from more affluent areas are more

physically active compared to those in more deprived areas (Stalsberg and Pederson, 2010). The safety of neighbourhoods was seen to limit children from more deprived areas from accessing recreational parks. This is a substantial barrier in the more deprived areas as due to lack of disposable income, residents engage in PA in public areas and therefore, this could cause physical inactivity and sedentary behaviour. Lastly, lack of family leisure time was a barrier that impacted adolescents' PA levels due to insufficient supervision. Farrell *et al.* (2014) suggested that one approach to increase PA levels in adolescents from a lower socioeconomic area is to improve the facilities in the local schools and include more PA in the curriculum. However, these suggestions do not take into account other barriers that occur more often in low socioeconomic areas, such as crime (Ministry of Housing, Communities & Local Government, 2020), which will limit people's engagement with the local facilities. There are barriers that needed to be tackled first, such as reducing the crime rate and allowing a safer local environment for people to engage in PA. To conclude, these studies have demonstrated that various barriers limit adolescents from low socioeconomic areas from engaging in PA.

There have been various studies that have identified the association between SEP and PA in specific age groups (Cleland and Crawford, 2012; Veselska *et al*., 2011). Moreover, they often focus on how one element (e.g. occupation, income, education) impacts levels of PA. However, there are very few studies that examine the impact that the SEP has on levels of PA across a lifespan (O'Donoghue *et al*., 2018). O'Donoghue *et al.*'s (2018) main result found that there is a weak association between children's and adolescents' levels of PA and their SEP. There was further a stronger association found between parental income having an impact on PA levels in adolescents (O'Donoghue *et al*., 2018). Additionally, there was a strong association between adults and leisure time with this being the main determinant that

affected their PA levels. Furthermore, this was a barrier in older adults which supports Cleland and Crawford's (2012) and Gidlow *et al.*'s (2006) main findings. This research supports the previous studies highlighted, as leisure time and income were two major barriers that limited people of all ages from engaging in PA. Income and leisure time are typically negatively associated with low socioeconomic areas having lower income and limited leisure time. Thus, people of all age groups do not engage in as much PA compared to those in higher socioeconomic areas.

To conclude, research has shown that there is a negative association between SEP and PA. With those from a low socioeconomic area likely to be less physically active, this could well contribute to other health problems that are associated with more deprived areas, and indeed with physical inactivity, such as obesity and mortality rate. Lack of leisure time and lower income seem to be the two main barriers that limited those from more deprived areas from engaging and participating in PA. These factors are also seen to have an impact on adolescents' PA levels, and this could be a reason that those from a low SEP are more likely to develop an unhealthy lifestyle.

2.3.4 Health and physical activity inequalities

Socioeconomic inequalities have been found to have an impact on PA engagement and the level of healthcare. Focusing on general practices' access to PA interventions, a study by Sowden *et al*. (2008) showed that GPs from lower socioeconomic areas were more likely to refer patients to PA schemes than GPs from more affluent areas. Further, it was discovered that the SEP did not impact the patients' willingness to engage, but other barriers such as travel and finance did (Sowden *et al*., 2008). However, this research did not take into consideration the attendance or completion of the programmes and the influence that the SEP has on this. However, one study by Hanson *et al*. (2013) did take into consideration the

impact that an individual's Index of Multiple Deprivation (IMD) has on engagement in a 24-week programme, as well as other factors. With a strong sample size (n=777) completing the full 24-week programme, results found that socioeconomic status was negatively associated with adherence to exercise referral schemes (Hanson *et al.*, 2013). One noteworthy statistic is that of those who completed the programme, 55% were retired and 8.3% were on incapacity benefits. This suggests that leisure time could be a factor for engagement in this scheme. With a focus on the inequalities and inclusions of exercise referral schemes and through secondary data, Oliver *et al*. (2021) carried out a multi-scheme analysis, consisting of 23,372 individuals across 14 exercise referral schemes. Results showed that those from lower socioeconomic areas experienced significant barriers that restricted their engagement in exercise due to other priorities (Oliver *et al*., 2021). Therefore, Oliver *et al*. (2021) suggested that exercise referral schemes have the 'potential' to be effective in reducing health inequalities, but the schemes need to be targeted at people who can realistically engage in the schemes (p.16).

Wider research has focused on the health inequalities between the North and South of England. The North-South divide in the UK was identified in the mid-19th century and still exists in the 21st century (Bambra *et al.*, 2014). Although it previously focused on the economic and political differences, in recent years it has also examined the health inequalities that exist (Bambra *et al.*, 2014). The North of England has a lower quality of health and experiences worse health inequalities compared to other parts of England (Corris *et al.*, 2020). Regions in the North, such as the North East, generally have a lower life expectancy and higher mortality rate compared to the rest of England (Corris *et al*., 2020). The IMD measures levels of deprivation in specific areas and takes in multiple domains (such as income, employment and education) to measure the levels of deprivation

(Department for Communities and Local Government, 2016). The top five areas that were identified as the most deprived were all in the North of England, with Middlesbrough being the most deprived area (Office of National Statistics, 2019). Whereas areas in the South, such as St Albans, are the least deprived areas and thus, have higher levels of the main domains (e.g. education, income and quality of health) (Office of National Statistics, 2016).

In October 2020, the Office of National Statistics showed that in the previous three months the highest employment rate was the South East (78.6%), with the North East having the highest unemployment rate of 6.6% (Watson, 2020). On average, people who live in the South East earn 20% more than the current most deprived region, the North East. As previously discussed and demonstrated by Reiss *et al.*'s (2019) findings, income has a negative impact on mental health, with those from more affluent areas tending to have better mental health. Education was stated as one of the key elements that determine an individual's SEP (Glymour *et al*., 2014). This relates to the North-South divide as the top 10% of most deprived areas are mostly in the North, with the least deprived areas predominantly in the South (Noble *et al*., 2019). Pupils from the top 10% of most deprived areas in the UK achieved two grades less in their top eight grades compared to those in the 10% of most advanced schools (Noden, 2009). This illustrates the socioeconomic inequities that exist and the impact that it has on education. This has demonstrated that there is an association between education levels between the North and South.

Recent research has found that there are differences between the North and South for both physiological and psychological conditions. The North East had 12.9% of the population with obesity, compared to London Outer North with 8.4%, which in the South, was the highest area for a diagnosis of obesity (Baker, 2019). There were more areas in the North,

compared to the South, that had individuals diagnosed with high blood pressure and peripheral arterial disease (Baker, 2019). Beard *et al*. (2017) examined the differences in drinking and smoking habits between the North and South of England. Results found that those in the North of England were more likely to smoke compared to those who were from the East and South East of England and London (Beard *et al*., 2017). Likewise, high-risk drinking was associated with the North but not as common in the Midlands and South of England. However, given the topic of this research, results may not be an accurate representation as they were self-reported and therefore, participants may not give an accurate amount of alcohol units and cigarettes consumed. This study relates to previous studies that found how SEP has an impact on unhealthy lifestyle habits (Wang and Geng, 2019).

Research has further shown that the North and South divide has an impact on an individual's health. According to Baker (2019), the North of England has three of the top five areas for depression prevalence with Lancashire and Cumbria having the highest rate of 12.1%, compared to the South's highest areas, Essex, Hertfordshire and Bedfordshire, with a rate of 9.2%. Similarly, they have three of the top five sub-regions for serious mental illnesses (Baker, 2019). This research has identified the most common psychological diseases that exist in the UK and the differences that exist between the North and South of England. Antidepressant prescriptions have been increasing over the years with 36 million prescriptions in 2008, compared to 70.9 million in 2018 in the UK (Iacobucci, 2019). Moreover, Easton (2012) reported that the places with the highest prescription rate were all based in the North of England, whereas the least amount of prescriptions was located around London. This supports the hypothesis that people in the North experience higher numbers of mental health problems, compared to those in the South of England. Alternatively, the North of England has access to fewer alternative treatment pathways.

Overall, research has illustrated the physical and mental health differences that exist between the North and South of England. Research has proven and supported the hypothesis that those in the North generally experience a higher prevalence of health problems. The North-South divide relates to and supports the previous research about the impact that the SEP has on general health. As supported by the IMD levels, those in the North are typically in a lower SEP, compared to the South of England. This impacts the income, education and healthcare of individuals in these areas. To conclude, there are healthcare inequalities between the North and South of England and there needs to be further research that focuses on how to tackle these health inequalities.

2.3.5 Impact of COVID-19 on physical activity and mental health

In 2019, a new strain of coronaviruses infections was discovered in China, causing a worldwide spread in January 2020 (WHO, 2020e). The WHO declared this disease a public health emergency of public concern (WHO, 2020e). To date, this pandemic has caused over 570 million confirmed infections and over 6.3 million deaths, as of July 2022 (WHO, 2020f). In the UK, social distancing was brought in as a strategy to tackle COVID-19 by limiting the virus spreading and therefore, a reduction in the death rate. All non-essential businesses were closed, and the public was only allowed to leave their homes for limited essential reasons and to exercise once a day (Priddy, 2021). The COVID-19 pandemic has had significant physical and mental health consequences.

Physical activity

To slow down the spread of COVID-19, the UK went into lockdown with all PA facilities, such as gyms, sports and exercise classes, being closed. Lockdown resulted in an impact on people's PA levels and an increase in sedentary behaviour. This has been examined through a systematic review of 66 papers (Stockwell *et al*., 2021). A strong majority (n=64) of the studies discovered that PA levels declined, and sedentary behaviour increased during COVID-19 lockdowns, regardless of the subpopulation. Therefore, it is likely that COVID-19 will have had a negative impact on the population in terms of more sedentary behaviour which has a negative association with mental health. A strength of this research is that it takes into account people with medical conditions and how a lack of PA impacted them. COVID-19 will also have an impact on those who live a sedentary lifestyle and participate in minimal PA pre-COVID-19. This is supported by a study that found that 40.5% of those who were inactive became even more sedentary and 22.4% of previously active individuals also became more sedentary (Lesser and Nienhuis, 2020). A major health problem with physical inactivity is that it is associated with an increased risk of severe COVID-19 outcomes (Sallis *et al*., 2021). The research examined patients who had been diagnosed with COVID-19 and measured their PA levels from the previous two years. There was an association between those who were not reaching the recommended PA guidelines with a higher risk of hospitalisation, intensive care unit and death (Sallis *et al*., 2021). This suggests that PA may potentially be a preventative measure for severe COVID-19. As this was an observational study, it is difficult to conclude precisely whether or not PA is directly related to less severe COVID outcomes. However, although COVID-19 has restricted the amount of PA that is available, it has also increased the awareness of the amount of sedentary behaviour that some people live with, and the importance of PA. Recent research focused on PA, sedentary behaviour and health during COVID-19 at the beginning of lockdown

(Cheval *et al*., 2021). Results found that although there was a decline in vigorous activity, there was an improvement in the amount of time active. Furthermore, mental health benefits were found to improve in the first couple of weeks of lockdown. This research has found that an increased time walking, and moderate PA had significant positive results despite the barriers that were in place. A limitation of this research was that it was only carried out over two weeks. Therefore, carrying it out over a longer period would make it more reliable as it may be seen as a lifestyle change, rather than just potentially a temporary change. Although COVID-19 improved PA levels for some individuals, for the majority, PA decreased, and this highlights the exacerbated inequalities as a result of the pandemic.

COVID-19 and mental health

COVID-19 has had a substantial impact on individuals' mental health for various reasons. The rule of social distancing limited people from seeing friends and families. Therefore, this increased the number of people in the UK being isolated and resulted in a high prevalence of psychiatric symptoms across high, middle and low-income countries (Xiong *et al*., 2020). Social isolation is likely to increase anxiety, depression, fear and loneliness (Carvalho Aguiar Melo and de Sousa Soares, 2020). Other factors that impacted an individual's mental health such as physical illnesses, bereavement and unemployment (Jia *et al*., 2020). Therefore, due to this pandemic, the number of people experiencing mental health problems increased significantly (Jia *et al*., 2020). The unemployment rate in 2019 (pre-pandemic) was 3.8% but as of January 2021, the unemployment was estimated to be 5% (Office of National Statistics, 2021). Unemployment has been found to have a significant negative impact on an individual's mental health with those who are unemployed being more likely to experience more days with poor physical and mental health, compared to those who are employed (Pharr et al., 2012). This is likely to have an impact on mental health during

COVID-19. An individual's SEP had an impact on the likeliness of them experiencing mental health problems and this was due to factors, such as unemployment and financial difficulties, that people from more deprived areas are more likely to experience compared to those in a higher SEP area. A recent study focused on the impact that SEP had on the first three weeks of lockdown (Wright *et al.*, 2020). Those in a lower SEP area experienced a greater financial burden (e.g. reduced income or redundancy) due to the pandemic. This research has strong mixed demographics for participants as it collected a range of data such as education, employment, and income. These are important as they contribute to an individual's SEP and thus, the author was able to identify any patterns that COVID-19 has had on the SEP. This relates to research that has found how financial issues result in those individuals being more likely to experience mental health problems (Pharr *et al.*, 2012).

The two most common mental health disorders, anxiety and depression, were likely to increase during the pandemic due to isolation and a change of lifestyle (Hyland *et al.*, 2020). One study found that anxiety, depression and stress significantly increased due to the COVID-19 pandemic (Jia *et al.*, 2020). Those that were in the higher risk group of COVID-19 were more likely to experience symptoms of depression and anxiety. There was a strong association (p-value = <0.001) between COVID-19 and the worry about contracting the infection. Although this research has concluded that there was a significant association between mental health and COVID-19, it fails to identify individuals who have pre-existing mental health conditions, and this may influence the findings. Due to the COVID-19 laws, the lockdown resulted in there being an increase in people not seeing friends and family with these factors contributing to the likelihood of experiencing symptoms of loneliness. An online survey focused on adults' psychological wellbeing from a range of backgrounds (Groarke *et al.*, 2020). The results discovered that there was a variety of factors that were

associated with an increase in individuals experiencing loneliness, such as lower income, unemployment, less education, less social support and small household size (Groarke *et al.*, 2020). These factors are typically associated with individuals from lower socioeconomic areas and suggest that SEP has an impact on the likeliness of an individual experiencing loneliness during the COVID-19 pandemic. This research was able to access a strong sample size (n=1964) within a short period and gather information that identifies important factors that contribute to the likeliness of loneliness. However, although the research was carried out between March 23th and April 24th, 2020, this survey focused on experiences 'within the past week' and this may not be a good representative of the overall levels of loneliness as the COVID-19 restrictions may have changed their situations. Moreover, data was collected at the early stages of the pandemic and, the results may not fully represent the pandemic as there may have been some degree of novelty at the beginning of lockdown. Therefore, future research needs to concentrate on participants' overall experience of COVID-19 and the sustained impact that it has had on their loneliness.

2.3.6 COVID-19 and socioeconomic position

Socioeconomic position can have an impact on an individual's quality of life and thus has affected their health and lifestyle during the COVID-19 pandemic (Hawkins *et al.*, 2020). Existing research in this chapter outlined how pre-existing research has found that inequalities exist depending on SEP and due to the pandemic, there were higher levels of unemployment and financial difficulties (Wright *et al.*, 2020). Therefore, the SEP is a substantial influence as lower-paid workers were typically made redundant first (Wright *et al.*, 2020). Furthermore, those in lower socioeconomic areas are more likely to have worse health conditions (Fiorito *et al.*, 2019; Smith, 2007).

Furthermore, there may be an association between COVID-19 and individuals from minority groups. Research extracted COVID-19 mortality and cases data from the US and results found that there was an association between lower levels of education and a higher proportion of black residents with higher rates of COVID-19 mortalities and cases (Hawkins *et al*., 2020). Lower education and black ethnicities are both associated with factors that contribute to the likeliness of being in a lower SEP (Williams *et al*., 2016). This suggests that more deprived areas may be associated with higher levels of COVID-19 and there may be a greater risk to individuals in this group. Although this research has a large sample size, there needs to be further in-depth research to get a better understanding and representation of the association between the SEP and COVID-19, and the difference that may exist between different socioeconomic groups. This will allow researchers to gain an understanding of the impact that COVID-19 has had on different determinants that contribute to SEP, such as income., employment and healthcare. The UK used Oxford-AstraZeneca and Pfizer-BioNTech vaccination to tackle COVID-19 at the early stages of the vaccine programme. However, surveys found that those from ethnic minorities are significantly less likely to take up the vaccine (Royal Society for Public Health, 2020, Razai *et al*., 2021). Moreover, recent statics have shown that the vaccination uptake was lower among those from lower socioeconomic areas (Nafilyan *et al*., 2021). The main reason for the lack of uptake is due to distrust (Razai *et al*., 2021). To tackle this, the vaccination centres could be led by GPs who are more likely to be trusted (Razai *et al*., 2021). This trust with a GP can have an additional benefit as they are more likely to refer them to a mental health specialist or a PA scheme if needed and by developing these relationships, they are more likely to attend the PA schemes if they are available.

Despite limited health research in this field, it is clear the impact that COVID-19 has had on physical and mental health due to the pandemic. Health inequalities that previously existed have been exacerbated because of the recent pandemic. Physical activity levels have declined, and sedentary levels have increased which has likely contributed to the increased occurrence of mental health problems. Those from a lower socioeconomic area are more likely to have experienced a more significant negative impact from this pandemic. COVID-19 has impacted the majority of people's lives and future research should further explore the impact and association that COVID-19 has had on mental health and PA levels and opportunities both during the pandemic and now, in the aftermath

2.3.7 Part three summary

Part three of this review has illustrated the impact that SEP can have on an individual's health. Several authors have identified and proven the lifestyle and general healthcare differences that exist between those from high and low socioeconomic backgrounds and how the main determinants affect the healthcare of an individual. Socioeconomic position is seen to have a negative impact on mental health, with those from a low socioeconomic background experiencing increased mental health problems, something which is also true for younger people including adolescents. As well as mental health issues, PA levels are lower in more deprived areas due to existing barriers. Those living in more deprived areas have more pre-existing barriers which collectively have a negative impact on their lifestyle and healthcare. Lastly, due to the socioeconomic divide, there are still health disparities that exist today that need to be tackled to close the inequality gap. Although many studies focused on PA levels in various socioeconomic areas, the research examining the availability and effectiveness of PA and mental health schemes that exist in more deprived areas remains

limited. The COVID-19 pandemic has overall, had a negative influence on mental and physical health and exacerbated pre-existing inequalities.

Chapter 3: Methodology

This section will provide an overview and justify the methods used in this study. The methodological perspectives presented include a discussion on the epistemological standpoint and study design. It will further justify how the data were collected, the processes of interpretation, and why these were used and deemed appropriate. The interview questions used in the study will be rationalised and explored. Lastly, relevant ethical considerations and an overview of participant demographics are presented.

3.1 Study Design and Epistemology

Epistemology is defined as the branch of philosophy which takes into account the theory of knowledge with various aspects, including validity, scope and methods (Moon and Blackman, 2014). Several epistemological approaches can be used as a framework to collect and interpret data. As the current research paradigm focuses on understanding real-world phenomena from an individual's perspective, an interpretivist paradigm was the most relevant and suitable framework (Scotland, 2012). Interpretivist researchers collect data in a form that focuses on the participants' experiences (Thanh and Thanh, 2015). This approach allows the researchers to develop meanings based on a narrative format from the participants' experiences and beliefs (Hiller, 2016). Willis *et al*. (2007, p.108) describe how interpretivists approaches are used more in qualitative methods as the rich reports produced by qualitative methods are necessary for participants' data to be fully understood.

Due to this research exploring the opinions of GPs, an interpretative paradigm was considered a well-suited epistemological approach and was thus adopted in this study. As previously outlined, qualitative research methods were selected as the most effective and appropriate approach for data collection. This research used an empirical research study design and used interviews to collect data. Heery and Noon (2001) state that interviewing is

a widely used methodological approach in the healthcare setting as it provides a way of accessing the knowledge, skills and behaviours of individuals. Moreover, interviewing is the most used method in qualitative research in sports and exercise science (Smith and Sparkes, 2016). It is an effective method for gaining in-depth information and insight.

This research used a semi-structured interview approach, allowing me, as the researcher, to ask the core questions in the interview as well as to further explore any particular subjects that were of interest, relevant or required further information (Longhurst, 2003). Gill et al. (2008) argued that semi-structured interviews are the most frequently used approach for research looking at healthcare as it provides useful guidance. Furthermore, semi-structured interviews allowed participants to elaborate on their answers which would not be possible in structured interviews.

The data collection was undertaken between 1st June 2021 to 21st July 2021. The interviews varied in duration, ranging from 38 to 79 minutes which was a greater length than I originally anticipated given the time pressure on these professionals. However, I felt that this enabled the participants to express their experiences in in-depth detail and demonstrated their interest in the conversation. The interview questions were well designed, except for the question regarding their practices' funding position. Many were not aware and therefore, this question was adapted for GPs in this situation and instead, focused on their beliefs on where funding should be prioritised. Although a majority of the conversations flowed well, one or two GPs gave brief answers. This suggests that the questions needed to be slightly more open. However, I managed to open the participants up more by asking them open but personalised questions.

3.2 Sampling and participant recruitment

The participants were selected using convenience sampling, a type of non-probability sampling where a certain population meet the participant criteria, such as ease of accessibility, availability and willingness to participate (Etikan *et al*., 2016). This approach was used as this research was collecting information from participants that I had access to (Palinkas *et al*., 2015), and given the circumstances at the time (i.e. the rules on working from home if possible and limited social interaction). This approach is most applicable and a widely used method in clinical research (Elfil and Negida, 2017). It could be argued that a disadvantage of using a convenience sampling approach is that it lacks generalisability and it could be further argued that this is a biased approach (Jager *et al*., 2017). However, in analytical generalisability, the established concepts are generalisable, as opposed to the population of the sample size (Smith, 2018). Moreover, analytical generalisability is recognised as various ideas for understanding and making sense of the world and people's lives (Smith, 2018). Thus, I adopted an approach of aiming for analytical generalisability in this research as I aimed to get a GPs' understanding and opinions on PA, mental health and the health inequalities that exist between different socioeconomic areas. Subsequently, the findings should not be taken to be representative of that population (Etikan *et al*., 2016).

The original intention of this study was, however, to interview GPs from two locations: one being in a deprived area (Middlesbrough) and the other being in an affluent area (Hertfordshire) according to the Ministry of Housing, Communities and Local Government (2019) criteria. Middlesbrough-based participants were intended to be recruited by a gatekeeper, who invested funding as an initiative for participants by using the Local Delivery Pilot budget. This gatekeeper made further contact with a CCG in Hertfordshire. However, after prolonged attempts, this recruitment strategy was unsuccessful due to the CCGs

prioritising COVID-related policies and practices. Therefore, the sampling strategy was amended (as described above) and the participants in this research were ultimately recruited through my contacts. In summary, the COVID-19 pandemic did impact the recruitment process due to competing priorities in the healthcare sector, including the vaccination programme. This was frustrating and disappointing as I hoped to build onto the North-South divide in healthcare inequalities, whilst specialising in PA, mental health and SEP. Moreover, Middlesbrough is one of the lowest socioeconomic areas in England and would have been interesting and important to gain their thoughts and opinions on the use of PA to treat mental health in their area.

The inclusion criteria for this study were that GPs had to be based in England and were currently working either full or part-time. There were no minimum years required as a healthcare professional and all qualified GPs were accepted. This allowed there to be a further observation on the potential differences and the possible impact that a GPs experience may have on their approach to PA and the treatment methods for a patient with mental health problems. Ultimately, sampling allowed that participants could be from areas of varying SEP, and whilst not purposeful, this allowed me to compare and contrast the results that were emerging from the interviews.

With regards to sample size, an approach based on the concept of information power was adopted (cf. Malterud *et al.*, 2016) Malterud proposed that the more information an individual divulges, the lower number of participants is needed in a study. Information power relates to the experiences, knowledge and properties of the participants in the study. As this research purely focuses on the GP's experiences and knowledge, all participants have information power that is significant and relevant in this study. A sample size of six to ten

participants with a range of experiences would be an appropriate number (Malterud *et al.*, 2016). This research study aimed for a minimum of six GPs from multiple socioeconomic areas to get a greater understanding of their experiences and to understand and determine the impact that the SEP may have on their approach to mental health and PA. This sample size was justifiable given the issues with the original sampling strategy, lack of success with the CCGs and the COVID-19 circumstances at the time of the study.

Due to COVID-19 and restrictions on in-person contact, interviews were carried out remotely using Zoom video communications. Despite these interviews being remote, the software allowed me to have the conversation recorded both visually and verbally which assisted when analysing the data. Knox and Burkard (2009) indicated that to fully understand what an individual is saying, the researcher should understand their non-verbal communication as well; video calls allowed me to see the participants' facial expressions, better enabling me to interpret their views. Remote interviews were time-efficient and cost-effective as the participants in this study were based in various regions of England and thus this approach saved travelling. As GPs were difficult to engage with, the convenience of online interviews was easier and therefore, they were more likely to participate (Archibald *et al.*, 2019). A further benefit of using online interviews is that it may be a better choice when discussing a potentially sensitive subject and participants are more likely to engage and discuss personal opinions when online compared to in person (Salmons, 2015).

I found the main limitation of using an online video interview approach was the researcher not being able to fully capture the participants' body language and other cues (Smith and Sparkes, 2016). There are also potential technical difficulties such as low internet and quality of webcam/microphone. This is common for online qualitative research and has been found

in recent research (Archibald *et al.*, 2019). However, in this data collection, I found that these problems only lasted a few minutes and were not severely disruptive to the interviews. Overall, due to the circumstances at the time of the study, online zoom interviews were the most appropriate approach for carrying out the current research.

3.3 Ethical consideration

Ethical approval was gained through the Department of Sport and Exercise Sciences Ethics Committee. For this research project, the National Research Ethics Service was contacted to discover if Health Research Authority approval was required. This was checked and clarified through the Health Research Authority team who verified that this approval was not required, and that Durham University's internal ethics processes would be sufficient (Appendix A). Participants in this research were presented with an information sheet (Appendix B) which provided the details of the research and the motive behind it. Professional information was collected through an online database and this was password protected. This information was then secured on a password-protected computer that only members of the research team had access to. Participants were given a two-week withdrawal period and then were assigned a pseudonym to ensure confidentiality. This information was provided in the privacy notice (Appendix C) and consent form (Appendix D) which ensured that they were aware of all of the details relevant to being involved in this research.

3.4 Procedures and measures

There were two parts to participants' involvement in this research study. Part one involved the participants completing a 6-item questionnaire (Appendix E) which was emailed to them once they had provided their consent. The questionnaire explored their basic demographics (age, gender and location), when they became a qualified GP, how many years working as a GP, their current practice and how long they have been working at that practice. This

questionnaire allowed me to identify any patterns between their responses in the interview and these common questions. Furthermore, it gave me the area of the General Practice and thus, the IMD (Ministry of Housing, Communities and Local Government, 2019) level was able to be calculated and used when analysing the data.

Part Two involved a semi-structured interview that was split into three foci. These foci helped direct the questions into various areas that were to be explored within the interviews. Interviews were transcribed by the primary researcher using Zoom transcription software. I edited the transcripts using the recordings to ensure that they were accurate. Sixty-five pages of transcriptions were produced. This was secured on a password-protected laptop.

3.4.1 Interview focus 1: Provision and access

As discussed in Chapter Two, there can be substantial differences in healthcare provision and access depending on the SEP of the area in which the practice is based. These questions explore alternative routes and treatment pathways that GPs may have access to and, if they have access, explore the use of PA schemes. Furthermore, there may be potential funding issues which cause there to be limitations on offering PA schemes as funding needs to be spent elsewhere. Lastly, the GP's opinion on what they think would need to be improved or have access to that would improve the services that they provide in their local area, was captured. These questions aimed to develop an understanding of the different problems that GPs from different socioeconomic areas experience concerning daily occurrences, treatment pathways and funding positions.

3.4.2 Interview focus 2: Barriers and communication

Barriers and communication were important areas to investigate to understand the GPs' views on what limits them from prescribing PA as a treatment method for common mental health conditions. This allowed the participants to explain the barriers that they experience and what needs to be implemented to improve the healthcare system. As mental health treatment pathways, such as psychologists and PA schemes, are often provided by external organisations, it was important to explore how, if any, they communicate to these organisations to keep in contact and monitor a patient's progression. As research has shown (Busch *et al.*, 2015; Faulkner and Biddle, 2004; Searle *et a*l., 2010), various barriers can limit both a patient from committing to a PA scheme and a GP from prescribing a patient onto one.

3.4.3 Interview focus 3: Inequalities

The third aim is the general purpose of the interviews and helped shape the interview questions. The questions in this section based on provision and access helped identify the impact that the SEP may have on a patient's treatment and therefore, any potential existing inequalities that exist. There may be certain barriers and communication issues that different GPs from various areas may face. These questions helped gather information about the impact that the SEP of an area can have on mental health and PA from the perspective of the medical professional.

3.5 Question rationalisation

Table 1 has a detailed rationalisation of the interview questions and explains the aim of each question that was used in this research. These questions were used and developed by being more specific to the participant and their experience. Prompts were developed to raise potential topics that could branch off from the participants' responses, allowing an in-depth interaction with the participant.

Table 1: Rationalisation of the questions used in the interviews

Question Number	Question	Rationalisation
1	*How often do you see patients with mild to moderate mental health conditions, such as anxiety and depression?*	This was designed as an opening question to give an indication of how significant mental health may be in their area. The GPs were able to further elaborate on the demographics of patients they commonly see and the trends that have been occurring during their time as a GP. The question allowed me to examine the impact that COVID may have had by discussing their recent experience with patients with mental health. This recognised how significant mental health problems may be in the GP's area.
2	*What type of treatment pathways do you have in your area/health board for treating mental health conditions?*	Closely related to the first question, it was important to explore what common treatment pathways that the GPs use for treating patients with mild to moderate mental health conditions. Furthermore, their opinion on these treatment pathways were explored, allowing me to gain an understanding on what different GPs find most effective and problematic. Moreover, this question was also able to examine the differences in the quality of treatment depending on the SEP.
3	*What is your opinion on the use of physical activity for improving patients' mental health?*	Aiming to capture the initial response on the GP's opinion and attitude towards the use of PA, this rather focuses on PA treatment generally, rather than as a treatment pathway. By allowing the participants to explain what they think about the association between PA and mental health, participants were able to outline the advantages and disadvantages of using PA for those with mental health problems.
4	*What would you like to have access to in order to improve treatment?*	As the various treatment pathways were discussed in the second question, it was beneficial to understand what areas the GPs wanted to develop in order to improve the overall treatment pathways for mental health. Due to this, the GPs would prioritise certain areas or pathways methods. Therefore, this research question explores what is problematic in the current situations and it was a useful question when comparing GPs from various socioeconomic backgrounds.

5	*What funding is there available?*	Focusing on the financial element of the healthcare system and the impact that it can have on treatment, the questions aimed to ask participants to compare the changes in funding and what specifically needs to have further funding in that area. Elaborating on the previous question helped identify the potential problems within the different practices. Furthermore, it also allowed participant to talk about how PA pathways operate with regards to funding. Overall, this gauged the GPs opinion on where they think should have more investment to improve the healthcare system and allowed me to find and explore the main problems.
6	*Do you notice any differences in who engages and who doesn't in physical activity pathways?*	This was to get an understanding of the socioeconomic group, or any other relevant patterning, more likely to be engaging in the pathway compared to others. Furthermore, this question was designed to discover if there is a socioeconomic group that are more or less likely to engage in PA. Targeting GPs to describe the current problems that exist in their practice, as well as explain why certain groups are more likely to engage in PA, this question was able to gauge their opinion on how they engage individuals who do not participate in PA, both for treating mental and physical health.
7	*How do you think the characteristics of your local area influence provision and engagement in physical activity?*	This section focused on the SEP of the practice that the GP was located in. It intended to get an understanding of the area that these GPs worked and how it had a potential impact on engagement in PA. This was explored in various ways, allowing the participant to explain what specifically is challenging in that area. The GPs were able to explain any PA schemes that they have access to.
8	*Are there particular challenges due to health inequalities when treating particular patients?*	The last specific question that focused on the socioeconomic area was exploring the specific challenges that GPs face in their area due to health inequalities. This allowed the GPs to explain any specific problems that they face and therefore, able to justify their approach to their treatment method for mental health. This was used to see the different types of health inequalities that exist in different areas and the impact that the SEP has.
9	*What communication process is there between GPs and external treatment pathways, such as psychologists and physical activity scheme leaders?*	As outlined in the literature review, there are a range of treatment methods for mental health and therefore, it was essential to get an understanding of the communication that is in place between GPs and external treatment pathways. Thus, it was important to investigate if and how they communicate and whether there needs to be better contact to improve overall treatment experience for patients. For example, whether GPs are informed about the progress of patients they refer to PA and/or mental health schemes.

10	*What barriers are there for prescribing physical activity?*	By exploring the barriers that occur when prescribing PA schemes from both a GPs and patients' perspective, this aimed to explore what limits the GPs from using PA as a treatment pathway and if/when PA can be an inappropriate approach. Moreover, what can prevent GPs using PA from their prospective and what are the barriers that they experience. I was then able to compare the different difficulties that the GPs may face, depending on their SEP.
11	*When was the last form of training that you received that was focused on either/both mental health and physical activity?*	This explored whether GPs are taught about mental health and PA during initial qualification training and when they qualified as a GP. Mental health and physical inactivity have been an increasing problem in recent years and therefore it was important to understand whether GPs were specifically educated about these issues. This question explored both their initial training and how they keep up to date with research. Lastly, it explored their opinion on the current teaching system and whether there could be any improvements.

3.6 Data Analysis

Data from the interviews were reviewed and analysed using a reflexive thematic analysis (Braun and Clarke, 2019). I deemed this an appropriate analytical approach given its suitability for research that focuses on individuals' views, opinions and behaviour (Braun *et al*., 2016). Reflexive thematic analysis allows researchers to develop a stronger interpretation and understanding of the results of the study (Braun and Clarke, 2019). Braun and Clarke's (2006) initial approach has been widely applied and continues to be developed; for example, while their original analysis included searching for them, they now conceptualise themes as analytic outputs are created by the researchers rather than things existing 'in' the data per se (Braun and Clarke, 2019).

Although Clarke *et al*. (2015) state that thematic analysis can be applied to studies with a small sample size of one to two participants, a suggested sample size of six as a minimum should be applied (Braun *et al*., 2016). Reflexive thematic analysis is a particularly suitable approach for the present research as it is flexible and therefore, can analyse research that has small sample sizes and still be able to capture the main themes that have been drawn from the data collection.

Using Braun and Clarke's (2019) approach, a six-stage process was applied to analyse and interpret the results in this study (Table 2). This process allowed me to analyse data thoroughly, using a coding process that requires 'a continual bending back on oneself" and thus, ongoing questioning and interpretation of the data (Braun and Clarke, 2019, p.594). The theme construction was structured to form a narrative. It was vital for the themes to be structured as that gives the reader context when reading certain themes and sub-themes. However, when these themes were created, it was ensured that they were always relevant to

the research question. There was originally a fourth theme, but through discussions with my supervisors, it was decided to integrate the sub-themes into the three themes as they were also relative. This was seen as a more effective approach.

Braun and Clarke (2019) argue that themes do not emerge but are rather conceptualised based on the research question. Quality reflexive thematic analysis, therefore, prioritises a thoughtful engagement with the data and analytic process. A latent coding approach was more appropriate than semantic coding as reflexive thematic analysis involves generating initial themes and thus, it allows the researchers to further explore and interpret the data by examining "any underlying ideas, assumptions and conceptualisations" that are shaped within the interviews (Braun and Clarke, 2006, p.84). Latent coding involves the analyses becoming much more interpretive which consists of a more active role from the researcher (Bryne, 2021). In this research, it was quite early that the conceptualization of socioeconomic healthcare inequalities and the impact it has on PA engagement. Moreover, with the support of previous research (Wang and Geng, 2019), there was the underlying idea that those from lower socioeconomic areas experience a greater number of barriers in comparison to those from more affluent areas. The following chapter will present the results and findings interpreted in the data from the transcripts of the interviews with GPs.

The current study presents a reflexive thematic analysis by developing themes that represented the GPs' opinions regarding their experience with PA, mental health and the impact that their SEP has on their approach to treating patients. However, during a reflexive organic process, analysis can never be complete as coding does not directly end, but is rather determined by the researcher (Low, 2019; Braun and Clarke, 2021). Through this process, sub-themes were created which naturally directed the general working title of the four main

themes. As I expected, certain themes were rapidly identified due to my engagement in a similar study in my undergraduate degree. I felt it was important to carefully discuss these with my supervisors to ensure I had not jumped to familiar conclusions or data too quickly. During this process, I decided to remove particular sub-themes due to lack of relevance to the main themes or the fact that they were not sufficiently coherent to stand alone. These included “The training received by GPs” and “The impact of the GP’s socioeconomic position”

Another challenge I found was to maintain a focus driven by my research questions. Although there were interesting additional themes being drawn from the data, such as the insufficient teaching the GPs have on PA, I had to exclude these from my construction of themes as they did not directly relate to my research questions. As illustrated in the next chapter, this research raises contentious issues regarding PA schemes in different SEPs but importantly raises what is currently problematic within the healthcare system. Throughout the reflexive thematic analysis, I discussed both my ideas and the challenges/frustrations I experienced with my academic advisors. This was a helpful process; while we did not seek consensus per se, they were able to ask about my rationalisations and encouraged me to clarify my reasoning for theme development and labelling. These discussions also helped me to adopt a more reflexive approach, challenging me to consider my perspective and influence on the data analysis more so.

Table 2: Data analysis six-phase process (Braun and Clarke, 2019)

Phase	**Description of Process**
Phase 1**:** Familiarising yourself with the dataset	Reading and re-reading data to become familiar with the data and noting down initial ideas.
Phase 2: Coding	This stage involves labelling the codes and features that might be important and relevant to the research question.
Phase 3: Generating initial codes	Coding important features within the data in a systematic fashion that initially could be relevant to answering the research questions. Data collected is relevant to certain codes and reviewing the viability of potential themes.
Phase 4: Developing and reviewing themes	Checking to see if the themes are relevant in relation to both the coded extracts and the entire dataset. Ensuring that the themes remain relevant to the research question and tell a convincing story.
Phase 5: Refining, Defining and naming themes	This creates a detailed analysis to refine the specifics of each theme, including definitions and names. Therefore, this stage determines helps the story of each theme.
Phase 6: Producing the report	Final analysis of selected extracts by relating the themes back to the research question and literature to produce a report.

Chapter 4: Results

4.1 Overview of results

The following chapter will present findings from six in-depth semi-structured interviews. Information about participant demographics, surgery demographics and healthcare experiences are presented in Table 3.

4.2 Participants

In total, six participants were involved in this study who were all located in different General Practices in England. Table 3 provides an overview of the participants and the basic information about their careers as healthcare professionals. The average number of years spent working as a healthcare professional was 25.5, with a range of 2-30 years. Susan and Hannah were undertaking locum work. Despite currently being employed as a locum, Susan has continued to undertake part-time work as a GP.

Table 3: Participants' demographics

Participants' pseudonym	*Age (Years)*	*Gender*	*The year the participant was qualified as a healthcare professional*	*Number of years working as a healthcare professional*	*GP practice region*	*Number of years at their current practice*	*Status at the time of study*
Susan	55-64	Female	1983	38 Years	South East, England	23 Years	Predominantly locum sessions, but still is involved in primary care.
James	55-64	Male	1983	38 Years	South East, England	31 Years	GP
Grace	25-34	Female	2013	8 Years	North West, England	2 Years	GP
Tim	55-64	Male	1980	41 Years	West Midlands, England	30 Years	GP
Hannah	35-44	Female	2005	16 Years	Greater London, England	3 Years	Locum sessions which includes urgent care.
Jane	35-44	Female	2009	12 Years	Greater London, England	2 Years	GP

Table 4 provides in-depth information on the IMD levels of the areas that the participants worked in and the various specific domains that each area ranked in. All of the rankings were using lower-layer super output areas, and these are small areas that are designed to be a similar size for the population. Overall, there are 32,844 lower-layer super output areas in England with the lower the ranking, the more deprived an area (Ministry of Housing, Communities & Local Government, 2020). The IMD combines seven domains to generate an overall measurement of deprivation (Ministry of Housing, Communities & Local Government, 2020). These seven domains consist of and use the following balances: Income Deprivation (22.5%), Employment Deprivation (22.5%), Education, Skills and Training Deprivation (13.5%), Health Deprivation and Disability (13.5%), Crime (9.3%), Barriers to Housing and Services (9.3%), Living Environment Deprivation (9.3%) (Ministry of Housing, Communities & Local Government, 2020). Table 4 has identified domains that were specifically relevant and useful for this research. Secondly, the Health Deprivation and Disability domains measure health risks and the quality of physical and mental health. Thirdly, the Income Deprivation Domain measures the proportion of the population in that area who are experiencing deprivation due to low income. Lastly, Education, Skills and Training Deprivation Domain measure the lack of attainment and skills in the population (Ministry of Housing, Communities & Local Government, 2020). Therefore, due to the nature of this study, these specific domains were beneficial for the interviews when comparing various SEP areas.

Table 4: Indices of Multiple Deprivation for the areas where GPs are employed (*Data from 2019*)

	IMD	IMD ranking	Health Deprivation and Disability Domain rankings	Income deprivation Domain rankings	Education, Skills and Training Deprivation Domain rankings
Susan	30% Least deprived	24,386	24,296	19,243	22,134
James	20% Least deprived	26,642	30,442	26,604	30,200
Grace	50% Most deprived	15,710	11,053	15, 630	11,721
Tim	10% Most deprived	3,226	3,798	3, 965	3,674
Hannah	50% Least deprived	19,684	24,501	30,106	29,003
Jane	20% Most deprived	6,490	9,649	8,600	21,880

4.3 Themes and sub-themes

Following the initial coding process (Table 2), four themes were developed from the data and each of these main themes consisted of lower ordered sub-themes. To aid the reader, Table 5 below provides an overview of the themes and sub-themes.

Table 5: Themes and sub-themes from the data analysis

Main Themes	Sub-Themes
4.4 The precedence of pharmaceutical and psychological approaches as treatment pathways	4.4.1 Growing cases and complex needs
	4.4.2 Narrow Treatment options
	4.4.3 Detrimental effect of lower SEP on waiting times for psychological treatments
	4.4.4 Funding challenges and priorities
4.5 The insufficient implementation of physical activity schemes	4.5.1 Perceived problems with physical activity schemes
	4.5.2 GPs' struggle to fully utilise available physical activity schemes'
	4.5.3 Difficulties associated with patient attitude to treatment pathways, in lower SEP areas
	4.5.4 Multifaceted reasons for patients' lack of engagement in referral schemes
4.6 Complexity of barriers to physical activity for GPs and patients	4.6.1 Inadequate communication between those involved in referral processes and physical activity schemes
	4.6.2 Complex personal circumstances prevent engagement with physical activity
	4.6.3 The repercussions of COVID-19
	4.6.4 The adverse association the SEP has on challenges within the local area

4.4 The precedence of pharmaceutical and psychological approaches as treatment pathways

4.4.1 Growing cases and complex needs

The initial questions asked participants to express how common an occurrence it is to treat patients with mild to moderate mental health conditions, with all participants stating how they treated patients with mild to moderate mental health conditions daily. Moreover, participants who were currently working as GPs all stated how they treated patients with common mental health conditions multiple times a day, with one participant expressing how:

> " *In our practice, I would suggest to you that probably 20% of the people that present have symptoms of depression, anxiety or poor communication…..so it is a constant daily routine… we're talking 200 patients like that presenting each week"* – Tim

The GPs increasingly saw the younger population with mental health problems, especially in the more recent time of the study. Moreover, one participant perceived how SEP influences the likelihood of experiencing mental health problems: "*Most of the time it's poor, working-class. It's the school children of those families"* (Tim). Conversely, James observed that gender and deprivation levels in their area impact whether someone seeks medical attention from a GP, with those from more deprived areas being less likely to engage in seeking medical assistance:

> *"There are groups that we don't see very much over the sort of middle-aged, working men and younger men. Some men generally from that lower socioeconomic group….there is a reluctance to see a doctor or take time off or bother anyone. But I think there's just there's a reluctance to see a consultant and that seems to be more sex-related"*

Specifically, in reference to the COVID-19 pandemic, five participants stated how there has been an increase in the number of patients with, or showing symptoms of, mental health conditions and attending the practice: "*Due to the circumstances around the pandemic rather than the infections specifically*" (Jane)**.** Notably, younger men were reluctant to seek help in both high and low SEPs and throughout the country: a *"large number of young men have*

taken their own lives" (Tim). One GP did not notice an increase in patients and stated how "*we didn't get the rise of the large number that you would expect*" (Tim). However, they explained how due to their low SEP, it is common for members of the public not to seek help and were labelled "*poor attenders*".

Besides COVID-19 related mental health problems, all GPs indicated how there had been an increase in the number of patients with mild to moderate mental health conditions over their time as a GP. James, who had 38 years of experience as a GP, has surmised that the reason why more people attend GP appointments in contemporary British society is that:

> *"there's more awareness of mental health problems, so people are more likely to have an awareness that the issues they're having could be due to mental health problems and more likely to talk about them and seek help. Whether that's partly peer-related, partly internet related but… I think people are probably more stressed"*

4.4.2 Narrow treatment options

There was a variety of treatment pathways for mental health conditions that were raised in the interviews, with the SEP being found to impact the GPs' accessibility to certain treatments. Common treatments included talking therapy, cognitive behavioural therapy, medication and counselling. Jane explained how one of the treatments included having:

> "*psychological services and they contact people either face to face, by telephone or there's an online interface. They also have Guided Self Help as a sort of lower intensity treatment"*

However, Grace specifically had access to a mental health team and could refer their patients that they believe are experiencing severe symptoms of mental health problems. For mild to moderate patients, they noted that the treatment offered "*is not the best*" and an "*under-resourced area*" as they can only direct the patients to charities (Grace).

Participants described their common approaches to treating mild to moderate mental health. GPs stated how medication, such as antidepressants, was a recurrent treatment approach for common mental health disorders, however, GPs also referred to "*…either medication, talking therapies and to a lesser extent, lifestyle advice*" (James). Despite antidepressants being commonly prescribed, GPs also noted the limitations of this treatment method for patients with mild to moderate mental health conditions. Antidepressants were often being prescribed due to the patient's perception that this treatment would be more efficient compared to other methods, but GPs stated the risk of a negative psychological impact. Furthermore, Hannah acknowledged that there have been problems in the past with antidepressants as it is not always appropriate and an overused method: "*there are patients who are given antidepressants where they probably should not have been given antidepressants*" (Hannah). Similarly, one participant noted how problematic this approach can be as it can be addictive:

> *"*[Regarding antidepressants] *Become psychologically dependant on. They know they feel better than they did, and they don't want to feel like they did in the past. …. very anxious about cutting down a medication, they may well stay on it for several years"*- James

However, supporting the previous quote, another GP explained how the use of antidepressants was a more common treatment but yet how the medication is not suitable as a standalone treatment:

> *"*[Antidepressants are two-thirds to three-quarters of their treatments for mental health] *I think where I work, that's often what they want…I always just say medication is one part of it. But that's not going to fix things long term...But then when they're at the level where they've got enough motivation that I can suggest things more like exercise…It's the full package, not just medication."* – Grace

Psychotherapy treatment methods were often brought up, such as talking therapy and psychologists, and the associated waiting times for referral. As shown in Table 3 and Table 4, the GPs ranged in different regions of England and SEPs. The areas were found to impact

the waiting time. There was a waiting time of an estimated six weeks for James, who is located in the least deprived area. However, there were contradictory findings for Grace and Hannah who were in a similar SEP. Hannah had an estimated waiting time of four weeks. Conversely, Grace from the North West of England, explains how problematic the waiting times currently were and even the more severe mental health disorders have a long waiting time:

> "*The waiting lists where I work are about nine months for that, which isn't very helpful and then if we think they're more severe, then we can refer them to a mental health team and they do tend to see them all within six weeks, but they'll only see people that are kind of having thoughts of harming themselves"* – Grace

Where GPs were located in areas of low SEPs, Jane estimated ten weeks for patients to see a psychologist but stated that they could potentially find the correct figure as "*I'm sure the information is available to us*". Tim explained how the waiting times between the referral and the start of the therapy in the past have been exceedingly long and patients had to follow up with the GPs again to monitor how they were managing whilst they wait for initial contact. Although COVID-19 has increased the number of patients with mental health conditions, waiting times were improved during these times for Tim as there was more efficient contact being made remotely:

> *"A real move was made to contact people by text, or by telephone to encourage them to realize the service was still running …. the normal waiting time is about 13 weeks .. at the moment, I think something like nearly 70% is seen within that 13 week waiting time"*- Tim

Although they estimated the waiting times, the GPs were not aware of the precise time that it took for a patient to receive treatment methods such as referral to a psychologist, cognitive behavioural therapy and talking therapy. Therefore, it was noteworthy to see how they communicate and keep track of the waiting time for treatment pathways. Five out of the six

participants did not have formal communication about the waiting time and Grace explains that updates often come from the patient themselves:

> "*They're completely separate to us….And it sounds silly, but I'm more often* [updated] *from patients, because they'll then have an initial triage call and then they're told that there's an X amount of time waiting list, and then they'll come back to us and say"*

Conversely**,** although Tim was from a low SEP, they acknowledged that the waiting time to see a psychologist was "*good at the moment*" and they were regularly informed about the waiting times.

Lastly, GPs were limited in time with patients as Grace, Tim and Jane have noticed that this can be a significant barrier for patients with mental health conditions and PA, as other treatments and protocols were prioritised:

> *"The day is rushed and in the 10 minutes you've got to do an assessment talk about medication, talk about psychology, do a suicide risk assessment, arrange a follow-up, give them the details of how to do a self-referral to a psychologist, then giving lifestyle advice about alcohol, drugs and things like that. Then doing a discussion of exercise and telling them about the services"* – Jane

4.4.3 Detrimental effect of lower SEP on waiting times for psychological treatments

Interviews indicated that the SEP of an area may influence the quality of the treatment that a patient receives. Established methods for treating mental health conditions were therapy sessions, such as counselling or cognitive behavioural therapy and therefore, it was important to acquire an understanding of waiting time and availability. As previously discussed, there were varying lengths of waiting times that depended on the GP's practice area. Although Tim, who worked in the lowest SEP, had an average waiting time of 13 weeks, they stated that this duration is "*good at the moment*". Comparably, the other participant who was in a low SEP was Jane who had a waiting time of approximately 10

weeks. However, for the two GPs who were in moderate-level socioeconomic areas, the waiting time was estimated to be much less. Although Hannah states how they were uncertain about the waiting time, they estimated that it "*could be four weeks or something*". Contrarily, Grace, who is in a similar SEP, has a waiting list of nine months for treatments such as counselling. In the more affluent areas, James noted that the waiting time is likely to be around six weeks and Susan did not estimate.

Compared to other participants, Jane had the most varied treatment pathways. Jane acknowledges the quality of services that they have access to but justifies why as: "*we probably do have good services. But we have a lot of people who need them*". However, this is not the circumstance for the other GP in a low SEP, Tim, who did not have access to PA pathways. A SEP-related problem raised by Jane is that for their most popular free gym membership scheme, once a patient completes the scheme:

> "*they have to have quite a long wait time before they're allowed to be referred through again, which is a bit unrealistic seeing as often people's mental health problems go on for a longer time*"

Therefore, Jane found that although they would engage patients who enjoy PA, due to their SEP and financial difficulties, this can limit the quality of their treatment pathway. Financial difficulties can nevertheless be a problem for GPs working in higher SEP, as James found that gym membership requires patients to pay at a reduced rate. They elaborated on how not all patients can afford to pay as there are the more socially deprived areas within affluent regions:

> *"still need to pay something towards the gym, even though it's heavily subsidised and that would be a major disincentive for people from lower socioeconomic groups"*

However, this practice does not experience this problem frequently as they do not see these patients often. Lastly, James suggested that those from a lower SEP in their more affluent area may lack support from their family and friends and live an unhealthy lifestyle with problems such as drinking or smoking, and thus, may struggle with lifestyle changes.

4.4.4 Funding challenges and priorities

There have been various changes and challenges in the funding received both widely and specifically for mental health treatment pathways. Furthermore, there were several propositions that these GPs would want to change if the funding was available. There were a variety of responses concerning practices' current funding status. A majority of participants were not aware of the funding status at the practice they work at compared to other years. The two GPs who were able to answer were from a high SEP (James) and a low SEP (Tim). James predominantly spoke about mental health treatment pathways and the changes that have occurred during their time as a GP:

> *"Access to talking therapies is a lot better now than it used to be… I would say funding has increased from that, in terms of access to those sorts of services. But certainly, access to talking therapies has been better. We had good access to counselling and CBT within house practitioners in the past, we haven't got in-house practitioners for those areas now"*

However, Tim addresses the general funding challenges within the NHS, rather than specifically on mental health. Tim discusses the overall budget for paying staff and the negative impact that it has had on the quality of service over the years as although there is a reasonable quantity of funding in the drug industry and new medication is becoming available, the workforce has still been impacted:

> "[Although the drug budget has gone up, the budget for the staff has not] *For 10 years it's virtually been nought percent. So, what we were earning 10 years ago is more or less what it is now*" – Tim

Furthermore, Tim elaborated on what is problematic with the current healthcare system. Despite the positive element behind new drugs and therapies, there is a problem with maintaining the staff. They indicated how the issue in funding and the recent problem with COVID-19, has had a negative impact on GPs' mental health: "*very demoralized workforce who are probably all suffering from a lot of burnout from what they've been through".*

Although the majority of GPs were not aware of their current funding positions, or history, the researcher instead explored where they would feel they would benefit from additional funding concerning PA and mental health. There were a variety of proposals in the interviews. More investment into talking therapy was a common response and this was justified by various GPs who stated how:

> *"There might be a case for people being more motivated to come and talk to someone than being motivated to exercise"* – Hannah

> *"You can put endless amounts of money into talking therapy… it's an underfunded resource. And the trouble is that at the moment, it's, you know, so many people need it"* – Susan

However, although several participants prioritised the use of a psychological approach, Grace elaborated on the current problems in their area and what would be helped by investment. Furthermore, although Hannah stated how seeing someone should be prioritised, they did not repudiate the use of PA as a treatment method. Lastly, Susan was sceptical about the use of PA schemes:

> *"Ideally it will be more easily accessible, combining things like the exercise …. wellbeing support, uncovering all the lifestyle stuff, and that would be really helpful. There is a lack of education and lack of understanding out there still. But if they had a properly structured programme into a lot more detail, hopefully, that will change things for them"* – Grace

> *"For some people, it might be after they've had a few sessions of psychological therapy, and maybe they have bonded with their therapist who will then suggests incorporating physical activity which might be what gets them actually motivated"*- Hannah

> *"I'm sure the physical activity programmes do need more funding, but they need to be shown to be effective"* – Susan

4.5 The insufficient implementation of physical activity schemes

4.5.1 Perceived problems with physical activity schemes

There were different opinions on the use of PA as a treatment pathway for mental health conditions, with a few participants being opposed to the use of PA due to the major barriers that they may encounter. For Hannah, they stated how the use of PA is effective but only when appropriate: "*valid treatment option depending on how severe the depression is and how engaged the patient is*". Comparably, James believes that only a low number of patients benefit mentally from PA schemes:

> *"Some people will be transformed by improving the amount of exercise they do and that can transform their mental health, but I would say that is a quite a small minority"*

Furthermore, despite Susan acknowledging the use of PA having a positive impact on their mental health, they do not believe PA is a reliable approach for treating patients with mental health conditions due to the lack of research. Despite being in a high SEP, PA schemes were an underfunded source for Susan and more research needs to support that the programmes promoting PA are beneficial if its use is to be expanded:

> *"I'm sure the physical activity programmes do need more funding, but they need to be shown to be effective……I don't have any doubt that for a lot of people, exercise is a positive thing and I don't have any doubt that it is good for people's mental health but I think the programmes that are provided need to be proven to make a difference for the right people"* – Susan

Conversely, there were responses that supported the use of PA as a treatment pathway and that it can be an effective approach to improving a patient's mental health. One participant found that although lack of motivation is seen to be a common barrier, those who were more

motivated to go to the gym and seek the opportunity may be unable to do so due to a lack of schemes in their specific area:

> *"Patients often ask if they can have gym passes. The next council along, which is Cheshire West, do exercise on prescription for certain patients. If they sign up, they can get a gym pass, which I think it's great…. But unfortunately, in our area, we don't have anything like that"* – Grace

From a GP in low SEPs perspective, one participant emphasised the importance of PA to both their colleagues and the patients they see daily. They encourage their colleagues and other staff members to engage in mild PA at lunchtime. However, despite his constructive approach to mental health in his practice, not all GPs have the same attitude encouraging PA as a treatment:

> *"I've encouraged our workforce to be actively encouraging patients ….. not all doctors will be motivated to encourage exercise*" – Tim

A few GPs in various SEPs had access to PA schemes and overall the participants generally felt that PA schemes were an effective treatment method for mental health despite not always exploiting them. Jane was confident about utilising PA as a treatment as they *"certainly have the services available and yet something I would feel positively about using"*.

4.5.2 GPs' struggle to fully use available physical activity schemes

Four of the participants, varying in SEP, had access to PA schemes at the time of the interview. Susan and James were both located in a similar area, a high SEP, and had access to the same primary PA scheme. This scheme consisted of being able to refer patients to a local gym with a patient paying a reduced membership fee. Moreover, patients would have a PA programme drawn up with support being available for them and be able to go to the gym twice a week for a month. Patients could also self-refer through the website. However, according to Susan, the drawback was that numerous patients drop out of the scheme.

Despite the scheme being available, both GPs reported a decline in the number of patients being referred onto this scheme; James has noticed that their practice has used it less over the last three or four years than when the scheme first was introduced.

There were different PA referral mechanisms available to these two participants. James discussed a local walking scheme that is aimed to involve those with mild to moderate mental health conditions and improves their levels of PA. However, Susan outlines how there has been a lack of communication for this scheme:

> "*I think we're not good at keeping track…I thought 'fantastic' when it came out five or six years ago and referred a few people early on, and then you don't hear anything back from them. And then you sort of forget to go use that pathway"* – James

Susan had access to a walking scheme, but they have restricted information and details: "*I know we can refer people to the walking scheme, but we know we have limited information about it. But we can find out*". Lastly, James had access to a recent PA scheme aimed at patients 65 years and over but has unfortunately not used the scheme at all:

> "*There's a new service for over 65 that I was told about that two weeks ago that I hadn't had used yet on anybody, but that's sad*" – James

Grace similarly has access to a PA scheme that involves an exercise scheme which is a 12-week exercise programme. Moreover, this scheme is free for patients from this SEP, but they should meet certain BMI criteria for the weight management specific programme. This GP stated how they mention the programmes at least once a day to a patient. However, there is a range of responses when Grace speaks to patients about this referral pathway:

> "*Often they will sound keen, but then when you speak to them two weeks later, they haven't acted on it because it's a self-referral….. this is because they were finding that when it wasn't a self-referral system, that the turnout rate was very poor. They find that with self-referral, they've got that motivation to self-refer themselves and the hope that they're going to engage with the programme*" – Grace

The fourth GP who had access to a PA scheme stated that there were a variety of PA pathways available in their low socioeconomic area. They had access to a general free gym membership referral which included a PA plan and also walking groups. Although this is similar to Susan and James, this PA pathway in Greater London lasted longer, up to six months. Jane had a wider variety of treatment pathways with there being specific treatment pathways for ethnic minority groups and mental health:

> "*There's something for people which is called Core Sports for people with moderate to severe mental health problems that GPs can refer to and people can self-refer … so that's amazing and that's got loads of different exercises bike classes and groups and different sports that people can be involved in and that is specifically for people with mental health problems so I think there's quite a lot of them. Yes, you've got quite a few different pathways*" – Jane

In contrast to other participants who had access to PA schemes, Jane stated how there is no direct referral to these schemes. Instead, the GP surgery has a social prescriber who works once a week and a general wellbeing advisor to whom they refer patients. These healthcare professionals were responsible for directing patients onto the appropriate treatment pathways: *"you would book with those people and then they might do the referrals or signpost people to the sports and exercise facilities"* (Jane). Furthermore, Jane explained how the SEP has influenced both how physically active an individual is and how likely they were to engage in a PA referral pathway. They noted how those who were in a higher SEP were more likely to be physically active but less likely to engage in the referral pathways, whereas it is the opposite for those from a lower SEP:

> *"More affluent patients are more engaged in the suggestion to exercise but I don't see them, particularly using the services… More deprived patients might be more interested in speaking to the social prescriber or the well-being advisors as it isn't such an unusual thing as they may have spoken to a benefits advisor or a housing officer before whereas for the more affluent patients, I think the idea of speaking to a social prescribe or something, they're not as keen on"* – Jane

Although Tim did not have access to any PA schemes, they have had previous experience using a PA referral as part of a pilot scheme. The scheme occurred in the 1990s and was a PA programme that included the leader writing personal exercise programmes for a maximum of 20 patients. They received reduced membership at their local leisure centres in addition to having access to exercise machines in public parks:

> "*We used to have access to the local leisure centre with the exercise referral program to encourage people to have a cheap way of actually attending*" – Tim

This pilot scheme ran for about a year but similar to other schemes, participants found that lack of consistent use, "*it didn't work so well because people didn't continue through*" (Tim). A further issue that Tim experienced when engaging patients was the problem with unhealthy weight conditions that are often associated with a low SEP, resulting in a negative impact on the levels of PA and the difficulty of engagement:

> *"They don't seem to be worried and so they don't want to engage about their weight. It becomes a complex issue of how you influence and change people. You're like a salesman or a saleswoman, you're trying to sell that person exercise"* – Tim

Hannah did not currently have access to a PA scheme at their GP surgery. However, they indicated how there should be an improvement in PA schemes in an effort to have a better treatment pathway for mental health conditions. Hannah has had access to a PA scheme in the past that was used to treat patients with mental health problems, but the schemes were specifically focused on weight loss. These PA schemes were very similar to other main schemes that have been mentioned:

> *"They weren't for depression. They were more to encourage people to lose weight. If you had someone who's borderline diabetic or who is diabetic and is overweight, there were these options of referring them to gyms for maybe 20 sessions"* – Hannah

Several GPs suggested improvements that could be made. These included support from local councils and services to showcase their offer (e.g. "*for the exercise referral leaders to explain and remind everyone what they are doing and perhaps feedback about their service*" – James), and more formal training opportunities "*to convince the GPS that it actually works*" (Hannah). These were noted as often absent in initial training (e.g., "*I didn't ever have any formal teaching or formal education on physical activity … you're supposed to discover it yourself because you're given a curriculum*" – Grace).

4.5.3 Difficulties associated with patient attitude to treatment pathways, in lower SEP areas

Results suggest that the SEP may influence the patient's attitude towards certain treatments. The main difference between people from different SEP was perceived to be the reluctance to see a GP. James suggested the reason why they do not see patients from a lower SEP in their area is that that specific group is more reluctant to seek medical advice compared to individuals in a higher SEP. Moreover, they explained how this may be because there is a reluctance to take time off work for these appointments. For those from a lower SEP who do attend a GP appointment, Tim recognised how this group had a negative mindset towards treatment pathways and was not worried about their health. Tim gave an example of a 40-year-old patient with a chest infection who was reluctant that they have been asked to attend the appointment and have found out they've got a history of three or four people dying in their 40s in their family. However, despite the GP offering immediate treatment, the patient had a negative mindset and is "*fatalistic about his future".* This may be associated with how Grace considers patients from a lower SEP to have a lack of education on healthcare. This GP explains how antidepressants were used as often as 75% of the time to treat patients for mental health. However, although Grace offers alternative treatment methods, patients arrive with the attitude of expecting to have access to antidepressants. However, James has found

that both GPs and patients in his area acknowledge that "*antidepressants are addictive, and they are worried that they won't be able to come off*".

Patients were more inclined towards using PA as a treatment method depending if from a higher SEP. Hannah observed how they found that such patients seemed more likely to recognise the benefits of being healthy and fit and 'more invested' in physical fitness. Grace takes an approach of discussing the positive outcomes of increasing levels of PA and how the main aim is to "*make them feel more positive"*. As patients in this SEP were often perceived to be less educated and not as physically active, this GP discusses the "*benefits of exercise on hormones and serotonin and adrenaline levels*". However, Tim has found that the pollution levels were high in their area and has impacted patients' attitude toward PA, particularly walking, cycling and running. They explained how even those who were "*surviving financially*" would have a car, rather than walking and causing an increase in traffic and thus, causing an upsurge in pollution.

4.5.4 Multifaceted reasons for patients' lack of engagement in referral schemes

There were mixed views regarding the perceived 'type' of patient that participates in available PA schemes and the reasons GPs refer patients. Susan identified younger people as being more likely to engage with PA schemes due to being more active previously. Contrarily, James states how although there is "*quite a range of ages"*, the majority of these patients were middle-aged and aiming to lose weight rather than general mental health issues. The SEP of an individual was perceived to influence engagement in PA pathways. James noted how those from a higher SEP were more likely to engage and take the advice of PA:

> "[Patients who are] *sociably economically better off are more likely to take the advice of exercise and lifestyle changes"*

Moreover, Grace reported that individuals from a lower SEP were less likely to be physically active and this may be due to their personal living circumstance and their upbringing with education and finance being issues:

> *"I think lower socioeconomic people don't really have any interest and don't seem to engage. Whether that's a lack of education or understanding or just all their life in terms of time and finances…more middle or upper class I think maybe it's the motivation and that they've got that motivation to make themselves feel better"* – Grace

Jane had a similar opinion that patients from a higher SEP were more likely to be physically active. Despite this, they discussed how those from a lower SEP were more likely to engage in PA pathways as this may not be such an "*unusual*" experience as they may have "*spoken to a benefits advisor or housing officer*" (Jane).

There were several physiological reasons that participants do not engage in PA pathways. Susan found that it is often patients with weight issues or physical problems who were the most difficult group to get involved in PA pathways. This was supported by Tim:

> "*people with body shape difficulties are conscious of their appearance. They are far less likely to engage in any form of activity*"

There were psychological issues that were raised by various participants. For those with existing mental health conditions, Hannah mentioned how it can be difficult to engage patients in PA pathways as they were more likely to be experiencing unhealthy habits, such as lack of sleep and an unhealthy diet. Another common reason that influences engagement in PA pathways is the lack of interest. This was brought up by the large majority of the participants as a current problem of using PA pathways. The reason why some patients reject the recommendation of PA pathways by GPs in one practice is:

> *"Mainly just lack of interest in exercise. Maybe it wasn't sold to them properly well enough and there are plenty of people who haven't exercised regularly in their lives and not particularly wanting to go down that route"* – James

However, although mental health conditions and lack of interest were common reasons for patients not engaging in PA pathways, Hannah found that in their experience "*There will always be the outlier"* who has decided to change their behaviour due to their mental health.

To improve the current services, participants felt that there needs to be "*more of a local push*" from the GPs in ensuring patients were aware and knowledgeable of the services that they have available through the use of local media for James. A response came from Tim**,** who would "*encourage them to use some of the local groups*" to improve PA engagement for patients. There was a similar response for the GPs who worked in moderate-level socioeconomic areas, with a lack of knowledge and awareness of the health benefits of PA being raised by Grace and Hannah, along with the impact that it has on the engagement. Grace noted that when speaking to patients who were resistant to PA, it is useful in speaking about the subject to increase awareness. They mention how they "*spend more time giving them basic education*". Grace has the opportunity to forward the patients to a social prescribe if the patients were interested. Similarly, Hannah states how GPs could engage patients by outlining the benefits of PA and the pathways available. Moreover, they discover that patients would be more likely to engage if seen to be effective:

> "*I think if people saw proof of people who were like them before and because if you get tons of proof it's different from people saying the same things and you can see these are people just like you. You might be more trusting of the suggestion*" – Hannah

A last noteworthy point raised by Jane was to ensure that patients have access to different options that were more culturally sensitive due to the diversity that they have in a low SEP. They mentioned how having an improvement in opportunity would result in patients being more likely to engage in PA through these different pathways:

> "*presenting a range of options to people and encouraging them to go to whichever they feel more comfortable attending*" – Jane

4.6 Complexity of barriers to physical activity for GPs and patients

4.6.1 Inadequate communication between those involved in referral processes and physical activity schemes

There was a strong perception of a lack of communication between GPs and both the patients and the organisers who run the PA schemes. For Susan and James, it was more common for patients to refer themselves to the scheme with approval from the GPs. Moreover, these GPs were not made aware if there is a waiting period for patients to be able to refer themselves to the PA scheme. Susan indicated how they were only informed at the end as to whether the patient completed the programme and that '*not everybody completes the programme, unfortunately*'. Similarly, there was a discussion about the feedback that Grace receives concerning the PA scheme that they have access to from both patients and scheme leaders. There is a lack of communication from both patients and leaders of the scheme to the GPs about how the programme is progressing and how they were finding it both as a treatment pathway and for treating patients. When questioned about the communication that exists between the patient once they have been referred:

> *"They don't tell us which is frustrating… The only thing we hear is a patient's feedback saying that they were doing the programme*. [Do you know how successful the programme is?] *No, I don't know. Feedback from them would be really useful"* – Grace

There is inadequate communication for Jane between both the patients and PA scheme suppliers. Due to this GP stating how they were pressured on time and thus, referring their patients to their social prescribers and wellbeing officers, they have limited input in referring patients to the PA schemes that they have available to them. Moreover, as well as limited contact between the GP and the patient, all participants who had access to PA schemes stated how there is no feedback communicated between the leaders of the PA schemes and GPs.

Communication influences the use of the PA schemes that James has access to as they mention how although GPs were likely to be aware of the PA scheme available, they are not using it as frequently and the GPs at this practice were not sure whether the scheme is still active and has, therefore, become an ongoing barrier.

For the GPs who did not have access to a PA scheme, there was a discussion on the communication that exists between them and the most common treatment pathways, such as psychologists and talking therapy. When Tim refers a patient to talking therapy, which can last from six to twelve weeks, they mention how they keep in contact with both the patients and therapists. They would usually receive an email or letter with the main notes from the sessions which may contain guidance for the GPs to act on medication and whether to refer them to a psychologist. Furthermore, patients were offered copies of these letters and Tim notes that this works well. This approach was supported by Hannah who had a similar response. Talking therapy is their most common treatment pathway and there is a reasonable amount of communication between the GPs and treatment pathways, such as psychologists:

> *"The therapist would be expected to write something in at the end, especially if it was a psychologist or psychiatrist. They would write something, but it wouldn't necessarily be the GP who referred the patient that would read that final letter that was sent"* – Hannah

A barrier to prescribing PA that was mentioned by Susan and James was the current problem with the lack of promotion in the PA schemes by the GPs and scheme leaders. Therefore, they were more likely to use alternative treatment pathways:

> "*In terms of exercise schemes, it isn't up there as high as antidepressants and talking therapies in our heads. That's probably the honest answer*" – Susan

However, as well as what currently exists, James explained what could be implemented to improve the communication between GPs and the PA scheme leaders. Various methods suggest how this could be achieved to improve the healthcare system. The GP mentions that the use of newsletters would be an effective strategy for seeing results from the PA scheme, such as success rate, as this would be a good measurement like considering whether the PA scheme is an effective method. Another improvement that could be developed is the communication between the GPs and PA scheme leaders and thus, having an increase in feedback given by the PA scheme leaders to GPs. James found that "*just regular reminders that the services are available"* would likely result in PA schemes being utilised by more GPs.

4.6.2 Complex personal circumstances prevent engagement with physical activity

The interviews raised a variety of reasons that prevent PA engagement that can be arranged into two categories: psychological and personal reasons. Two psychological reasons were brought up as barriers for patients engaging in PA. Grace noted that in their area, body image can be an issue and barrier for patients engaging in PA and further explained how due to patients being more conscious of their body and appearance, they were less likely to engage in any form of PA. A different psychological barrier for patients that was mentioned in three of the interviews was the impact that mental health can have on engagement in PA with patients that lack motivation being less likely to be physically active. Hannah comments on how patients need to be motivated and compliant with the suggestions that they give to their patients. A common response was a lack of motivation that patients have whilst experiencing mental health problems and for GPs: "*Motivating them to exercise regularly is just like a big mountain to climb"* (Hannah). This was reinforced by Jane who believed that a lack of motivation can have a greater consequence in a loss of pleasure in PA for patients with mental health conditions and is negatively influenced by their SEP. Other mental health

conditions were perceived to impact the engagement in PA for patients with Jane stating that:

> "*Feeling overwhelmed, that is a big factor to exercising and also, I think some of our patients have really chaotic, complicated, busy and stressful lives*" – Jane

There were a considerable number of personal barriers that restricted patients from engaging in PA. Four GPs indicated that there can be a financial barrier which can limit patients from participating in PA with Susan stating that they often refer people who were financially struggling and usually from a lower SEP: "*they can't afford it and those people I would refer more to the services that are provided".* James found that despite having a reduction in PA, it was still a problem for those from a low SEP in their area:

> "*they still a need to pay something towards the gym, even though it's heavily subsidised and that would be a major disincentive for people from lower socioeconomic groups"*

This relates to Jane's response which found that once those from a low SEP have completed the PA programme, they are physically inactive and have to wait to be referred again. Consequently, this can cause mental health problems:

> *"Once people have been through it once, it can be quite difficult for people to get back in. They have to have quite a long wait time before they're allowed to be referred through again which is a bit unrealistic seeing as often people's mental health problems go on for a longer time than that"* – Jane

A closely related barrier for Tim and Hannah that was raised was the lack of accessibility that patients have. Tim found that in their area there has been no improvement in public facilities over a long period: *"I haven't seen new walking tracks or new facilities available locally at all. It's all the old things".* Moreover, there previously was a football club there that no longer exists due to a sinkhole and the club could not obtain the insurance to maintain the grounds. However, the council were able to build a multiplex cinema on the same grounds. There is a lack of accessibility to PA schemes for Hannah and it would help

promote PA as a treatment method. Moreover, accessibility is important due to having an impact on the patients' mentality towards PA:

> *"If you're in a position where you have access to the things that you need, then you will be more fitness conscious*" – Hannah

Insufficient time was another issue raised by participants, finding that several patients felt they do not have enough leisure time to engage in PA with other employment priorities and thus, do not have the time to engage in PA. This is supported by Jane: "*I guess it's* [PA] *hard to make a priority for"*. Moreover, Jane notes how significant the health inequalities are in their area due to their low SEP:

> *"*[Patients are unable to afford the bus to the gym] *Further than most people would walk .. that's the consideration for a lot of our patients. The health inequalities have a massive impact on everything"*

Another GP similarly observed that lack of time has been an issue for PA engagement, but they brought up how they have seen patients who have lacked interest in using PA as a treatment and this could be due to their SEP which tends to impact their financial situation and level of education:

> "*I think lower socioeconomic people don't really have any interest and don't seem to engage. Whether that's a lack of education or understanding or just all the strains on their life in terms of time and finances*" – Grace

There were medical barriers that can influence whether a patient would engage in PA. Susan states how physical health issues can be a problem as they may not be capable of participating in PA individually. As previously identified, antidepressants were a common treatment pathway for patients with mild to moderate mental health conditions. However, Grace described how the medication is only one part of the treatment for a patient and the underlying problem needs to be addressed. Therefore, patients' initial mentality toward treatment pathways would be a barrier to PA. Grace outlines how although there can be

disadvantages to using medication, once they have adjusted to the medication, the patients were at:

> "*the level where they've got enough motivation that I can suggest things more like exercise and general lifestyle things that will then take that on board a bit more*"

Lastly, there was an environmental barrier in the most deprived area due to the levels of pollution. Tim states how the pollution levels could be a barrier for patients in PA engagement:

> *"pollution of the air is quite high, and people don't bike much. They don't walk much…nobody will walk"*- Tim

4.6.3 The repercussion of COVID-19

GPs and patients were impacted by COVID-19 during the period of this research, and it has catalysed a variety of issues in the overall quality of mental health, accessibility to treatment pathways, and lifestyle of patients. As briefly discussed in the first theme, GPs stated there has been an increase in patients presenting with mental health conditions in the previous 18 months at the time of the study. There were mixed responses for the rationale for why there has been a growth in this figure. Susan found that lockdown emphasised other factors, such as their jobs or education and thus, impacted their anxiety and depression. They realised how "*COVID exacerbated them rather than COVID being the main problem*". Supporting this statement, James has recognised COVID-19 as being an '*indirect cause'* for the increase in patients with mental health conditions. Moreover, they realised that the younger generation has been impacted the most out of all generations due to the "*limited opportunities because of exam changes at schools, uncertainty about the future and employment difficulties*".

Other GPs believe that COVID-19 has been a primary reason for the increase in cases, as opposed to causing an effect on pre-existing mental health conditions. In addition to the increase in patients showing signs of depression and anxiety, Jane acknowledged how there has been an increase in social stressors due to lockdown, forcing people to live in congested accommodation and exacerbating financial pressures. Grace also argued that COVID-19 had underpinned an increase in the number of patients they had seen with mental health conditions, primarily due to the lack of support as they were "*losing their usual support and coping mechanism with the lockdowns and restrictions*". Lastly, Tim expresses how COVID-19 has impacted the suicide rate in young males and the lockdown may be a reason why there were two 30-year-old male suicides in their area. They explained how a plausible explanation for the increase in the general suicide rate over lockdown in the UK is for various reasons and that their SEP is a factor that may contribute due to financial difficulties:

> "*no access to their outlets, whether it be the gym, whether it be the pub, whether it be normal TV, maybe they couldn't afford internet …I don't know but something went wrong for them in their lives*" – Tim

COVID-19 has had a negative effect on the healthcare system with one of the impacts being treatment pathways, such as psychologists and PA programmes. Although most participants were not aware of the waiting time for a patient to see a psychologist or cognitive behavioural therapist, Tim knew that the waiting time was getting longer at the beginning of the pandemic. However, for Tim, there was a change when appointments were moved online. and GPs were encouraged to contact patients through texts or telephones to ensure that they were aware they were still running and that they could self-refer. Overall, Tim discovered that this is a more efficient approach as the "*virtual consultations have improved the speed at which people can be seen*". However, as GPs worked remotely and took telephone appointments during the lockdown period, James found that they have "*enjoyed it less*" working as a GP as compared to before COVID-19. This practice received 200 phone

calls a day between the GPs with James noticing "*it is 15 months on, and people have saved up quite a few health problems*". Therefore, this has a further effect as they found it "*difficult to get time to do anything else as they need to meet the need of that day*". Physical activity programme pathways were impacted by COVID-19 and, as previously discussed, four participants had access to a PA pathway that included gym memberships. However, due to lockdown, gyms were closed for a period of time which impacted the GPs approach. James' general practice, since the pandemic began, had not heard anything from the scheme leaders and had not referred any patients as the GPs at the practice were unaware if the scheme was still running.

Conversely, a positive impact of the pandemic is the growth of online resources as Grace has discovered that it has demonstrated that patients can hopefully engage in PA in their own time and space: "*They don't need a gym membership. They can just do it from their own homes*". Furthermore, they stated how this may be a suitable long-term approach as patients can engage with online videos that were an appropriate exercise for them.

4.6.4 The adverse influence the SEP has on challenges within the local area

There were mutual challenges that were encountered by the GPs who were based in the more deprived areas. Tim, Hannah and Jane indicated that patients with a low SEP have a higher probability of experiencing other health conditions. Lack of education and poor quality housing is a particular influence in these areas, as Tim found that due to this, there is inadequate knowledge of the health risks that patients may be at a risk from. Moreover, one of the biggest difficulties in their area is how:

> "*West Midlands has some of the highest levels of obesity in Western Europe…* people *who are still in their teenage years can have a BMI of 40 or 45*" – Tim

In addition, Tim has found that their local socioeconomic area impacts a patient's view on general healthcare: *"The only way you avoid healthcare here is by refusing… people do refuse it"*.

Besides lack of knowledge, Hannah reveals that there is a financial issue in their area relating to healthy eating as it is seen to be expensive and thus, a problem for patients who were in a low SEP: "*you can't really eat as healthy as you'd like because healthy eating is expensive*". Jane agreed that high rates of deprivation were linked to obesity in their area. Lastly, as previously mentioned, those from a lower SEP tended to live in more polluted areas and Tim explained how this impacts health conditions such as asthma and cancer in particular:

> *"This is pollution and yet people present* [Healthcare problems] *later in our area. Cancer patients come with cancer usually later on."*

There were other difficulties that GPs encounter within their specific area. Tim believes there is a considerable problem with the lack of facilities that were available to the public for PA as well as lack of maintenance and that this is influenced by their low SEP.

> *"I think the council has for a long while had two big challenges with maintaining a section of its population which is very deprived"*

Moreover, the facilities that were available were not perceived to be an appropriate environment for the public to engage in. Language and culture can be challenging for the patients of Tim and Jane as they have a diverse range of patients in their area. They both have found how it can be hard to communicate with patients in their local area when treating them and it is difficult for them as it is "*harder to access things if you don't speak English like on all on all levels*" (Jane). However, to attempt to tackle this challenge, Tim's practice has developed an anonymous translation service through the telephone which has been successful. However, these options are typically not available with PA providers.

Conversely, Susan and James encounter very limited challenges in their local area. Susan felt that the reason why they do not experience that many challenges due to their area is because the patients were reasonably well engaged in PA themselves and do not need prompts by GPs. Moreover, due to being in a high SEP "*there is less diversity in terms of economically and I think we're probably quite fortunate*" (Susan). James supported this statement by expressing how their area had low levels of deprivation and thus, explained how patients were generally more aware of the benefits of PA. The main challenge that occurs in James' area is the lack of motivation and thus, can be a barrier when advising patients to improve their PA levels.

4.7 Summary

In summary, the results in this chapter indicate a GP's experience of PA and other treatment pathways for mental health conditions and the problems that currently exist. These results provide an important insight into the perceived problems that GPs experience with regard to PA when supporting mental health problems which vary in different socioeconomic areas. Furthermore, the results have identified barriers that are impacted by the socioeconomic area and the socioeconomic inequalities that currently exist when treating mental health problems and other issues within the healthcare system. The next chapter, therefore, moves on to discuss what new findings this study has brought, how some findings support existing literature, and how it relates to the research aims.

Chapter 5: Discussion

5.1 Overview

This study had three overall aims: (i) to explore GPs' experiences of physical activity and other provisions for mental health in their local area, (ii) to understand perceived problems regarding access to physical activity to support mental health, and (iii) to understand how existing socioeconomic inequalities may impact the mental health treatment approach of GPs. The following discussion will contribute an interpretation of the findings, with implications of the research findings considered.

5.2 Summary of Key Findings

The current study investigated the mental health, PA and healthcare inequalities that exist between GPs in different socioeconomic areas in England and explained the impact that the SEP had on treating mental health. The three themes developed from the research data were; (i) The precedence of pharmaceutical and psychological approach treatment pathways, (ii) The insufficient implementation of physical activity schemes, and (iii) Complexity of barriers to physical activity for GPs and patients. Linked to these themes are the following key findings. The first key finding was that mental health issues were a common problem across all socioeconomic areas and were felt to be becoming increasingly more problematic. The second key finding was how healthcare was less accessible or of the worst quality for those who lived in more deprived areas. While pharmaceutical approaches for mental health problems were the most common treatment method across all socioeconomic areas, physical activity schemes were an underused treatment pathway mainly due to insufficient communication between GPs, patients and scheme leaders, especially in the higher socioeconomic areas. The third key finding was that from the perspective of GPs, patients in more deprived areas encounter a greater number and more complex barriers and thus, it was perceived that patients from lower SEPs were less inclined or able to engage in PA. The

SEP further impacted the challenges that the GPs encountered, with those from lower socioeconomic areas experiencing a greater number of barriers.

5.3 The precedence of pharmaceutical and psychological approaches as treatment pathways

Concerning the first theme, this study suggests that mental health problems are increasing, with COVID-19 causing an increase in occurrence. Moreover, the pharmaceutical approach was the most used treatment pathway, despite GPs acknowledging that it may sometimes be inappropriate. Psychological approaches were common but had various lengths of waiting times, depending on their socioeconomic area. Unfortunately, PA is an underutilised and underfunded treatment pathway, with low direct referrals.

These findings are consistent with Farmer and Dyer's (2016) review, which found that mental health difficulties are a common and significant problem and have been recognised to affect one in four people in the UK. The daily frequency with which the GPs in the present research encountered patients with signs of mental health problems, reinforces how common mental health problems are and how significant a problem mental health is in England. Yet, findings suggest that more deprived areas experience higher levels of mental health problems, with the severity being more substantial in these lower socioeconomic areas. This is consistent with previous research findings that have demonstrated that those from higher socioeconomic areas and who live a healthier lifestyle, had enhanced mental health (Fiorito *et al.*, 2019; Reiss *et al.*, 2019; Smith, 2007; Wang and Geng, 2019). When comparing the present findings against UK mental health statistics, it should be noted that multiple GPs in this research highlighted an increase in mental health cases within the younger population, which corresponds with the findings of Baker (2021) who reported that adolescents were one of two age groups that were most likely to be in contact with the NHS mental health

team. This may be due to the increase in awareness of the benefits of positive mental health and the increase in support from both in-person and online resources. GPs highlighted that the socioeconomic area was a factor in terms of who sought help, with those patients living with deprivation being more reluctant to seek medical attention. Gender was also perceived to have an impact, with males being less likely to seek medical attention, which supports Mackenzie *et al.*'s (2006) findings of how there needs to be an improvement in education on men's attitude toward seeking help and this may be an explanation for why one GP in the current study reported not seeing many male patients regarding their mental health.

Unemployment levels increased during COVID-19, which influences mental health (Jia *et al*., 2020; Office for National Statistics, 2021). This specifically identifies how COVID-19 impacted those from deprived areas more significantly due to the increased unemployment levels in lower socioeconomic areas (Wright *et al*., 2020). In the current research study, one proposed factor for the two suicides that occurred in a low socioeconomic area within the West Midlands, in addition to COVID-19, was gender inequalities in seeking treatment pathways. The population from more deprived areas have been identified as having an increased likelihood of experiencing loneliness during COVID-19 (Groarke *et al*., 2020). According to the GPs working in lower socioeconomic areas, there was not an increase in identified mental health concerns. This is due to their negative attitude towards seeking healthcare in this socioeconomic area, as opposed to seeing an improvement in the number of mental health cases. In sum, the current study illustrates the healthcare inequalities that exist between different socioeconomic areas and the impact that they can have on an individual's approach to treatment pathways, supporting previous work in this area (e.g., Delgadillo *et al*., 2016; Packness *et al*, 2017).

Further, this research demonstrated a lack of obvious PA provisions. For the GPs based in more affluent areas, there is a failure to refer patients to PA schemes and further raise the topic of PA to patients. Physical activity continues to be low on the hierarchy of treatment pathways that these GPs have available to them and hence there remains an inadequate referral rate to available schemes. Although GPs working in less affluent areas tend to have more of a positive attitude towards the use of PA for treating mental health conditions and a few have access to PA schemes, antidepressants continue to be the most used treatment. These are apparent reasons due to ease of access for both GPs' and patients' preferences. Alternativity, as sedentary behaviour is associated with mental health problems (Hoare *et al*., 2016), whilst patients wait to see a psychologist, their mental health may become more severe due to increasingly engaging in an unhealthy lifestyle. However, as there is a lack of promotion of PA and PA schemes, particularly in the more affluent area, it could be argued that patients may not be cognizant of available PA schemes. GPs should raise the use of PA schemes adjacent to antidepressants and talking therapy so that patients have various options and knowledge of treatment pathways available.

Despite GPs having access to various treatment pathways, one noticeable finding was the GPs' approach to the use of antidepressants. As previously discussed, antidepressants are a common treatment method for all GPs with 70.9 million prescriptions in the UK in 2018 (Iacobucci, 2019). For a GP who worked in a moderate-level socioeconomic area, antidepressants are accountable for the large majority of treatments due to patient preference. The main issue with this approach to treating mental health conditions, aside from the ease of access in comparison to other treatment pathways, is the risk of addiction to medication (including withdrawal effects) (Read, 2020). As reasoned by a GP, antidepressants do not resolve the problem but rather pause the issues. Treatment pathways, such as PA, might be

a more effective approach to treating common mild to moderate mental health conditions as it engages patients in a healthy lifestyle change, as well as having mental health benefits (Rowley *et al*., 2018). This supports Field's (2017) research which has found that PA can be a more suitable treatment, due to having fewer side effects than antidepressants. Given this, findings from the present study support the need for GP training and the promotion of PA schemes in place of medication, where possible.

Alternatively, due to this research discovering that GPs are confident with the use of antidepressants, as opposed to PA schemes, a future strategy could be to collaborate the two treatment pathways. Previous studies evaluating PA and antidepressants for treating mental health observed that it is an effective method to use exercise adjacent to medication or other treatment pathways (Carter *et al*., 2016; Craft and Perna, 2004). However, a rationalisation for this approach was the long waiting times that GPs perceived patients to experience to see healthcare professionals, such as psychologists. A strong relationship between referral rates and waiting time has been reported in the literature (Baker, 2021). Further to the limitations of a pharmaceutical approach, as supported by one of the GPs working in an area of moderate deprivation, medication is not the resolution to resolve underlying problems in the long term. An explanation for antidepressants being prescribed to patients when not appropriate is that GPs found that other treatment pathways, such as talking therapy and PA schemes, are underfunded. This applied to all socioeconomic areas and is a national problem which needs to be tackled to improve waiting times. The present study demonstrates the need for an improvement in funding for treatment methods other than antidepressants, which already are one of the most utilised treatments (Public Health England, 2020). An increase in funding would develop and improve PA provision for mental health issues, as well as provide an opportunity to treat other conditions.

Baker (2021) discovered that the waiting times for patients to see an NHS psychologist have increased over the last five years, with the patient's socioeconomic area impacting their waiting time. Moreover, referrals to a psychologist are substantially higher in more deprived areas in the UK with referral rates being 76% higher than in the least deprived areas (Baker, 2021). This is an important factor to take into consideration when treating a patient with mental health problems. This research closely supports this with lower socioeconomic areas having longer waiting times for a patient to see a psychologist. Similarly, Moscelli *et al.* (2018) found how patients from a lower socioeconomic area are more likely to experience long waiting times and lack opportunities, compared to patients from a higher socioeconomic area. As Baker (2021) stated, in the UK, the NHS have a target of 75% of patients being seen by a psychological therapist within six weeks. Therefore, when applying the NHS targets, only GPs who were based in the 50% least deprived areas in England met this target. However, a noteworthy figure from Baker's (2021) mental health statistics is that although the GPs located in Hertfordshire estimated that patients had a six-week waiting period to see a psychologist, the NHS statistics state that this CCG is one of nine who are not meeting the national six-week target. This suggests the GPs could have an unrealistic expectations of waiting times. This may explain why these GPs are more inclined to use a pharmaceutical approach as it is a quick and efficient method to treat patients. The GP based in the most deprived area in this study had over double the estimated waiting time compared to the GP in an affluent area yet perceived that their current waiting time was acceptable. This suggests that the standard expectations may vary in different socioeconomic areas with the perception of acceptable waiting times being lower in the more deprived areas. Socioeconomic health inequalities are a critical area to improve in England and the increase in studies (Moscelli *et al.*, 2018; Arpey *et al.*, 2017) is supporting this. The present findings

support the need to offer various treatment pathways to help tackle these longer waiting periods, specifically in deprived areas.

One unanticipated finding was the GP's awareness of the waiting time for patients to see counselling or therapy in areas of moderate deprivation: nine months was the average, with the most severe cases of mental health cases waiting at least six weeks. The findings in this research support Arpey *et al.*'s (2017) research which explained how those from a lower socioeconomic area experienced longer waiting times and less accessibility to healthcare due to the health inequalities that exist. Conversely, this research discovered a finding for the GP based in the North East, which is regarded as the lower end of the moderate-level socioeconomic areas, who reported a substantial waiting time. This waiting time is substantially longer than the most deprived area in this study, where their health deprivation and disability domain rankings are in the bottom 12% (Ministry of Housing, Communities & Local Government, 2020). The present study could be evidence of the socioeconomic inequalities that exist when seeking help from medical professionals, such as GPs.

Although there generally was little significant understanding of the general allocation of funding that their general practices receive, it was important to discuss what GPs have noticed in funding throughout their time as medical professionals. The GP working in an affluent area acknowledged and focused more on the improvement of treatment pathways and thus, better accessibility for patients. In comparison, the GP who worked in a deprived area focused more on the problems with the staff budget and the impact that it has had on the staff's mental health. Together, the present findings highlight the different perspectives on funding, impacting the practice of the GP based in the deprived area more substantially. For the GP based in the West Midlands, although they had an increase in funding for

treatments and drugs, they have not had an adequate increase in staff budget which has impacted staff retention. This links to NHS statistics that state how the budget in general practice, excluding the reimbursement for drugs, has declined from 9.6% to 8.1% between the years 2005 and 2017 (British Medical Association, 2022). This indicates the financial impact that has recently occurred for GPs, as although the investment funding for general practice has improved, the financial income for GPs has not increased. This supports the participant's view that GPs' mental health can be impacted by the reduction in funding.

To develop the use of PA as a treatment pathway, there needs to be an improvement in prioritising PA and using it as a treatment method for patients with common mild to moderate mental health conditions. However, unfortunately, as proven by one of the participants in this study, Tim, public PA schemes that GPs have access to have become decommissioned for various reasons, such as lack of implementation. Similar to Saxena *et als* (2015) and Albert *et als* (2020), the present findings support a need for an improvement in the promotion of general PA and a healthy lifestyle. As it stands, a pharmaceutical approach is too often used and is not always the most suitable treatment pathway. Physical activity will continue to be an underutilised treatment pathway due to other treatment methods that are currently prioritised over PA, such as psychological and pharmaceutical treatments.

5.4 The insufficient implementation of physical activity schemes

Previous studies have evaluated both the impact that the socioeconomic area has on PA engagement for patients and a general review of GPs' opinions on the use of PA as a treatment pathway (Richards *et al.*, 2004; Searle *et al.*, 2012; Stanton *et al.*, 2014). The present research has drawn these two concepts together and explored the impact that SEP

may have on utilising PA schemes as a treatment pathway for mental health. Results identified that the GPs working in lower socioeconomic areas were more likely to refer to PA schemes, compared to GPs working in more affluent areas. Despite this, GPs perceived patients from more deprived areas to encounter a greater number of barriers which limit their engagement in PA schemes. Regardless of the socioeconomic area that the GP was working in, there was insufficient communication between GPs and external PA leaders on the treatment pathways available.

The current study found that GPs located in affluent areas made a low number of referrals to their local PA schemes, with there being no referrals since the COVID-19 pandemic began. This was predominantly due to the lack of communication with other healthcare professionals, to the extent that GPs were unaware and unsure if schemes were running or not. GPs' lack of engagement with PA scheme leaders could restrict the use of PA as a treatment method for mental health. Considering the history of PA schemes in the more affluent areas and the current communication that is in place, it could be argued that, for example, the new walking PA scheme that they have access to is likely to fail due to inadequate communication and referral rates. This will impact those patients living in more deprived locations within higher socioeconomic areas as they are expected to utilise these referral pathways because of the financial aid but will not be aware of the schemes due to the GPs' approach to treating patients. Albert *et al*. (2020) found that a majority of healthcare professionals view PA as part of their role as well as being confident in promoting PA and perceiving it to be effective. This differs from the findings in the current research as the GPs who worked in a higher socioeconomic area did not have confidence in using PA as a treatment pathway. However, it might not necessarily be a problem of insufficient research but rather a problem in the communication between GPs and other healthcare professionals

(McDowell *et al*., 2019; Nystrom *et al*., 2015). Further, one of the reasons that patients may not engage in PA referral pathways is due to the lack of promotion and awareness.

Although in the current sample GPs perceived that patients from a lower socioeconomic area were less likely to be physically active, they were more likely to signpost these patients to PA schemes, such as a funded gym membership and bike classes, due to the financial incentive. One GP in a more deprived area offered patients bike classes, whether that would be age, gender or ability, to help engage patients in PA. It is noteworthy to mention that bike classes were highlighted by the GPs in this study, and this type of PA scheme seems similar to the Bike Share Scheme which is offered in lower socioeconomic areas of London (Bauman et al., 2017). Clearly, there are multiple types of PA schemes available in different areas of the UK and this may aid uptake. Whilst a GP based in a lower socioeconomic area concluded that patients from deprived areas are less physically active, this was understood to be due to a lack of opportunity, rather than a lack of interest or education. Previous studies have demonstrated that the socioeconomic area impacts PA engagement, in turn, is influenced by their lack of leisure time, and the main indicators that contribute to the SEP were affiliated with this (Cleland and Crawford, 2012; O'Donoghue *et al*., 2018). The other GP who worked in a moderate-level socioeconomic area did not have access to a PA scheme, which suggests that there is a lack of investment in using PA to treat mental health. Although one GP in Greater London was ranked 9,649 (Bottom 29%) in the Health Deprivation and Disability Domain rankings (Ministry of Housing, Communities & Local Government, 2020), they had access to the widest range of PA referral pathways available, including schemes specifically designed for patients with mental health problems. On the whole, GPs had a variety of referral options for group exercises, such as sports sessions and fitness classes, for patients with mental health conditions, as well as offering an individual gym

membership. This is an important factor to take into consideration when trying to improve PA levels. In this way, the present study supports evidence from previous observations (Mortazavi et el., 2013; Pluhar *et al*., 2019) who found that group exercise in both PA classes and sports designs are more effective approaches for treating mental health conditions, compared to individual PA.

However, it is important to consider barriers that GPs may encounter when treating certain patients. For example, Mason *et al*. (2019) found that some patients with an anxiety disorder may have a negative attitude to group exercise due to their condition. Therefore, it could be more appropriate to prescribe them an individual PA scheme. By GPs and social prescribers having access to a variety of PA schemes, they can refer patients to the exercise pathway that they deem will be most beneficial, suitable, and sustainable. Due to the diversity of PA schemes, it was perceived by GPs that drop-out levels are less in low socioeconomic areas. Contrarily, the GP located in the most deprived area, West Midlands, did not have access to any form of PA scheme. According to the GP, despite having a pilot scheme in the 1990s, this was unsuccessful, primarily due to patients' lack of engagement. This result might be explained by the deprivation levels of the patients which are influenced by their level of education (Glymour *et al*., 2014). This illustrates existing inequalities and the importance of PA opportunities for these areas, as levels of obesity, mortality rates, unemployment rates and unhealthy behaviour are higher (Baker, 2019; Beard *et al*., 2017; Corris *et al*., 2020; Watson, 2020).

In the current study, when comparing barriers that restricted the use of PA schemes for GPs and their patients, significantly more barriers were identified among GPs who worked in moderate and low-level socioeconomic areas. Importantly, the lack of communication that

exists between GPs, other healthcare professionals and patients was recognised as a ubiquitous barrier for all GPs. GPs working in a more affluent area understood that patients were more likely to self-refer, meaning that these GPs were not always aware when a patient was taking part in a PA scheme and only had contact when a patient dropped out or completed the programme. An improvement in communication between GPs and the scheme's leaders would allow the PA schemes to be utilised more effectively. Ensuring an improvement in communication, relating to the success rate, referral rate, drop-out rate and patient feedback, may influence the GPs' attitude toward the use of PA as a treatment method for mild to moderate mental health. Moreover, if successful, PA could potentially be considered a more common treatment method, similar to pharmaceutical and psychological pathways. Increasing communication could result in an improvement in the awareness and acknowledgement of PA as a treatment method in different practices in all socioeconomic areas, as there is currently a lack of awareness for PA treatment pathways generally, but especially in affluent areas (Saxena *et al*., 2005). The GP based in the more deprived area ensured that they maintain contact with both the patient and healthcare professionals when referring to talking therapy. This approach substantiates an advantageous method for ensuring that the patient receives optimal healthcare and is engaging with the therapy. This could be adapted for PA pathways; GPs and scheme leaders could initiate and maintain communication from the initial referral. Due to GPs having other responsibilities, scheme leaders could inform GPs regarding patients' progress and whether anything needs to be acted upon. This is especially important in lower socioeconomic areas as patients are typically less likely to seek medical attention (Moscelli *et al*., 2018) and thus, will not discuss their experience with their GPs.

A patient's SEP was associated with their attitude towards different treatment pathways. Although research has discovered how the socioeconomic area can influence healthcare inequalities, this study has argued that despite living in a more affluent area, a patient's individual SEP influences their engagement with healthcare professionals. GPs working in the more deprived areas found that it has become a "complex issue" to change their unhealthy behaviour and find it difficult to change the patients' lifestyles. Similarly, two GPs who worked in areas of moderate-level socioeconomic areas perceived patients' lack of education to impact their knowledge of healthcare issues which may not be a true representative of the current problems that exist. This suggests that for patients from lower socioeconomic areas, self-care is likely to be important as they do not seek medical attention often due to prioritising other factors, such as providing an income. Parents' attitudes toward healthcare can impact adolescents' mindsets, with those from more affluent areas having a more positive attitude towards healthier living and healthcare. This supports recent research that discovered that the socioeconomic area impacted adolescents' mental health (Reiss *et al*, 2019).

Overall, data generated in the present research underpins recommendations that there is a need to improve and develop communication between GPs and external treatment pathways and patients. First, patient outcomes would be more positive if GPs were further informed of a patient's mental health status within the schemes, as GPs could further contact patients to access their mental wellbeing. Secondly, due to common barriers experienced by patients perceived by GPs, such as lack of leisure time and disposable income, improving PA scheme locations are critical as this policy would help tackle these barriers and therefore, hopefully, result in an improvement in PA engagement.

5.5 Complexity of barriers to physical activity for GPs and patients

Concerning the findings, the third theme argues that patients from different socioeconomic areas encounter different barriers that limit their engagement in PA, such as circumstances that foster lower levels of education, reduced motivation and lead to engagement in unhealthy habits. It further takes into consideration barriers for a GP and the influence that it has on PA, such as lack of training and funding.

GPs identified unhealthy habits as one of the main reasons for the lack of engagement in PA for patients who were located in areas of moderate and low-level socioeconomic areas. Despite this, there will always be exceptions with patients, and this is an example of how although patients may reject PA as a treatment pathway, a GP should continue to raise the referral opportunity to patients as they may change their attitude at a later date. This combination of findings provides support for the influence that the lower socioeconomic area has on both opportunity and GPs' attitudes toward using PA schemes as a treatment pathway for mental health conditions as, despite certain barriers, they continue to discuss PA schemes with patients. GPs undertake a protocol when speaking to a patient showing signs of any mental health conditions and, although a majority of GPs agreed with using PA, it is not considered a priority. GPs are allocated 10 minutes per appointment in the UK (Holt *et al*., 2016) and as outlined by multiple GPs, there are other protocols GPs need to go through as part of the assessment and time often presents as a barrier. It could be argued that either PA needs to be a higher priority or there is another form of communication, whether online or leaflets, needed to effectively communicate. Or, indeed, that communication of messages is not the main determinant of habits, especially in challenging environments. In Oliver et als (2021) study, one of their findings discovered that stakeholders within schemes influence the success rate and poor relationships lead to decommissioned PA schemes.

However, an improvement in prioritising and communicating PA schemes to patients could help prevent these schemes from being decommissioned and limit the opportunities for patients. This is especially important for lower socioeconomic areas where patients may not be able to participate in their private forms of PA, such as via sports or gym membership.

The present study's results reflect those of Fiorito *et al.* (2019) who also found that those with lower levels of education are more likely to engage in unhealthy lifestyle behaviours. It was perceived by the GPs that there is a lack of education on healthcare for individuals in more deprived areas and therefore, this impacts their approach to medical professionals. Moreover, education is one of the main determinants that contribute to characterising the SEP and therefore, it is an important barrier to interpret and explore. The current findings illustrate how problematic and influential the socioeconomic area is on treatment pathways for patients from a GPs' perspective and a barrier that needs to be tackled to engage those from the deprived areas in treatment pathways, such as PA schemes. In accordance with Craft and Perna's (2004) results, PA schemes could be used adjacent to antidepressants to reduce medication for treating patients with common mild to moderate mental health conditions and therefore, alleviating the overall side effects. It is encouraging to compare the current study's findings with Searle *et al.* (2012) who noted that despite patients experiencing barriers to PA schemes, many patients became less reliant on medication as a treatment for depression if they are used adjacently to exercise.

Research has found that lack of motivation was a common barrier and an important obstacle for patients to tackle to increase engagement in PA (Busch *et al*., 2015; Craft and Perna, 2004) which was correspondingly identified in this study by GPs. Due to it being perceived that patients from more deprived areas experience additional barriers, GPs found that lack

of motivation can be a significant barrier for patients in all socioeconomic areas, but especially in higher socioeconomic areas. Through an awareness of intersectionality, there can be a better acknowledgement of tackling these barriers to improve engagement in PA schemes. One GP outlined that engaging a patient in other treatment pathways, such as talking therapy and counselling, could increase the patients' levels of motivation to use PA treatment pathways, resulting in more engagement with PA.

The current study concluded that GPs located in affluent areas are more invested in PA due to having social support which is likely to improve motivation. Social support has been recognised to differentiate between different socioeconomic areas during the recent COVID-19 pandemic, with a similar finding of less affluent areas suffering from less social support (Groarke *et al*., 2020). Due to the poor participation rate when the GPs referred patients, it could be assumed that self-referral may be a more appropriate and effective method as it will help identify the patients who are more interested and motivated to engage in PA. As these have been presented to be significant barriers, GPs and other healthcare professionals need to acknowledge patients who may need certain psychological prompts to engage in PA (Busch *et al*., 2015; Craft and Perna, 2004). Further, it was discovered in the GPs' responses that the socioeconomic area was thought to influence the patients' attitude due to several factors, in addition to COVID-19 which was perceived to exacerbate problems. For PA in low socioeconomic areas, one GP noted that patients were not engaging in mild PA, such as walking, due to the local high pollution levels. This finding of the association between the socioeconomic area and PA engagement supports Delgadillo *et al*.'s (2016) findings to a certain extent of how those from the more deprived areas had lower recovery rates compared to other socioeconomic areas. One GP located in a deprived area referred their patients to social prescribers and was not aware of which PA schemes their patients were engaged in.

This suggests difficulty in monitoring how the patients would progress regarding their mental health. Some of the issues from these findings relate specifically to the various barriers that patients from more deprived patients experience, which are perceived to impact their education from a GPs' perspective. It should be noted that the associations cited may also be a reason why those from a less affluent area may not engage in PA referral pathways.

The result of the present study identified GPs' perspective of the significant impact that the socioeconomic area can have on a patient's experience, with those from a lower socioeconomic area encountering additional obstacles that may restrict their commitment and engagement in PA. Although one GP had access to various PA schemes, due to being in a deprived and multicultural area, several barriers limit patients' engagement with PA, such as lack of leisure time, language difficulties and cultural difficulties. Previous research supports how limited finance and leisure time are common difficulties for PA engagement and impact patients' mental health in this socioeconomic group (Cleland and Crawford, 2012). The analysis established evidence of the financial impact that the socioeconomic area has on PA schemes as the GPs who worked in areas of moderate or low-level socioeconomic areas had access to schemes with no financial cost for patients. However, in the higher socioeconomic areas, GPs stated that patients had to contribute to the scheme which is a barrier for some patients who are less financially solvent in higher socioeconomic areas (Reiss *et al.*, 2019). It should be noted that only one GP working in a lower socioeconomic area had access to PA schemes and thus, cannot be taken as a strong representative of GPs employed in deprived areas. Regarding the gym referrals in the low socioeconomic area, it can be argued that this was very problematic as patients cannot be re-referred onto the programme for a long period. This supports and provides further evidence of the financial pressure that exists in the lower socioeconomic areas. Consequently, they would likely not

be able to continue their gym membership due to a lack of disposable income, which is a known barrier to engaging in PA (Sowden *et al*., 2008), and thus would have to wait to get referred again which might lead to exacerbated symptoms. Thus, even where there is access to PA schemes, there are underlying challenges in the referral process that need to be overcome. These results identify that the socioeconomic area can limit a patient's engagement in PA schemes.

In addition to the personal challenges that were encountered, a further factor was the failure of the system to accommodate diverse languages and cultures which may limit the accessibility of PA schemes. Conversely, a benefit of having a diverse range of cultures and languages in a low socioeconomic area for one participant was that they had access to a PA scheme that targeted minority cultures. Comparably, the other GP in a low socioeconomic area had access to the use of a translation service to tackle this challenge. Refugees and asylum seekers are more likely to be homed in lower socioeconomic areas (Phillimore and Goodson, 2006) and with minimal disposable income, emphasising the importance of free, and culturally diverse PA schemes. GPs in a high socioeconomic area experience fewer challenges in comparison due to being in areas with relatively low levels of deprivation.

Despite a majority of GPs not being aware of specific funding allocations, exploring their opinion on what areas should be invested in to improve the quality of health for patients receiving treatment for mental health conditions was beneficial. GPs regarded talking therapy as an underfunded resource and a treatment method that is prioritised over others like PA. However, it should be noted that although the NHS in England spent £14.1 billion on mental health services, local mental health funding is not ring-fenced and thus, the local CCGs determine the budget of their mental health funding (Baker, 2021). A possible

explanation for why one GP has access to more PA schemes is because mental health is a higher priority in the more deprived areas. As an outcome, more funding has been invested, resulting in schemes remaining free for patients which address the financial difficulties that exist in these areas. Therefore, this illustrates the socioeconomic inequalities that currently exist in treating mental health conditions, as GPs from more deprived areas prioritised their funding on PA schemes, whereas GPs located in more affluent areas would only use PA if there was an improvement in research that supports this. An improvement in targeted funding across different socioeconomic areas could result in either a successful scheme starting up again or giving patients a more equal opportunity to access PA schemes across the NHS which is particularly vital for those from lower socioeconomic areas who more likely to be physically inactive (Stalsberg and Pederson, 2018) **.**

A combination of both PA and psychological treatment pathways would be most beneficial for patients and there has been an increase in research that supports the combination of these two methods (Craft and Perna, 2004). Although one participant stated that there needs to be more research identifying that PA is beneficial for patients with mental health conditions, it could be argued that there has been sufficient research and there is a lack of awareness of current papers or apprehensiveness regarding raising the conversation. An underlying issue is GPs' lack of relevant and recent education on the use of PA as a treatment pathway. Research has confirmed that GPs have had insufficient training in mental health which impacts their approach to treating patients with mental health conditions and utilisation of PA as a treatment pathway (Mind, 2016; Richards *et al*., 2004). This supports Chatterjee *et al.*'s (2017) findings who discovered that less than half of the GPs interviewed had the confidence to raise the importance of PA with their patients, illustrating how significant of a problem this is. The present study's findings and previous research demonstrate the need

for improvement in the GP education system, with subjects like mental health and PA being raised in various training formats, such as annual appraisal, initial healthcare professional qualification and topic-specific sessions. Several GPs mentioned how these would be suitable mechanisms for improving awareness of PA and mental health.

Overall, the findings can be used to suggest that there is a need for an improvement in mental health funding within the overall NHS, specifically focusing on improving opportunities for using PA as a treatment for mental health. An increase in funding for PA schemes will result in schemes being sustainable and more likely to engage a greater number of patients across England. Secondly, development in education and training pathways for healthcare professionals is needed as there is a lack of PA awareness as a treatment method for mental health conditions. Together, this would develop both PA schemes' availability and ensure that they are being used more often.

Chapter 6: Conclusion

This thesis addressed its three stated aims:

(I) To explore GPs' experiences of physical activity and other provisions for mental health, in their local area

(II) To understand perceived problems regarding access to physical activity to support mental health

(III) To understand how existing socioeconomic inequalities may impact the mental health treatment approach of GPs

Before concluding, I review some of the strengths and limitations of the study that need consideration, followed by a short piece of reflective writing that analyses my experiences a provides a "tangible and concrete audit trail" of the processes involved in this study (Jasper, 2005, p.257), and my learning.

6.1 Importance of the work

To the best of my knowledge, this study is the first to explore the impact that the SEP of a GPs' practice has had on how they use PA as a treatment pathway for common mild to moderate mental health conditions. It extends understanding of the socioeconomic inequalities that exist within healthcare, demonstrating how GP's underlying beliefs and practices are intertwined with both provision and need in their areas of practice, as well as wider understanding of the role that PA can play in mental health treatment.

Although this thesis focused on the association between PA, mental health and socioeconomic inequalities, the findings did support recent research on how mental health issues are occurring more often and the negative impact that COVID-19 had (Baker, 2021; Groarke *et al.*, 2020). Based on the qualitative analysis, this work contributes to existing knowledge (Chatterjee *et al.*, 2017) on how GPs lack awareness and confidence in using PA

schemes as it remains low on the hierarchy for treating mental health conditions. The data has suggested that pharmaceutical and psychological treatment pathways are prioritised, thereby limiting the use of PA pathways as a treatment for mental health conditions. The results of the research support the idea that due to long waiting times for psychological treatment pathways, antidepressants are used more frequently due to ease of access for both patients and GPs. Findings reported here shed new light on how the socioeconomic impact of a GPs approach to treatment, as GPs based in more affluent areas were more reluctant to use PA schemes. However, this paper has argued that PA is, overall, an underutilised treatment pathway by all GPs in this study. This has emphasised the importance of raising awareness of the use of PA schemes as either primary or alternative treatment pathways, resulting in fewer side effects.

A further important contribution this thesis makes is to provide findings that suggest that the socioeconomic area had an impact on a GP's approach to using PA as a treatment pathway, with GPs from less affluent areas being more inclined to refer patients to available schemes. Yet, the socioeconomic area did not just influence the referral rate but also affected the GPs' attitude towards PA. This study demonstrated how substantial the impact of the socioeconomic area is on their treatment approach using PA. While GPs in the more affluent area were sceptical about using their available PA schemes, those from more deprived areas would raise awareness among patients whenever appropriate. Although GPs from more affluent areas make low referrals and have multiple PA schemes available, one GP in the most deprived area cannot refer their patients to PA schemes due to lack of access despite being an advocate of PA. The results of this research support the idea that the financial element of a PA scheme is important to engage more patients. Whilst more deprived areas have more referrals than the more affluent areas, there continues to be an insufficient number

which needs to be improved. Although all CCGs are under one NHS, healthcare inequalities continue to be a problem in England concerning PA schemes which need to be addressed to minimise socioeconomic health inequalities.

This study has raised important questions about the nature of communication that currently exists for GPs with both patients and external PA pathway leaders. Communication and interaction are problematic with patients and external healthcare professionals, irrespective of their SEP. Due to these barriers, the study has raised the importance of poor communication and the consequences it has on referrals. This thesis has provided a deeper insight into how problematic the current system is as GPs are unaware of how a patient is progressing. However, the insights gained may assist in finding the most appropriate way to refer patients. Furthermore, this thesis emphasises the need for a new approach and structure of communication between GPs and healthcare professionals to help monitor a patient's progress. The empirical findings add to the existing literature on the socioeconomic impact on PA engagement (Cleland and Crawford, 2012), but further, provide a new understanding of the impact that it has on engagement with PA schemes. It is important to emphasise that patients from lower socioeconomic areas had a positive attitude toward engaging in PA schemes despite typically encountering more barriers than those in more affluent areas. The present study provides a basis for future research focusing on tackling common barriers to PA within different socioeconomic areas in England.

6.2 Study recommendations

6.2.1 Communication between GPs, external healthcare professionals and patients

The recommendation that seems most critical from this study is the need for an improvement in the communication that currently occurs between different healthcare professionals and patients. Developing a more formal communication system between GPs and external healthcare professionals would help monitor patients more effectively, hopefully, resulting in lower drop-out rates and more successful PA schemes.

This improvement in communication could help determine treatment methods that GPs use and ensure that the GPs are aware of what services are available. As identified in this study, waiting times can be very problematic in certain socioeconomic areas. Therefore, keeping GPs updated with current waiting times may alter their approach and potentially the use of other services, such as PA schemes. In the higher socioeconomic area, lack of awareness of PA schemes was a noteworthy issue. A developed connected system where GPs are informed regularly on available schemes and are encouraged to reach a set referral target would promote PA schemes available in their area. Unless CCGs adopt a new system aiding communication between GPs and external healthcare professionals, referral rates could continue to be inadequate.

6.2.2 Importance of the education system for GPs

Recommendations for an improvement in education policies and practices are vital to helping promote the use of PA to treat mental health conditions. There still is no mandatory training in the use of PA as a treatment for mental health issues. A key policy should therefore be to plan for the long-term care of formal teaching for promoting PA as a treatment pathway for mental health to GPs during their initial training. Public bodies, such

as the General Medical Council, implementing this policy will help raise the awareness and knowledge of both mental health and PA to GPs. Continued efforts are needed to ensure that GPs are kept up to date as health guidelines change, including areas such as PA guidelines and levels of sedentary behaviour. Therefore, in their formal teaching during their annual appraisal, PA and mental health need to be more of a priority to be presented to all GPs in a formal teaching format.

This research has acknowledged that GPs are responsible for keeping up to date with current research in their own time, irrespective of the learning approach. However, due to COVID-19, it was identified that GPs have lacked time for research due to an increase in patient demand. A reasonable approach to tackle this issue is rather than GPs being responsible for personally acquiring information such as new guidelines, COVID-19 information and other healthcare information, all GPs have a set learning pathway issued by the NHS policymakers, ensuring that all GPs are up to date with new information. Furthermore, relating to the previous policy, as well as a general cross-sectional learning approach, GPs could be issued updates monthly that contain specific information regarding their local CCG, such as local support networks, information about PA schemes and other treatment pathways.

6.2.3 Impact of physical activity scheme locations

Another policy recommendation is the need for an improvement in PA schemes. Physical activity schemes need to be developed to engage the wider community, especially for patients in more deprived areas. Ensuring appropriate systems, services, and support for patients from a lower socioeconomic area should be a priority for CCGs as patients experience various barriers that limit their engagement and exposure to PA schemes. Therefore, location is an important factor to take into consideration when considering and

adopting new PA schemes. Lack of leisure time and money were identified as common barriers for patients, which supports the policy and proposal of centralising PA schemes to avoid patients having to use public transport. An appropriate system would minimise the barriers that patients experience and would hopefully increase uptake and higher engagement in PA schemes due to the increased accessibility.

Moving forward, there need to be considerable improvements in local infrastructure to maximise the efficiency of PA schemes in the local communities. Residents of local communities should be consulted regarding what PA they consider to be most beneficial and effective for them, as opposed to providing generic gym referrals. This will help to understand the perceived problems that exist with engagement in PA by the local community and identify barriers that need to be overcome when designing a more effective PA scheme.

6.2.4 An improvement in awareness of physical activity as a treatment method

As identified in this study, there is a need for an improvement in prioritising PA and using it as a treatment method for patients with common mild to moderate mental health conditions. Unless the NHS adapts and changes its structure, PA will continue to be an underutilised treatment pathway due to other treatment methods that are currently prioritised over PA. There is insufficient education on utilising PA as a treatment pathway for common mental health conditions and greater efforts by the NHS are needed to improve the healthcare structure in this area. Education in PA as a standalone treatment pathway or in adjacent to other treatment pathways, such as psychologists or antidepressants, would reduce sedentary behaviour which is associated with mental health problems and further improve their healthy habits.

6.2.5 Changes to the way mental health is funded through the NHS

Although it has been established that treatment pathways are generally an underfunded source, PA schemes have been identified to be especially underfunded in comparison to other treatment pathways, with some GPs in this study not having access to any PA pathways. An increase in PA funding would break the barriers that were identified, such as removing the element of patients paying. The NHS should set a minimal funding cap policy that makes it mandatory for a certain percentage of the CCG's money to be invested in mental health pathways. There are currently plans for £2.3 billion of the NHS funding to be spent on mental health services by 2023/2024 as part of the NHS long-term plan, creating a new ring-fence policy (NHS, 2019b). At present, it will be interesting to see if the current policy will be met and if this creates improvement in PA schemes.

6.2.6 Summary of recommendations

The previous sub-sections have provided a series of recommendations developed from this research. Although the importance of PA engagement has been acknowledged by the NHS, unless public health adopts a policy for improving socioeconomic equalities and better access to PA schemes, then PA engagement will remain an underutilised pathway. NHS policymakers need to ensure that there is a ring-fencing policy that will help develop treatments for mental health conditions, such as PA schemes. Lastly, there needs to be an improvement in the basic need for education on PA and mental health, both when qualifying and throughout a GP's medical career. These practical recommendations could be used as an approach to reduce healthcare inequalities and improve the use of PA as a treatment pathway for mental health conditions.

6.3 Strengths and Limitations

In-depth interviews enabled discussion of politically-sensitive and complex problems, such as COVID and funding, to be investigated comprehensively. Applying the concept of information power (Malterud *et al*., 2016), I would suggest that a strength of this work is the rich data I obtained from experts with deep insight into the context being investigated. There were, however, a number of limitations to consider.

First, there was limited diversity in the geographical area, local policies and procedures, due to only two GPs from each socioeconomic area participating**.** As illustrated in this study, findings varied within the same socioeconomic areas and therefore, a greater number of participants would result in a more thorough understanding of the socioeconomic impact on public healthcare. In addition, due to the nature of the study, there was a broad inclusion: participants had to be a qualified GP and currently working as healthcare professionals. Therefore, two GPs were locums and as a result, were not consistently working as a GP. Due to this, they were not able to answer all questions in the interview to the fullest extent. This may mean that the data are unlikely to capture the range of experiences, barriers, beliefs and ways of working of GPs facing different local challenges, experiences, and cultures. While this does not undermine the value of the findings generated, it does require consideration if readers or practitioners are seeking to generalise the findings of this work. While we suggest that the findings are likely to be transferable (Smith, 2018), due to some shared system-level characteristics, this may not always be the case.

6.4 Direction for future research

This research has identified questions in need of further investigation. This study should be repeated with a large sample of GPs to confirm, challenge and expand the present study's findings and ensure a strong representation of other areas of England. GPs should be recruited in England as healthcare systems differ between countries in the UK. Further studies should also consider PA scheme leaders' opinions on the use of PA as a treatment pathway by understanding their experiences with patients with mental health diagnoses who engage in their schemes. Furthermore, research should focus on patients' opinions of the use of PA schemes to treat mental health problems, as well as considering their SEP. It would help shape and gather an understanding of what would make PA schemes more effective for patients and a greater understanding of the barriers that they encounter. These directions for future research will further help develop the healthcare policies that are in place to improve mental health and engagement in PA.

6.5 Concluding remarks

In this thesis I set out to gain an understanding of how the socioeconomic area in which a GP's practice is located influences their use of PA as a treatment pathway for mental health. GPs from a lower socioeconomic area were more inclined to use PA as a treatment pathway and experienced longer waiting periods for patients to see a psychologist. Conversely, there was insufficient communication regarding access to PA schemes which limited the referral rate in the higher socioeconomic areas. Crucially, these findings have identified the socioeconomic inequalities that exist due to the general wider variety of treatment pathways offered to patients for mental health.

Numerous challenges to using PA effectively to support patients with mental health diagnoses were complex and differed between localities, with GPs working in more deprived areas encountering a greater number of barriers. The findings of this study have many important implications for future practice that aim to tackle the socioeconomic inequalities that exist and the corresponding barriers that limit the utilisation of PA schemes by GPs, resulting in an improvement in a patient's mental health.

6.6 Reflection on the research journey

As I handed in my undergraduate dissertation with a click of a button in April 2020, I was finally able to look back on my paper and acknowledge how satisfying it was to write a piece of work that was completely my concept. As expected, it got to the stage of thinking 'What is the next chapter for me?'. As with a reasonable number of undergraduates (I like to think), I was not sure what the best option for me was. I remember having a discussion with my supervisor a couple of months prior who mentioned that my paper could be developed into a Master's thesis. So, I explored where my thesis could expand and what areas I wanted to specifically focus on from my undergraduate degree. Two years and quite a few obstacles later, here I am.

I knew I would experience challenges working with GPs during the COVID-19 pandemic. When I was trying to recruit GPs, it was, unfortunately, the same time as the vaccination programme and thus, they were unavailable for interviews. As a health expert and human rights activist, Dr Widad Akrawi, wisely said "*If you are positive, you'll see opportunities instead of obstacles*" (cited by Quotes Master Organisation, n.d.). Although I did have to alter my thesis title and the socioeconomic areas that I recruited from, I was offered a two-month job as a researcher for Middlesbrough FC Foundation to help them bid for a £1 million grant from the football foundation that focuses on engaging BAME in a football scheme.

This opportunity developed my skills as a researcher as I interviewed a cross-section of stakeholders, including asylum seekers, members of the police force and social workers, regarding engagement in a football scheme. I acquired many skills as a researcher through these two months which enhanced my experience during my degree at Durham University. Once I returned to my degree, the UK slowly started to relax out of lockdown, allowing GPs to participate in my study.

This thesis has been an academic challenge that has developed my writing and has provided an opportunity to apply my knowledge which has broadened throughout my experience. It has been a satisfying experience when analysing and interpreting what new findings my research has brought to this field. It has made me question and challenge current policies in the healthcare system and allowed me to recommend policies that could be implemented. The highlight of my master's degree was having the opportunity to present my work at the Fifth Annual Wolfson Research Institute for Health and Wellbeing Early Career Researcher Conference (Appendix F). I am very honoured to have had the chance to present my work as I come to the end of my degree and raise awareness of the socioeconomic inequalities that currently exist within the healthcare system in England.

But what is the next chapter for me? This research has influenced and directed my decision toward the field of health policy. The desire to change policies within public healthcare, minimise socioeconomic inequalities in healthcare and push for a better education system for GPs. Two years ago, I never thought about getting involved in health policy, but due to my experience and findings from my thesis, it has made me aspire to make a change in public healthcare.

As I look back over the last five academic years of my time at Durham University, I am proud of what I have accomplished, both inside and outside of academia. I have overcome the brain surgery that I had during this paper. This is not a sense of sympathy, but for me, it rather enhances the accomplishment that I have as I conclude this paper. I would not be here if it was not for the continuous support of my family and my academic advisors, Dr Caroline Dodd-Reynolds and Dr Emily Oliver. I will miss the meetings we had where they would challenge me to ensure my work is of the highest quality as well as develop my academic skills. It has been an honour to be at Durham University over the last five years and I look forward to returning in the future as a fellow alumnus. However, I look forward to the next chapter of my life.

Appendices

Appendix A – Health Research Authority Confirmation (*Email and Website*)

Appendix B – Participant Information Sheet

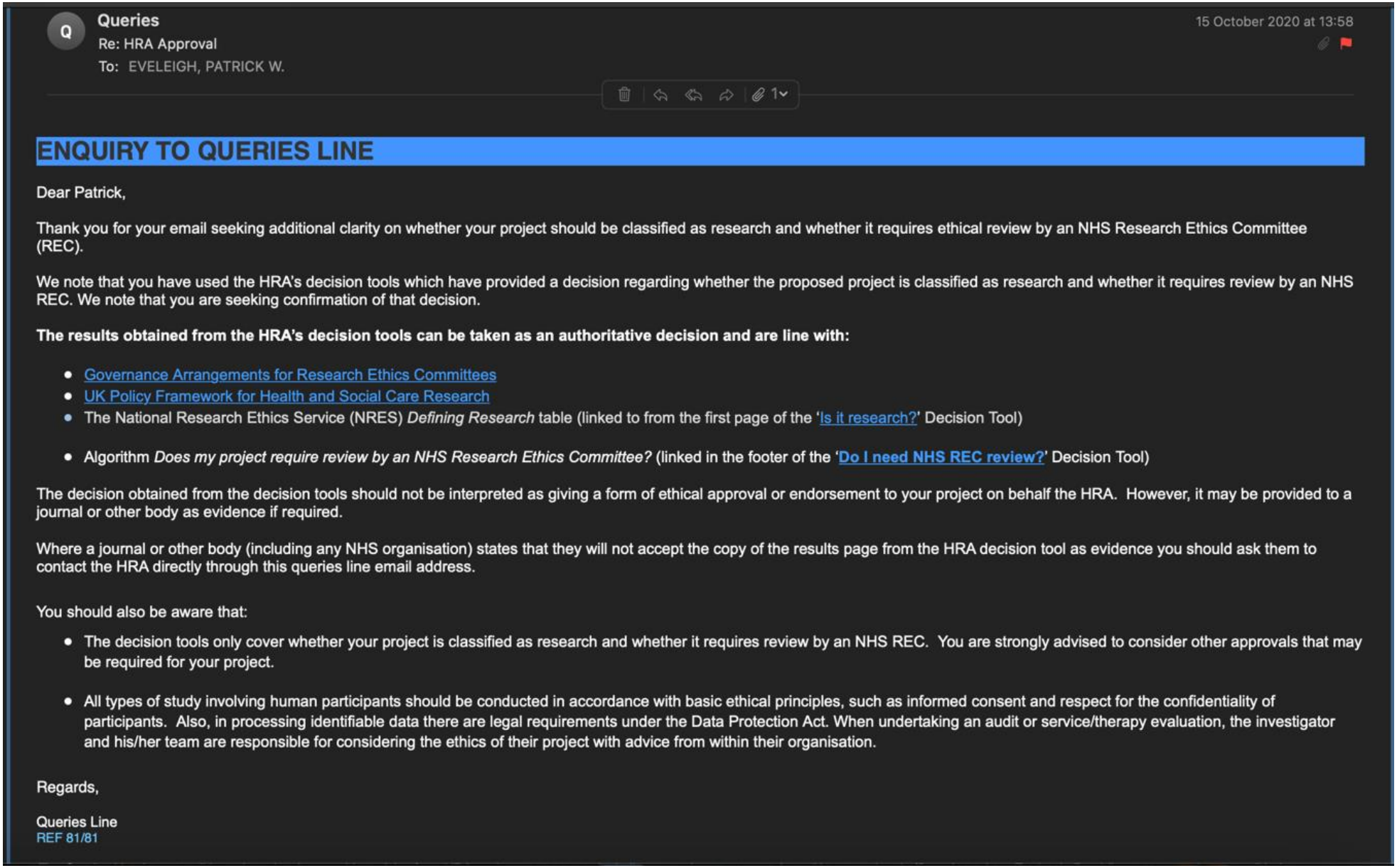
Appendix C – Privacy Notice

Appendix D – Consent Form

Appendix E – Pre-interview Questionnaire

Appendix F – Wolfson Research Institute for Health and Wellbeing ECR Conference Presentation Slides

Appendix A: Health Research Authority Confirmation (Email and Website)



Q **Queries**
Re: HRA Approval
To: EVELEIGH, PATRICK W.

15 October 2020 at 13:58

ENQUIRY TO QUERIES LINE

Dear Patrick,

Thank you for your email seeking additional clarity on whether your project should be classified as research and whether it requires ethical review by an NHS Research Ethics Committee (REC).

We note that you have used the HRA's decision tools which have provided a decision regarding whether the proposed project is classified as research and whether it requires review by an NHS REC. We note that you are seeking confirmation of that decision.

The results obtained from the HRA's decision tools can be taken as an authoritative decision and are line with:

- Governance Arrangements for Research Ethics Committees
- UK Policy Framework for Health and Social Care Research
- The National Research Ethics Service (NRES) *Defining Research* table (linked to from the first page of the 'Is it research?' Decision Tool)
- Algorithm *Does my project require review by an NHS Research Ethics Committee?* (linked in the footer of the '**Do I need NHS REC review?**' Decision Tool)

The decision obtained from the decision tools should not be interpreted as giving a form of ethical approval or endorsement to your project on behalf the HRA. However, it may be provided to a journal or other body as evidence if required.

Where a journal or other body (including any NHS organisation) states that they will not accept the copy of the results page from the HRA decision tool as evidence you should ask them to contact the HRA directly through this queries line email address.

You should also be aware that:

- The decision tools only cover whether your project is classified as research and whether it requires review by an NHS REC. You are strongly advised to consider other approvals that may be required for your project.
- All types of study involving human participants should be conducted in accordance with basic ethical principles, such as informed consent and respect for the confidentiality of participants. Also, in processing identifiable data there are legal requirements under the Data Protection Act. When undertaking an audit or service/therapy evaluation, the investigator and his/her team are responsible for considering the ethics of their project with advice from within their organisation.

Regards,

Queries Line
REF 81/81

Medical Research Council

NHS Health Research Authority

Is my study research?

To print your result with title and IRAS Project ID please enter your details below:

Title of your research:

Does the socioeconomical position of an area have an impact on the use of physical activity as a treatment pathway for mental health by GPs

IRAS Project ID (if available):

You selected:

- **'No'** - Are the participants in your study randomised to different groups?
- **'No'** - Does your study protocol demand changing treatment/ patient care from accepted standards for any of the patients involved?
- **'No'** - Are your findings going to be generalisable?

Your study would NOT be considered Research by the NHS.

You may still need other approvals.

Researchers requiring further advice (e.g. those not confident with the outcome of this tool) should contact their R&D office or sponsor in the first instance, or the HRA to discuss your study. If contacting the HRA for advice, do this by sending an outline of the project (maximum one page), summarising its purpose, methodology, type of participant and planned location as well as a copy of this results page and a summary of the aspects of the decision(s) that you need further advice on to the HRA Queries Line at Queries@hra.nhs.uk.

For more information please visit the Defining Research table.

Follow this link to start again.

Print This Page

NOTE: If using Internet Explorer please use browser print function.

Appendix B – Participant Information Sheet

How does area-level deprivation influence healthcare professionals' use of physical activity for treatment of common mental health conditions?

Participant Information Sheet

I would like to invite you to participate in the research that I am undertaking for my postgraduate dissertation at Durham University. The proposed qualitative research will consider the perspective of healthcare professionals and look at their opinions on the use of physical activity as a treatment for patients with mental health issues. Specifically, we seek to understand from healthcare professionals their understanding of physical activity as a treatment for these conditions, any barriers that they perceive to exist in recommending and referring physical activity pathways/programmes, and what may assist with improving recommendations and referrals.

An outline of this study is provided below. Please read the information provided before you decide whether or not you would like to participate. If you have any questions, please feel free to contact me, using the contact details at the end of this form.

Participation Details

Why I would like you to be involved:
We hope that you will be involved in this study as we are keen to understand more about how physical activity recommendations and referrals might be implemented for mental health in a healthcare setting in your local area. We have invited you to take part as you are a healthcare professional working in England. I am keen to speak with all GPs, regardless of their opinion of physical activity as a referral pathway.

What is involved: Data will be gathered using semi-structured interviews through a number of different surgeries in England. Semi-structured interviews will usually take around 30-40 minutes to complete but may range from 15-60 minutes. We hope that the interviews will be undertaken online using Zoom software. It would consist of answering questions about your experience of recognising, diagnosing and offering treatments for patients with mental health conditions and will consider the effect that the socioeconomic position may have. There may also be follow up questions that aim to provide further information. Data will be transcribed verbatim and analysed using a thematic process. There is a short questionnaire that is used for demographics and basic information about your career.

What are the possible benefits of taking part: By participating in this research, you will be helping us to understand more about how and if physical activity is or can be used for improving mental health. You will also help us to gain awareness and knowledge of the facilities that the NHS offer or have access to in your local area. A summary of the findings will be sent to your associate lead for public health research. This aims to aid their understanding of physical activity referrals in your area related to mental health and will hopefully improve the public health by identifying any potential problems.

What are the possible disadvantages and risks of taking part: There are no disadvantages and minimal risk.

What levels of anonymity and confidentiality will apply to the information that you may share: All information that is given during the interviews shall stay confidential, including names. A pseudonym will be used for each participant in this research. You may withdraw yourself from this study up to 14 days after the interview.

What will the data be used for: We will use the data obtained to explore whether physical activity referral advice and/or pathways are available to healthcare professionals, alongside barriers and facilitators. Data will be used to compare the socioeconomic position of an area and whether that has an impact on the treatment for patients with mental health issues. Ultimately, this research will provide information useful for healthcare professionals about utilising physical activity as a treatment for mental health and what facilities are available in certain areas. A summary of the findings from this research may be shared with your local council to give them a better understanding of physical activity referrals and mental health.

How the data will be stored securely: Data will be recorded and transcribed verbatim and analysed using a thematic process. The data will be secured on a password-protected laptop and once the recording of the interview has been transferred, it will be deleted off that device. My research team will be the only people to have access to this data.

Who the researchers are, and how they can be contacted: As previously outlined, I am a postgraduate student at Durham University studying MSc in Sport, Physical Activity and Exercise. I hope to carry out this study for my dissertation. I have a member of the department who is my dissertation advisor whose details will be available below if needed.

How to get in touch: If you have any questions or this information sheet is not clear, please feel free to contact me at patrick.eveleigh@durham.ac.uk.

If you have any concerns or complaints about the conduct of this project, please contact my dissertation supervisor Caroline Dodd-Reynolds at caroline.doddreynolds@durham.ac.uk

Appendix C – Privacy Notice

Privacy Notice

PART 1 – GENERIC PRIVACY NOTICE

Durham University has a responsibility under data protection legislation to provide individuals with information about how we process their personal data. We do this in a number of ways, one of which is the publication of privacy notices. Organisations variously call them a privacy statement, a fair processing notice or a privacy policy.

To ensure that we process your personal data fairly and lawfully we are required to inform you:

- Why we collect your data
- How it will be used
- Who it will be shared with

We will also explain what rights you have to control how we use your information and how to inform us about your wishes. Durham University will make the Privacy Notice available via the website and at the point we request personal data.

Our privacy notices comprise two parts – a generic part (i.e. common to all of our privacy notices) and a part tailored to the specific processing activity being undertaken.

Data Controller

The Data Controller is Durham University. If you would like more information about how the University uses your personal data, please see the University's or contact Information Governance Unit:

Telephone: (0191 33) 46246 or 46103

E-mail: information.governance@durham.ac.uk

Information Governance Unit also coordinate response to individuals asserting their rights under the legislation. Please contact the Unit in the first instance.

Data Protection Officer

The Data Protection Officer is responsible for advising the University on compliance with Data Protection legislation and monitoring its performance against it. If you have any concerns regarding the way in which the University is processing your personal data, please contact the Data Protection Officer:

Jennifer Sewel
University Secretary
Telephone: (0191 33) 46144

E-mail: university.secretary@durham.ac.uk

Your rights in relation to your personal data

Privacy notices and/or consent

You have the right to be provided with information about how and why we process your personal data. Where you have the choice to determine how your personal data will be used, we will ask you for consent. Where you do not have a choice (for example, where we have a legal obligation to process the personal data), we will provide you with a privacy notice. A privacy notice is a verbal or written statement that explains how we use personal data.

Whenever you give your consent for the processing of your personal data, you receive the right to withdraw that consent at any time. Where withdrawal of consent will have an impact on the services we are able to provide, this will be explained to you, so that you can determine whether it is the right decision for you.

Accessing your personal data

You have the right to be told whether we are processing your personal data and, if so, to be given a copy of it. This is known as the right of subject access. You can find out more about this right on the University's Subject Access Requests webpage.

Right to rectification

If you believe that personal data we hold about you is inaccurate, please contact us and we will investigate. You can also request that we complete any incomplete data.

Once we have determined what we are going to do, we will contact you to let you know.

Right to erasure

You can ask us to erase your personal data in any of the following circumstances:

- We no longer need the personal data for the purpose it was originally collected
- You withdraw your consent and there is no other legal basis for the processing
- You object to the processing and there are no overriding legitimate grounds for the processing
- The personal data have been unlawfully processed
- The personal data have to be erased for compliance with a legal obligation
- The personal data have been collected in relation to the offer of information society services (information society services are online services such as banking or social media sites).

Once we have determined whether we will erase the personal data, we will contact you to let you know.

Right to restriction of processing

You can ask us to restrict the processing of your personal data in the following circumstances:

- You believe that the data is inaccurate, and you want us to restrict processing until we determine whether it is indeed inaccurate
- The processing is unlawful, and you want us to restrict processing rather than erase it

- We no longer need the data for the purpose we originally collected it, but you need it in order to establish, exercise or defend a legal claim and
- You have objected to the processing and you want us to restrict processing until we determine whether our legitimate interests in processing the data override your objection.

Once we have determined how we propose to restrict processing of the data, we will contact you to discuss and, where possible, agree this with you.

Retention

The University keeps personal data for as long as it is needed for the purpose for which it was originally collected. Most of these time periods are set out in the University Records Retention Schedule.

Making a complaint

If you are unsatisfied with the way in which we process your personal data, we ask that you let us know so that we can try and put things right. If we are not able to resolve issues to your satisfaction, you can refer the matter to the Information Commissioner's Office (ICO). The ICO can be contacted at:

Information Commissioner's Office Wycliffe House Water Lane Wilmslow Cheshire SK9 5AF

Telephone: 0303 123 1113

Website: Information Commissioner's Office

PART 2 – TAILORED PRIVACY NOTICE

Project Title: How does area-level deprivation influence healthcare professionals' use of physical activity for treatment of common mental health conditions?

Type(s) of personal data collected and held by the researcher and method of collection:

Personal data will be collected through semi-structured interviews. This will include your opinions and views of mental health, physical activity and the treatment pathways available in your local practice. There will also be audio and video recordings during the interviews that will be kept confidential and on a secured device.

Lawful Basis

Collection and use of personal data are carried out under the University's public task, which includes teaching, learning and research.

How personal data is stored:

- All personal data will be held securely for up to 10 years and strictly confidential to the research team.

- You will be allocated an anonymous number or pseudonym for data collection which will not be connected to your name or identity. Signed consent forms will be stored separately to project data.
- All personal data in electronic form will be stored on a password protected computer, and any hardcopies will be kept in locked storage. Data will not be available to anyone outside the research team.
- The interview recordings and stored on an encrypted device until it has been transcribed by the researcher. No-one else will have access to the recording, and it will be erased once the transcript has been completed.
- Questionnaires will be stored on a password protected device.

How personal data is processed:

- Personalised data is processed to analyse responses according to certain criteria.
- Information will be entered into a database for analysis. After ten years the data will be completely anonymised and the original records, including any information which can identify you personally, will be destroyed.
- The *recorded conversation will be transcribed by the researcher, and personal information will be coded and anonymized. The original recording will then be erased.*
- *The questionnaire will be anonymous and stored on a password protected device.*

Withdrawal of data

You can request withdrawal of your data until it has been fully anonymised. Once this has happened it may not be possible to identify you from any of the data we hold.

Who the researcher shares personal data with:

- The transcripts will be read by the research team. General themes and non-identifiable quotes will be used for a postgraduate dissertation and may be used for academic presentations and/or in academic publications.

How long personal data is held by the researcher:

Personal data will be stored for up to 10 years.

How to object to the processing of your personal data for this project:

If you have any concerns regarding the processing of your personal data, or you wish to withdraw your data from the project, the contact details are at the bottom of this document.

Further information:

Researcher
Patrick Eveleigh
07908198400
patrick.eveleigh@durham.ac.uk

Dissertation Advisor
Caroline Dodd-Reynolds
caroline.dodd-reynolds@durham.ac.uk

Appendix D – Consent Form

Consent Form

Project title: How does area-level deprivation influence healthcare professionals' use of physical activity for the treatment of common mental health conditions?

Researcher(s): Patrick Eveleigh
Department: Sport and Exercise Science
Contact details: Patrick.eveleigh@durham.ac.uk, 07908198400

Supervisor name: Caroline Dodd-Reynolds
Supervisor contact details: caroline.dodd-reynolds@durham.ac.uk

This form is to confirm that you understand what the purposes of the project, what is involved and that you are happy to take part. Please initial each box to indicate your agreement:

I confirm that I have read and understood the Information Sheet dated and the Privacy Notice for the above project.	
I have had sufficient time to consider the information and ask any questions I might have, and I am satisfied with the answers I have been given.	
I understand who will have access to personal data provided, how the data will be stored and what will happen to the data at the end of the project.	
I agree to take part in the above project.	
I understand that my participation is entirely voluntary and that I am free to withdraw at any time without giving a reason.	
I consent to information from the questionnaire being used in this research study.	
I consent to being audio recorded / being video recorded / and understand how recordings will be used in research outputs.	
I understand that my words may be quoted in publications, reports, and other research outputs.	

Participant's Signature_____ Date_____

(NAME IN BLOCK LETTERS)_____

Appendix E – Pre-interview Questionnaire

Please fill out this quick questionnaire. Please note that the name of your surgery will not be used in the thesis, only your region. This is used to identify the specific IMD level of your practice.

Thank you for participating.

What is your age?

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65+

What gender do you identify as?

- Male
- Female
- Prefer not to say
- Other

What year did you qualify to become a healthcare professional?

_____

How many years have you been a healthcare professional?

_____

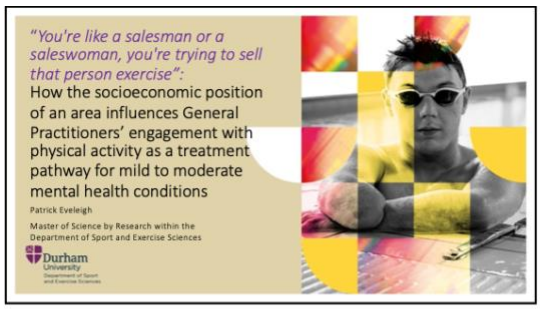
What is the postcode of the GP surgery that you currently work at?

_____

How many years have you been working at this practice?

_____

Appendix F – Wolfson Research Institute for Health and Wellbeing ECR Conference Presentation Slides



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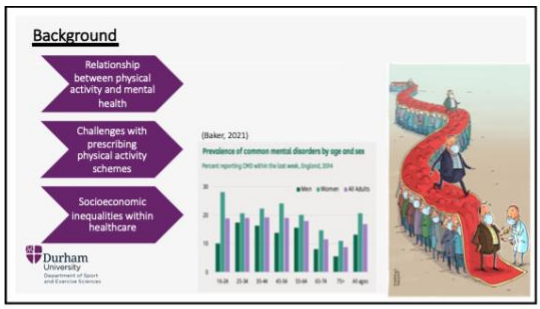

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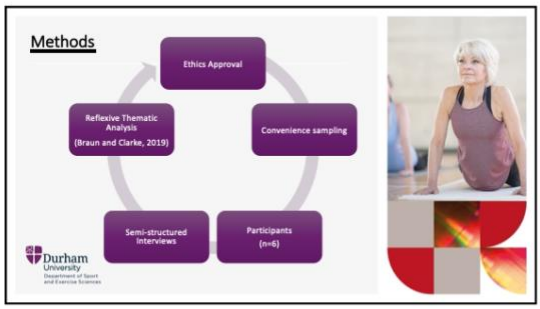

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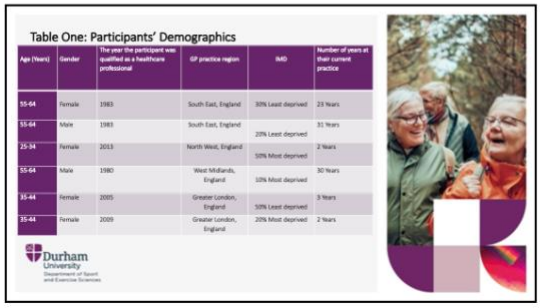
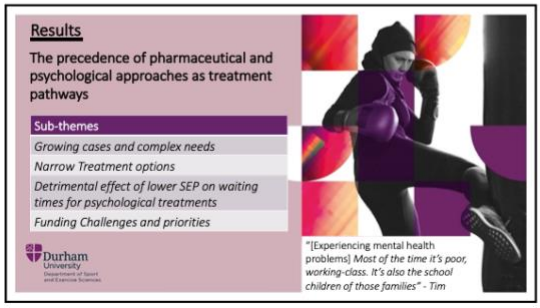
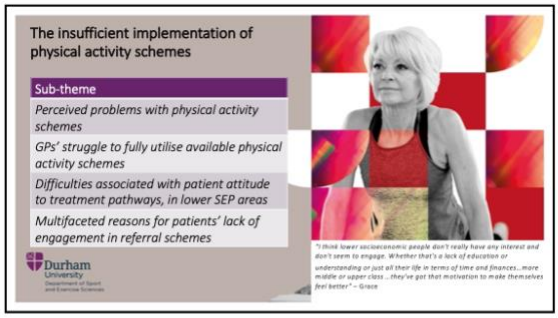
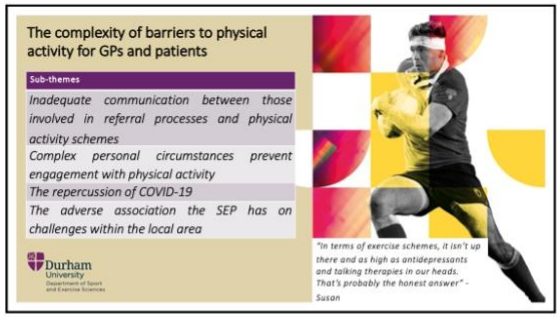


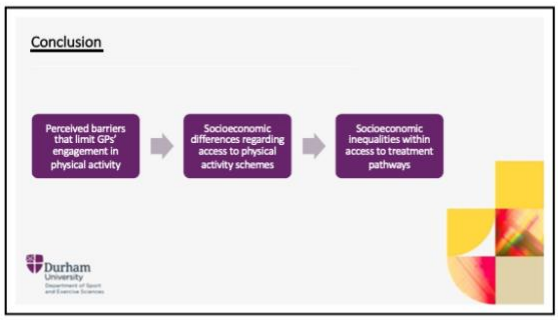



The insufficient implementation of physical activity schemes
Sub-theme
Perceived problems with physical activity schemes
GPs' struggle to fully utilise available physical activity schemes
Difficulties associated with patient attitude to treatment pathways, in lower SEP areas
Multifaceted reasons for patients' lack of engagement in referral schemes
Durham University
"I think lower socioeconomic people don't really have any interest and don't seem to engage. Whether that's a lack of education or understanding or just all their life in terms of time and finances...more middle or upper class ... they've got that motivation to make themselves feel better" – Grace

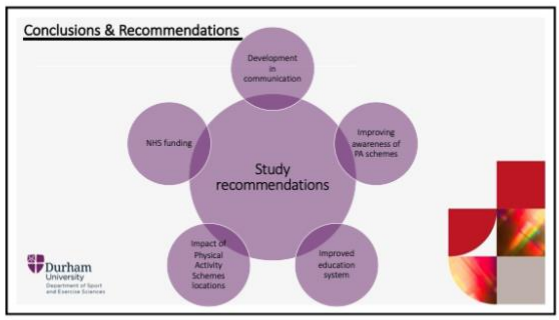
7


The complexity of barriers to physical activity for GPs and patients
Sub-themes
Inadequate communication between those involved in referral processes and physical activity schemes
Complex personal circumstances prevent engagement with physical activity
The repercussion of COVID-19
The adverse association the SEP has on challenges within the local area
Durham University
"In terms of exercise schemes, it isn't up there and as high as antidepressants and talking therapies in our heads. That's probably the honest answer" - Susan

8


Conclusion
Perceived barriers that limit GPs' engagement in physical activity
Socioeconomic differences regarding access to physical activity schemes
Socioeconomic inequalities within access to treatment pathways
Durham University

9


Conclusions & Recommendations
Development in communication
NHS funding
Improving awareness of PA schemes
Study recommendations
Impact of Physical Activity Schemes locations
Improved education system
Durham University

10


Thank you
Any questions?
Supervisors
Dr Caroline Dodd-Reynolds and Dr Emily Oliver
Please feel free to contact me at:
patrick.eyeleigh@durham.ac.uk
Durham University

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