

**The impact of an exercise referral scheme on  
patients and health professionals: A longitudinal  
qualitative study.**

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A thesis submitted to the University of Gloucestershire in accordance with the  
requirements of the degree of Doctor of Philosophy in the Faculty of Applied  
Sciences

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## AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of the University of Gloucestershire and is original except where indicated by specific reference in the text. No part of the thesis has been submitted as part of any other academic award. The thesis has not been presented to any other education institution in the United Kingdom or overseas. Any views expressed in the thesis are those of the author and in no way represent those of the University of Gloucestershire.

Signed ..... Date .....

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## ABSTRACT

Understanding the complexities associated with physical activity behaviour is problematic as it is a complex phenomenon that the majority of the population do not engage with. Sedentary lifestyles have been associated with a range of diseases, more prevalent in areas of social deprivation than in affluent areas. The objective of this research was to gain a comprehensive understanding of the experiences of a group of patients and their referring health professionals, in respect to what the experience meant to them and its impact on their lives. A qualitative longitudinal approach was used to maximise the ecological validity of the study. The practice based exercise referral scheme took place in a South West Devon city.

The data collection phase comprised of two parts. Twelve interviews were carried out with referred patients on three occasions (0, 8 and 12 months). The second phase consisted of six interviews with the referring health professionals on two separate occasions (0 and 8 months). Grounded theory methodology guided the analysis resulting in two conceptual models. The first model emerged from the health professional's data. It depicted the context in which the patients were referred into the scheme and represented the phenomena 'patient take-up of a practice based exercise referral scheme'. The second model emerged from the patient's data, depicted the context in which the patients experienced the scheme and represented the phenomena 'the impact of long term involvement with an exercise referral scheme on patient's perceived health status'.

These findings were interpreted further to gain insights into the core categories of 'easier referral' and 'feeling better', which emerged from the first and second models respectively. The analysis highlighted the multidimensional nature of these two categories. 'Easier referral' embraced a wide range of notions. For example, structural systems, interactional tactics and training needs. Barriers to referral included not prioritising referrals and gender stereotypes. Enablers included tactics to engage the patient with the scheme. 'Feeling better' embraced a wide range of beliefs held by the patients. For example, the impact of the scheme on perceived health status, the impact of sedentary behaviour on disease aetiology and the support systems necessary for adherence. Key motivators for adherence were, feeling good, health status and medical implications.

Through unpacking the two concepts of 'feeling better' and 'easier referral' the findings provide new knowledge on the potential that exercise referral schemes have to improve long term quality of life for patients. The findings also suggest methods that health professionals can improve patient take-up of schemes. This insight can inform researchers and future evaluation design of exercise referral schemes to be more representative of the genuine long term impact on the health of patients. Future schemes would benefit by developing: engagement tactics; training to reduce risk to health professionals; fostering gender neutral patient perceptions; and identification and use of support systems by exercise professionals. This context specific evidence adds to the current research and as such can inform future practice and research.

This study has shown that a practice based exercise referral scheme can enable patients to develop long term physical activity behaviour, apply learnt behaviour to their lifestyles, help to manage medical conditions and improve perceptions of health status.

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# **Chapter One**

## **Introduction**

### ***1.0 Introduction***

The purpose of this chapter is to introduce the research, clarify the structure of the thesis and explain how each chapter contributes to addressing the aims and objectives, and research questions. The chapter begins by describing the background to the study (Section 1.1), the rationale for the study (Section 1.2) and the research aims (Section 1.3) and objectives (Section 1.4). The focus then shifts to explaining the thesis layout (Section 1.5), the research questions and how these were addressed (Section 1.6) and a summary (Section 1.7).

### ***1.1 Background to the study***

This longitudinal study was undertaken to investigate the lived experiences of a group of patients undertaking an exercise referral scheme in a health care setting, and their referring health professionals. The scheme was run at a Primary Health Care Centre, located in a South West Devon City, that had a high level of social deprivation, Index of Multiple Deprivation (IMD) ranking of 1 (Communities and Local Government, 2007). Social inequalities in health status have been evident in areas of high social deprivation over the past 30 years (Acheson Report, 1999; Black Report, 1980; Marmot Review, 2010). The South West Devon City has been identified as being in the most deprived 25 percent of local authorities in England (SWO, 2011). Furthermore, local sport participation rates from those people with a limiting illness or disability in the South West Devon City have shown a significant decline from 8% to 4.7% over the past four years (Sport England 2010), and there are known direct treatment costs for inactivity within England which have been estimated at £1.8 billion (Department of Health, 2009). In the South West Devon City (population of 260,842) the known direct treatment costs for inactivity-related diseases have been estimated at £4.77 million (British Heart Foundation, 2013).

The physical and mental health benefits of physical activity are well established (Department of Health, 2009, World Health Organisation, 2010). Benefits to health include 'improvements in cardiorespiratory and muscular fitness, bone health, cardiovascular and metabolic health biomarkers and reduced symptoms of anxiety

and depression' (WHO, 2010, p.7). Crone and Baker (2009) have highlighted that physical activity interventions used to promote public health can be varied. For example, walking groups; condition-specific services such as falls prevention and exercise-based cardiac rehabilitation; and weight management schemes. They also include brief interventions (motivational interviewing) and exercise referral schemes (NICE, 2006). A review of evidence on the effectiveness of exercise referral schemes identified beneficial effects for people with the following conditions: cardiac event; lung disease; falls prevention; and patients who had suffered a stroke (Shepherd, 2009). Despite these known benefits, the effectiveness of interventions to address inactivity, such as exercise referral schemes has come into question (NICE, 2006; Williams, Hendry, France, Lewis & Wilkinson, 2007; Pavey et al. 2011). There is a growing body of evidence that has presented exercise referral schemes as being ineffective at promoting long term physical activity behaviour change, and not being cost effective (NICE, 2006; Williams et al., 2007; Pavey et al., 2011). This has produced a paradox between the known benefits of physical activity and the lack of evidence on the effectiveness of such interventions in primary care.

One explanation for this paradox could be the evaluation methods used to establish evidence of effectiveness. The three main evaluation types that have been identified to determine the effectiveness of increasing physical activity behaviour are: experimental quantitative (controlled and randomized controlled trials); non-experimental quantitative (uncontrolled longitudinal cohort studies); and qualitative research (Gidlow, Johnston, Crone & James, 2008). Randomised controlled trials are the dominant method of evaluation within physical activity and health promotion (Barreto, 2005). Despite this, randomised controlled trials have consistently shown low levels of: recruitment; adherence to schemes; and long term physical activity behaviour (Ackerman, Deyo & Logerfo, 2005; Gidlow, Johnston, Crone & James, 2005; Morgan, 2005, Pavey et al., 2011, Williams et al., 2007). Although a recent pragmatic randomised controlled trial (one that included an intervention) on the impact of physical activity on depression, has indicated increased levels of physical activity at follow up and 12 months post randomisation (Chalder et al., 2012). This suggests that pragmatic randomised controlled trials that include a physical activity intervention, (Chalder et al., 2012; Mutrie et al., 2007), may be a more acceptable form of controlled trial that can be used with physical activity interventions in the

future. Therefore, as a means of exploring this paradox from a different viewpoint, this study adopted a longitudinal qualitative methodology to investigate the following phenomena:

- the patients' experiences of involvement in the scheme;
- the patient's perceived impact of their involvement with the scheme;
- the experiences, perceptions and opinions of the scheme from the referring health professionals;
- the health professionals' perceived impact of their patients involvement with the scheme.

The intention was to ascertain whether this could provide an understanding of the processes and outcomes associated with taking part and being involved in an exercise referral scheme, and to use a different lens to investigate the effectiveness of schemes.

General Practitioners (GPs) tend to be the main primary care health professional who refer patients onto exercise referral schemes (Crone, Johnston, Gidlow, Henley & James, 2008; Dugdill, Graham & McNair, 2005; James et al., 2008). However, other primary care staff also make referrals, such as health visitors, practice nurses, mental health professionals, dieticians and physiotherapists (Dugdill et al., 2005). The referrer appears to have an influence on adherence and completion of schemes. For example, there is some evidence that adherence rates are greater when referrals come from nurses (Leijon et al., 2010), or greater still when patients are referred from a specialist nurse practitioner (Cooper, Jackson, Weinman & Horne, 2005; Dugdill et al., 2005). GPs tend to be enthusiastic about physical activity promotion (Mckenna & Vernon, 2004) but despite this, referral rates from GPs are generally low in comparison to practice nurses (Harrison, Roberts & Elton, 2005). Health professionals have been found to have stereotypical gender views of their patients that can become a barrier to men seeking consultation with their GP (Hale Grogan & Willott, 2010). For example, Hale et al., (2010) found that male GPs often described men who did not frequent their GP regularly, in more positive terms than men who did, suggesting ambivalence towards men who frequently consult. To avoid being labeled as inappropriate attendees, male patients did not to see their GPs on a

regular basis, present late in the course of an illness or were brought in by their wife (Hale et al., 2010). It is also interesting that some research identifies the lack of training for health professionals in physical activity promotion for obese patients as a barrier to referral for patients (Cade & O'Connell, 1991; Hanson, Rasmussen & Ahlstrom, 2011; McKenna, Naylor & McDowell, 1998; McKenna & Vernon, 2004; Michie, 2007; Ribera, McKenna & Riddoch, 2005; WHO, 2005). Moreover, some health professionals have been identified as being reluctant to encourage obese patients to participate in physical activity, due to the possibility of jeopardising GP/patient relationships (Epstein & Ogden, 2005). The longitudinal qualitative approach adopted by this study and its involvement of referring health professionals sought to investigate these aspects further.

### ***1.2 Rationale for the study***

The study arose from the paucity of data on longitudinal qualitative investigations into physical activity interventions in public health. The research was undertaken to examine longitudinally the experiences of referring health professionals and their patients, who were attending a practice-based physical activity intervention. The justification for conducting a practice-based study was that the majority of physical activity interventions in public health take place within leisure centres (Crone et al., 2008). Through using an alternative setting, this study intended to provide a different perspective from research previously conducted on exercise referral schemes.

Policy makers should consider the paradox between the known benefits of physical activity on health, and the ways in which the National Institute of Health and Clinical Excellence (2006) recommended traditional methods of evaluation, for example randomised controlled trials, consistently presents exercise referral schemes negatively as an effective intervention (Williams et al., 2007; Pavey et al., 2011). This is despite population based cohort studies providing an alternative more positive evidence base on their effectiveness (Gidlow, Johnston, Crone, Morris & Smith, 2007; James et al., 2010). A broader outlook incorporating qualitative evaluations could be insightful, as they allow the exploration of the different perceptions and experiences of all of those involved in the exercise referral schemes process (Crone, Smith & Gough, 2005). Qualitative approaches may also improve understanding of why certain interventions do, or do not work; why health professionals under or over

refer; or why certain groups are more suited to referral than others (Gidlow et al., 2008).

Qualitative research has been conducted in the area of exercise referral (Crone, Johnston & Grant, 2004; Crone et al., 2005; Day and Nettleton, 2001; Fox and Biddle, 1997; Little & Lewis, 2006; Sharma, Bulley & van Wijck, 2012; Wormold, Waters, Sleaf & Ingle, 2006). However, none of these studies have been longitudinal whereas this study is. An extensive literature search has revealed little if any similar research in this area, that has examined the long term experiences of health professionals and high risk patients, taking part in a practice-based exercise referral scheme, in an area of high social deprivation. Therefore, this study aimed to investigate longitudinally the processes and outcomes of an exercise referral scheme, from the perspectives of the health professionals who engage and refer into it, and the patients who experience it. Specifically this research aims to explore the processes of referral; health professionals perceived views of compliance to the intervention; interactions between health professionals and patients; and health professionals' perceptions of their role in promoting physical activity. The study also aims to develop knowledge in understanding more about how and why patients engage with a scheme over time, and the impact that the involvement in a scheme and the resulting physical activity, changes their lifestyle.

### **1.3 Aims of the research**

The aims of the research were as follows:

- 1) Investigate, via a longitudinal approach (at 0, 8 and 12 months), patients' experiences and involvement in an exercise referral scheme (ERS), from referral to completion or point of drop out.

and to:

- 2) Investigate, via a longitudinal approach (at 0 and 8 months), health professionals' experiences and perceptions of the effectiveness of an exercise referral scheme for patient's health and wellbeing.

### **1.4 Research objectives**

The objectives of this research are as follows:

1. To investigate through individual interviews, the patients' experiences of involvement in an ERS from the point of referral, to completion or drop out.
2. To investigate through individual interviews, patient's perceived impact of an ERS on their health, lifestyle and management of their conditions.
3. To investigate through individual interviews, health professionals' experiences of an ERS and its related processes.
4. To investigate through individual interviews, referring health professionals' perceived effectiveness of an ERS for patient's health and wellbeing.

### **1.5 Thesis layout**

The thesis consists of nine chapters. The current chapter provides a background, rationale for the study, and summary of the remaining chapters (Figure 1.1). Chapter two sets the theoretical context for the study and considers physical activity from a range of perspectives including: socio-economic status; the economic cost of inactivity; the emergence of physical activity in public health policy; and review of contemporary developments in physical activity interventions. Chapter three examines a range of physical activity interventions that have been used for public health promotion, provides an overview of the different evaluation types used for exercise referral schemes, and their impact on scheme effectiveness. Chapter four examines literature from national and international perspectives on exercise referral schemes, in the context of effectiveness, and analysis the limited evidence associated with health professionals' perspectives of the exercise referral process. Chapter five presents the methodological approaches that underpin the study, examines the issue of trustworthiness in qualitative research and how it has been achieved in this study. Chapter six discusses the method including sampling, protocol, data collection, data analysis, ethics, and limitations. Chapter seven presents the qualitative findings from the health professionals, through a conceptual framework presented as a model, with supporting themes explained by the lived experiences of the participants. The model is also discussed in the context of existing research. Chapter eight presents the qualitative findings from the patients, through a conceptual framework presented as a model, with supporting themes explained by the lived experiences of the participants. This model is discussed in the context of existing research. Chapter nine presents a summary of the research identifying the key findings and how they contribute to knowledge. Implications for practice, research and policy are also discussed. Finally the chapter presents a reflection on the process of undertaking a Doctoral study.

## **1.6 Research questions**

The following research questions (RQ) were addressed in this research:

RQ 1. What affect does long term participation (12 months) in an exercise referral scheme conducted in a clinical setting, have on high risk patients' perspectives of their medical condition and its management?

RQ 2. What are the perceived health benefits and behaviours of patients, from long term (12 month) participation in an exercise referral scheme?

RQ 3. What are the processes involved in referring patients into an exercise referral scheme, health professionals' and patients' perspectives?

The first and second research questions (RQ1 and RQ2) are concerned with developing the concept of 'the impact of long term involvement with a scheme on the perceived health status of the patients'.

The third research question (RQ3) is concerned with developing the concept of 'the processes involved in referring patients into an exercise referral scheme, from health professionals' and patients' perspectives.

As such this study is unique because an in depth exploration of the long term involvement of an exercise referral scheme, from the perspectives of both the patients and health professionals has not been undertaken to date. It is therefore distinctive not only in focus, but also in its comprehensive and rigorous use of qualitative methods. The study also provides evidence regarding the role and value of exercise referral schemes for public health in the United Kingdom.

## 1.7 Summary

This introductory chapter has presented the background to the research problem and the rationale for the study. The chapter has also highlighted the research aims and objectives of the study. The layout of the thesis is presented below (Figure 1.1). The next chapter sets the theoretical context for the study and examines and critically reviews physical activity from a range of perspectives.

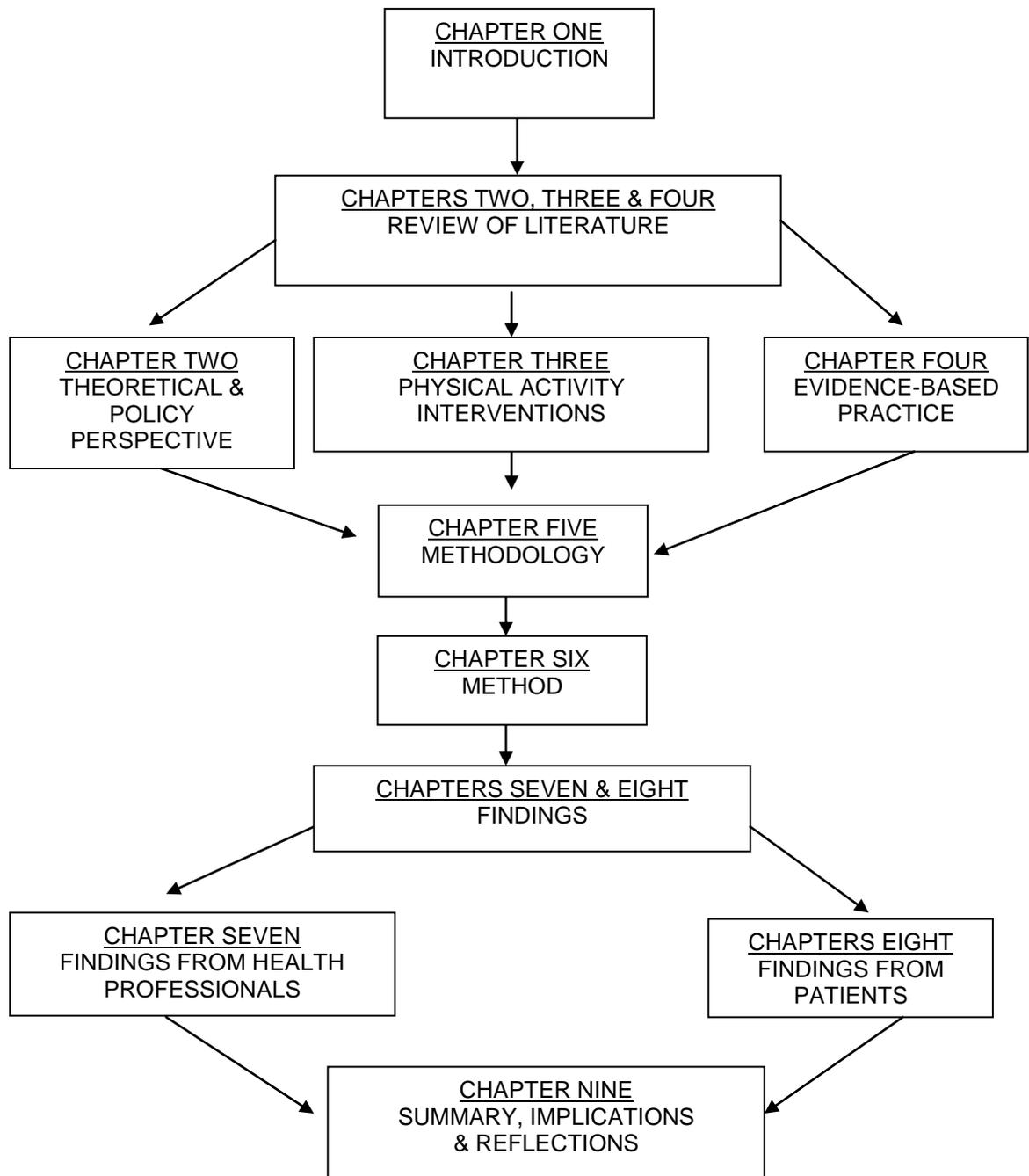


Figure 1: Thesis structure

## **Chapter Two**

### **A Theoretical and Policy Perspective**

#### ***2.0 Introduction***

This chapter is in two sections, the purpose of the first section is to demonstrate the theoretical underpinning of the study, and an understanding of the social context in which the patients lived. The second section examines and critically reviews, physical activity from a range of perspectives.

The first section of the chapter sets the theoretical context for the study by focusing on three models of health and examines whether social equalities in health have changed over the past thirty years. The second section examines and critically reviews physical activity in relation to public health. The review starts by acknowledging the health benefits of physical activity, and assesses physical activity levels from global, European, UK national and UK local perspectives. The impact of social status on physical activity is then examined, as a means of determining barriers and enablers to physical activity behaviour. The review then assesses the cost implications of physical inactivity and obesity for the UK government. The penultimate part of this section critically analysis the emergence of physical activity promotion in public health policy over the past twenty years, and finishes with a review of contemporary developments in physical activity interventions. The intention of the second part of this chapter is to demonstrate how and why physical activity interventions in public health have become more prominent for the treatment of lifestyle diseases.

#### ***2.0.1 Search strategy***

The following search strategy was used to identify the key studies used in this thesis by searching the following electronic databases: Academic Search Complete (1990 – 2013), AMED (1990 – 2013), CINAHL Plus (1990 – 2013), MEDLINE (1952 – 2013), Pub Med (1952 – 2013), SWETSWISE (1990 – 2011), Web of Knowledge (1956 – 2013). Key search terms included: ‘age characteristics and exercise referral’; ‘brief interventions and physical activity’; ‘exercise and referral and schemes’; ‘exercise and hypokinetic’; ‘exercise and referral’; ‘exercise and referral and obesity’; ‘exercise and referral and schemes and health’; ‘gender characteristics and exercise referral’;

'health professionals and weight management'; 'health professionals and gender stereotypes'; 'health professionals and obesity'; 'health professionals and physical activity'; grounded theory and health'; 'physical activity and public health'; 'physical activity and evaluation'; 'shock tactics and health'; 'socio-economic status and exercise referral'; and 'weight management and physical activity'.

## ***2.1 Theoretical position***

This section discusses some of the complexities involved in defining health, then critically analyses the biomedical, sociomedical and social determinants models of health. Health is essentially a contested concept that can be seen to vary over space, time, place, culture and age (Clarke, 2001; Freund et al, 2003; Jones, 1994; Senior and Viveash, 1998). Consequently, it can be difficult to define and measure. Health has been defined as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (World Health Organisation, 1946, p.100). Criticisms have been directed towards this definition, the main ones being that: it is unachievable; it is idealist in nature; and it offers no means of measurement (Nettleton, 1995). It has been argued that medical sociologists tend to oversimplify the concept of health when relating it to the biomedical model (Miles, 1991). When considering disease and illness the following distinctions are often made. The first, considers disease as an objective term referring to a biological or clinically identified abnormality, assessed by someone other than the patient. The second, refers to illness as a subjective term, relating to a person's experience of being unwell, and one that is self-assessed by the individual (Miles, 1991). These distinctions have been criticised for overemphasising the biological dimensions, whilst not considering the broader sociological dimensions (Thompson, 1998). Describing someone as being healthy involves making a value judgement and a comparison to a norm within a specific socially desirable context (Thompson, 1998). However, problems are associated with identifying what is 'normal' and for whom (Blaxter, 2007).

### ***2.1.1 The biomedical model of health***

The biomedical model focuses on the individual's physiological state, with health being defined simply as the absence of disease or physiological malfunction (Weiss and Lonquist, 2006). Despite its lack of holistic approach it has been the dominant model of medicine since germ theory in the nineteenth century where the medical

explanations it provides are based on a number of basic assumptions on the functioning of the human body (Blaxter, 2007). A central feature of this model is 'mind-body dualism'. This concept refers to the way that the model assumes the existence of a dichotomy between the mind and body in the conceptualisation of disease. Within this model illness is located inside the body, with the emphasis being placed on identifying the appearance of disease. The body then becomes the physical site of the disease that is treated in isolation (Freund, McGuire & Podhurst, 2003). Within this model illness is perceived as the breakdown of the biochemical or neurophysiological functioning of the body (Freund et al., 2003).

Continued analysis of the biomedical model over the years has led to three specific criticisms of the model, these being: a lack of accountability of cultural background when attempting to determine levels of health within the model; that only medical professionals are capable of defining health; and that health is defined as merely the absence of disease (Wolinsky, 1988). In contrast to the three areas of criticism Senior and Viveash (1998) have identified the following areas of strength. These are that the biomedical model researches the causes of illness rather than assumes that there is no identifiable explanation, and that knowledge of the causes of illness can help in disease prevention (Senior and Viveash, 1998). Another strength of the biomedical model is that it is based on the principles of objectivity and scientific neutrality (Blaxter, 2007). However, the biomedical approach has been contested on the basis that as the practice of medicine is embedded in the larger society it cannot be neutral, because of the wider sociological, political and cultural forces dictating how it works (Blaxter, 2007).

### ***2.1.2 The social model of health***

Another perspective of health is known as the sociomedical or social model. The social model of health is often presented as a unified theory, but in reality it is difficult to define as a multi-faceted approach to understanding health. This perspective developed during 1970s as a reaction against the biomedical model. The reaction took place because up until this point, medicine only focused on what is considered to be negative aspects of disease and illness and not the positive concept of health (Blaxter, 2007). For example, physicians only focused on those with disease and not

those without it; consequently a lot was learnt about treating disease, yet little was learnt about preventing it (Blaxter, 2007).

Several theoretical perspectives have been used to understand and define health and medical sociology such as: Structural Functionalism in the 1950s; Symbolic Interactionism in the 1960s; and Marxism and Feminism in the 1970s (Wainwright, 2008). One of the main proponents of the social model of health was the Structural Functionalist Talcott Parsons. Health has been defined from a sociomedical perspective as 'the state of optimum capacity of an individual for the effective performance of the roles and tasks for which we have been socialised' (Parsons, 1951, p.123). Parson's definition is in contrast to the biomedical model in that: it focuses on the individual's own definition of his or her health; there is no emphasis on physiological malfunctioning or disease; and the definition is stated in positive terms (Weiss and Lonquist, 2006). A dual approach to understanding the social model of health focuses on the capacity to perform roles and tasks in everyday life, whilst acknowledging cultural differences in defining health (Weiss and Lonquist, 2006). Therefore, the sociological approach to defining health does not just focus on the physiological condition; it includes all the dimensions of individuals that impact on social participation (Weiss and Lonquist, 2006).

Health and illness are important issues necessary for the effective functioning of societies (Parsons, 1951). GPs have been identified as gatekeepers of social control, with the responsibility to help people become healthy and fit, in order to maintain the effective running of the social system (Freund et al., 2003). Illness has been identified as being disruptive to the smooth running of society, as it prevents individuals from fulfilling their normal social obligations, such as caring for dependant family members and undertaking paid employment (Parsons, 1951). In this view physical activity interventions are mechanisms that can be used for integrating patients back into society and consequently fit well within the social model of health.

### ***2.1.3 Summary of the biomedical and sociomedical perspectives***

The biomedical and sociomedical models of health give further insights into gaining an understanding of the complexities of health. Through the process of researching the aetiology of disease and illness, the biomedical model has been able to identify

and eradicate various causal agents and has made significant progress in restoring the human body to a healthy disease free state (Clarke, 2001). However, there are weaknesses in the biomedical model such as: failure to account for differences within and between cultures, making it the basis for a significant level of inaccurate diagnosis; and it only looks at the malfunctioning part of the body in isolation, excluding the rest of the positively functioning being. The sociological model, although often presented as a unified model, is not. It is a model that tries to explain the complexities involved in understanding health, illness and disease from a sociological perspective. Within it, different theoretical perspectives help to broaden the understanding of this model of health.

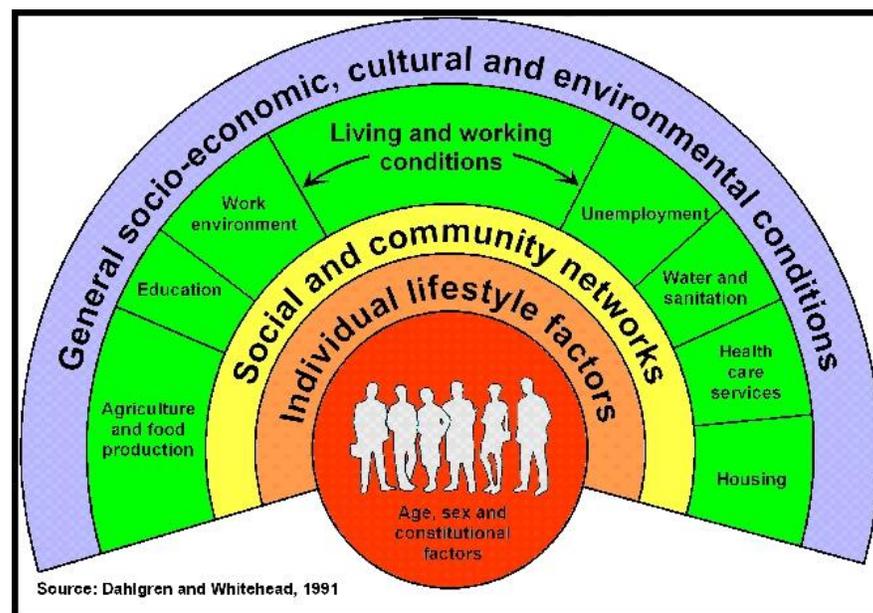
Exercise referral schemes can be located within the biomedical model of health, as they focus on the patient's physiological state. However, the concept of mind-body dualism, a dominant aspect of the model, may have the effect of pushing the patient away from the health professional, in terms of feedback on their progress. For example, by concentrating on the body and separating the mind, the health professional may focus more on physiological symptoms of the patient's disease in their treatment plan, than the psychological symptoms and not the social impact of the condition. This could have negative consequences in relation to understanding how the patient is responding to physical activity. If the health professional focused purely on diagnosis and referral, they may not be aware of the impact that physical activity is having on the patient.

It is also interesting to consider how a health professional referring a patient for exercise, may need to take into account the social medical model of health. By considering a patient's socio-cultural background, along with their capacity to perform their societal roles and tasks, a health professional may be in an informed position to refer a patient into a scheme. Through a combination of both theoretical approaches, health professionals should be better placed to perform more effective referrals for exercise, in relation to the likelihood of the patient taking up the referral. The consequences of the application of this dual approach to referral could be an increase in referral rates, reduced rates of sedentary behaviour and a better quality of life for the patients referred. A model of health that combines the biomedical and social

medical perspectives is known as the social determinants model of health, a subject to which we now turn to.

### **2.1.4 Social determinants model of health**

The social determinants model of health is considered to be closely aligned with the biomedical model, but includes social and economic factors such as poverty and homelessness (Wainwright, 2008). The social determinants model suggests ways that policy can be developed to reduce inequalities. The model conceptualises the main factors that influence health, in relation to elements that threaten, promote and protect (Dahlgren and Whitehead, 1991). These are illustrated as layers (levels) situated on top of each other (Figure 2). Level one (the top level) relates to: the structural environment, and includes material and social conditions in which people live and work; level two - support from family, friends, neighbours and the community; and level three - actions taken by individuals such as smoking, eating and drinking behaviours (Dahlgren and Whitehead, 1991). The social determinants model also recognises age, sex and genetic make-up in relation to health determinants, but acknowledges that these are fixed factors over which society has little control (Dahlgren and Whitehead, 1991).



**Figure 2: Social Determinants of Health Model**

The social determinants model of health places material deprivation as a central cause for disease in the poor, through not being able to access goods and services required for health (Wainwright, 2008). The model also suggests that the poor are more likely to have ill health through being exposed to environmental health risks such as damp housing and an increased risk of injury through manual occupations (Wainwright, 2008). Another perspective is that the psychological consequences of social inequality play a more important part in disease than material deprivation (Wainwright, 2008). Psychosocial stressors such as those within the work place, have been shown to cause physiological changes that can lower the immune function and lead to heart disease and some cancers (Wainwright, 2008). However, the psychosocial perspective has been challenged due to the subjective nature of psychological stressors, compared to the objective effect that physiological stressors such as poor nutrition can have on the body (Lazarus and Folkman, 1984).

Two further criticisms have been directed towards the social determinants model of health. These relate to the nature of the evidence base for epidemiological studies, and the nature of the interventions used to reduce health inequalities (Bamba et al., 2010). The first criticism relates to the way that associations are made in epidemiological studies and the interventions that develop as a consequence. An example of this is the way that epidemiological studies have shown associations between work load control and improved mental health, with the implication that more job control will lead to better mental health (Bamba et al., 2010). Another aspect of the job control and mental health relationship is that professional classes have more control over their economic resources and therefore their day to day living choices (Barry and Yuill, 2008). However, evidence is lacking on how to bring about the changes and reduce the social gradient (Bamba et al., 2010). The second criticism relates to the nature of the interventions used to reduce health inequalities. The interventions tend to focus on modifying lifestyle factors (level 3) such as diet, as they are easier to identify and treat than the political problems of policy level intervention (level 1) (Bamba et al., 2010). To make changes at the policy level, more evidence is needed to determine the most effective interventions, so that resources can be appropriately directed to reduce health inequalities. One lifestyle intervention that could be adapted further is physical activity care pathways such as exercise referral schemes. Low rates of physical activity have been associated with lower socio-

economic groups (James et al., 2010). Poor health status has been associated with low levels of physical activity (Black Report, 1980; Acheson Report, 1999; Marmot Review, 2010). Therefore, careful intervention and evaluation of physical activity care pathways, such as exercise referral schemes for deprived social groups, could bring about improvements in health status and reductions in health inequality. The social determinants model of health could be adapted to incorporate physical activity (Figure 3).

- Level 1** – through economic adjustment programmes to allow vulnerable groups to become physically active, through taxation.
- Level 2** – through national pricing policies for physical activity intervention for vulnerable groups and taxation.
- Level 3** – through prominent community based and led, physical activity interventions.
- Level 4** – through access to clear information on the health benefits of physical activity behaviours and links to other pathways.

**Figure 3: Application of the social determinants model of health to physical activity, adapted from (Dahlgren and Whitehead, 1991).**

## ***2.2 Social inequalities and health status***

Social inequalities in health have been prevalent in England for some considerable time and were documented in the Black Report (1980) 33 years ago. One explanation for this is that material and structural deprivation can have a negative physiological and psychological impact on the lower social classes, preventing them from adopting healthy lifestyle behaviours (Townsend and Davidson, 1992). Unhealthy behaviours associated with health inequalities in lower social economic groups, have been identified as smoking, drinking and physical inactivity (Acheson Report, 1999). However, unhealthy lifestyle behaviours are not restricted to lower social economic groups. Indeed as Acheson (1999) states ‘the highest levels of activity have been found at intermediate levels of deprivation and the lowest levels of activity amongst the most and least deprived groups’ (Acheson Report, 1999, p.214).

A further review was commissioned by the Labour Party in 2008 to determine the best strategies for reducing health inequalities in England post 2010 (Marmot Review,

2010). The findings of this review were in keeping with those of the Black Report (1980) and the Acheson Report (1999). The key messages were that inequalities in health status still resulted from inequalities in social status, with the lower social classes experiencing poorer health status than the middle classes (Marmot Review, 2010). In addition the Marmot review (2010) stated that people from the poorest neighbourhoods are likely to die seven years earlier than those from the wealthiest. The poorest may spend approximately seventeen years of their shortened lives with a disability (Marmot Review, 2010). Similarities were identified in all three reports in relation to the negative impact that poor quality housing and education can have on mortality and morbidity (Black Report, 1980; Acheson Report, 1999; Marmot Review, 2010). Therefore, differences in health status experienced by the lower socio-economic class cannot be solely attributed to unhealthy behaviour, genetics or access to medical services. They can be a reflection of the socio-economic differences in society (Marmot Review, 2010).

It would appear that little change has taken place since the publication of the Black Report (1980) in relation to inequalities in health amongst socio-economic groups. Differences in social standing clearly continue to produce disparities in health status, with education and living environment being two of the main contributory factors. According to the Office for National Statistics (2007) life expectancy for the unskilled social classes is 75.7 years compared to 82.5 years for the professional class. In addition, people from unskilled socio-economic groups with hypokinetic diseases are more likely, from the age of 58, to spend the rest of their lives living with a disability brought on by chronic lifestyle diseases such as obesity, diabetes, chronic obstructive pulmonary disease, coronary heart disease and hypertension (Marmot Review, 2010).

The following section critically reviews the impact of physical activity on public health. It then examines the health benefits of physical activity. This is followed by an analyses of global, European, UK national and local levels of inactivity. The review then assesses the implications of physical activity participation in relation to socio-economic status, and the cost implications of inactivity for the UK government. The review then critically analyses the emergence of physical activity promotion in public

health policy, and identifies contemporary developments in physical activity interventions.

### ***2.3 Physical activity health benefits from participation***

The physical and mental health benefits of physical activity are well established (Department of Health, 2009, World Health Organisation, 2010). Benefits to health include 'improvements in cardiorespiratory and muscular fitness, bone health, cardiovascular and metabolic health biomarkers and reduced symptoms of anxiety and depression' (World Health Organisation, 2010, p.7). Furthermore, physically active people are less likely to suffer from heart disease or premature mortality related to heart disease (Macera & Powell, 2001; Myers, Kaykha & George, 2004; Wessel, Arant & Olson, 2004). There are also benefits for those who already present with non-communicable lifestyle diseases. For example, reduced incidences of premature mortality have also been found in type two diabetes patients who are physically active (Knowler, Barrett-Conner & Fowler, 2002; Gregg, Gerzoff & Casperson, 2003). Non-communicable lifestyle diseases account for 60 percent of all deaths globally and include cardiovascular diseases, cancers and chronic respiratory diseases (World Health Organisation, 2008). Physical inactivity is one of the four shared risk factors for non-communicable diseases, the others being tobacco use, unhealthy diets and alcohol (World Health Organisation, 2008). All of which, according to World Health Organisation (2008), are projected to increase by a further 17 percent, until 2018.

### ***2.4 Recommendations for physical activity***

The following section analyses inactivity and physical activity levels from a range of demographic perspectives that include global, European, UK national levels and finally examines physical activity in a South West Devon City.

#### ***2.4.1 Global levels of physical inactivity***

Global levels of physical inactivity are around 31 percent for adults 15 years and over (men 28% and women 34%) (World Health Organisation, 2011). Levels of inactivity are the highest in the Americas and in the Eastern Mediterranean regions at 50 and 38 percent for women and men respectively. South East Asia has the lowest rates of physical inactivity at 19 and 15 percent for women and men respectively (World

Health Organisation, 2011). Women are more inactive than men in every World Health Organisation region (World Health Organisation, 2011). Explanations for high levels of inactivity include increased urbanization, resulting in environmental factors which may discourage participation such as violence, high-density traffic, pollution, lack of parks, and recreation facilities (World Health Organisation, 2011). A recent study by Lee et al., (2012) on the effect of inactivity on non-communicable diseases worldwide, has shown that inactivity caused nine percent of deaths worldwide (5.3 million) in 2008. Furthermore, it is estimated that by decreasing inactivity by 10 or 25 percent, 1.3 million deaths a year could be prevented (Lee et al., 2012). It has been predicted that if inactivity was eliminated, global life expectancy could increase by 0.68 years (Lee et al., 2012). A recent estimate of global differences in inactivity from 122 countries, found deaths rates from inactivity to be higher than those from smoking (Wen and Wu, 2012). Global death rates from smoking were estimated at 5.1 million compared to 5.3 million from inactivity. Despite this, coordinated approaches have been organised for tobacco control by the World Health Organisation (2012), yet nothing has been done to coordinate a global approach to increasing physical activity (Wen and Wu, 2012).

#### ***2.4.2 European levels of physical activity***

Similar levels of physical inactivity that have been found globally are prevalent in Europe, which has an all-cause mortality rate of 8.8 percent (Lee et al., 2012). In Europe two thirds of the adult population is inactive (World Health Organisation, 2006a). In most European countries boys are more active than girls and activity declines with age in both sexes. Activity varied between countries ranging from 11% of girls and 25% of boys in France to 51% of girls and 61% of boys in Ireland among 11-year-olds. Similar variations exist among all age groups (World Health Organisation, 2006a). Explanations given for high levels of inactivity include macro and micro environmental factors, and individual factors (World Health Organisation, 2006b). Macro factors include socioeconomic conditions and increased car usage. Micro conditions include living in urban environments, social support and trends towards sedentary activities. Individual factors include psychosocial factors positively and negatively associated with physical activity such as enjoyment and perceptions of lack of time (World Health Organisation, 2006b). Similar levels of inactivity that have been found in Europe are prevalent in the UK. From 36

European countries, the United Kingdom is ranked the third highest at 16.9 percent, for all-cause mortality associated with inactivity (Lee et al., 2012).

### **2.4.3 National levels of physical activity**

Current UK physical activity recommendations of a minimum of 150 minutes per week, state that adults should aim to be active daily. Over the period of a week activity should add up to at least 30 minutes of moderate activity, either in one session or in multiple bouts of at least 10 minutes duration, on five or more days of the week (Department of Health, 2011). Alternatively adults should complete 75 minutes of moderate to vigorous intensity activity over one week (Department of Health, 2011). In addition to cardiovascular activity, adults are also recommended to undertake at least two sessions per week of strength training resistance exercises (Department of Health, 2011). The current physical activity guidelines also have recommendations for children, teenagers, adults and the elderly (Department of Health, 2011).

Despite the known physical and mental health benefits of physical activity, the number of adults reported to have met the Chief Medical Officers (CMO) physical activity recommendations of 30 minutes of activity on five or more days of the week in 2008, were 39 percent for men and 28 percent women (Department of Health, 2008). Nevertheless, these reported levels of physical activity should be questioned. Prior to 2007 the *Health Survey for England* (HSE) asked questions relating to bouts of physical activity, lasting 15 minutes or more, to determine physical activity levels (Department of Health, 2006a). From 2007 onwards people were asked to record bouts of physical activity lasting ten minutes or more. This had the effect of making it look like more people had become physically active. Whilst the percentage of adults meeting the CMO's physical activity recommendations is questionable, national increases in sports and active recreation participation have shown an increase (Sport England, 2010). A recent report has estimated that if inactivity was eliminated in the United Kingdom, life expectancy could be increased by 1.07 years (Lee et al., 2012).

The *Active People Survey 4* (Sport England, 2010) has demonstrated a national increase in adults participating in 30 minutes of moderate intensity sport or active recreation, three times a week from 2006 (15.5%) to 2009 (16.5%). However, this

measure does not equal the current guidelines of 150 minutes per week. Male and female participation remained constant over the four year period at around 20% for men and 13% for women. Sport or active recreation participation rates from those people with a limiting illness or disability remained constant at around 6%. The youngest age group (16-24 years) has the highest participation rate (30%), compared to the oldest (65+) age group (15%). Participation rates for all age groups remain low and have been stable for the past four years. National participation from socioeconomic groups 1.1, 1.2, 2, 3, 4, 5, 6, 7 and 8 (NS-SEC, 2001) are low and have remained stable over the past four years, but demonstrate a decline in participation from groups 1.1 and 8 (NS-SEC, 2001). However, those from group 1 (NS-SEC, 2001) have increased participation levels significantly from 14.8% to 22.1%. Participation levels from the eight socioeconomic groups have generally remained constant, with those in the lowest groups (7 and 8) demonstrating average participation rates of 11% compared to 20% in the highest (1, 1.1 and 1.2) groups (Sport England, 2010).

#### ***2.4.4 Physical activity levels in a South West Devon City***

Rates of sport and active recreation participation are marginally lower in the South West Devon City (15.5%) than nationally (16.5%) (Sport England, 2010). Local gender differences in participation have demonstrated a drop over the past three years, from 22.7% to 19.6% for men and 15.2% to 11.1% for women. Local sport participation rates from those people with a limiting illness or disability has shown a significant decline over four years from 8% to 4.7%, compared to a stable 6% nationally. Similarities in local age group participation were evident when compared to national participation rates, with the youngest age groups participating more than the oldest. Precise age group comparisons were not possible due to differences in the data presented for national and local participation rates. Although percentage rates for the three combined age groups (16-34, 35-54 and 55 +) appear to be lower than the national averages. Participation for the 16-34 age group declined from 25.4% to 22.2%. The 35-54 age group has shown an increase from 13.1% to 16.5%, and the 55+ age group has remained stable at around 6% over the past four years (Sport England, 2010). Accurate comparisons between local and national participation rates for socioeconomic groups were not possible due to differences in data presentation. All local socio-economic groups have demonstrated significant decreases in

participation over the past four years. The decreases range from 30% (groups 5, 6, 7 and 8) to 50% (groups 1, 1.1, 1.2, 2 and 4) and 60% (group 3) (Sport England, 2010).

Physical activity, sport and active recreation participation levels in England generally remains low. Men continue to be more physically active than women with participation rates for either gender being lower locally than nationally. Sport and active recreation rates for people with a limiting illness or disability declined locally. National age group participation is low and has remained stable over four years. However, age group participation is more erratic locally with the 16-34 year age group showing a decrease, the 35-54 age group showing an increase, and the 55 + group remaining stable. Sport and active recreation participation rates from socio-economic groups, are higher at the top and lower at the bottom of the socio-economic scale, both nationally and locally. National socio-economic participation rates have remained constant for all groups except the very top group (group 1), which has shown a 50% increase over four years. Locally, participation levels have fallen considerably for all socio-economic groups. Explanations for lower local participation rates include data bias from smaller sample sizes, differences in presentation of data, and high levels of poverty. The South West Devon City being in the most deprived 25 percent of local authorities in England (South West Observatory, 2011). A recent study on global inactivity has estimated that if inactivity was eradicated in the UK, life expectancy could be increased by 1.07 years (Lee et al., 2012). In comparison to other countries this places the UK as the third highest country for inactivity from 36 European countries (Lee et al., 2012).

In summary, physical activity participation rates are low at approximately 33%, globally, in Europe and the UK, based on the World Health Organisation criteria of 150 minutes of moderate intensity activity a week. *The Active People Survey 4* (Sport England, 2010) used a sample of 363,000 to collect data on sports and active recreation participation, providing a detailed breakdown of local authority participation in the UK. However, the *Active People Survey 4* used different criteria of 3 x 30 minutes of moderate intensity activity per week, to assess physical activity levels. Data from the *Active People Survey 4* suggests that only 16% of the UK population meet these guidelines. Therefore, it is unlikely that more people would be meeting the World Health Organisation recommendations of 150 minutes a week. Locally,

participation rates are slightly lower than national rates for: people with limiting illnesses; all age groups; and all socioeconomic groups. Socioeconomic group physical activity participation being significantly lower for all groups locally compared to nationally.

Increased urbanisation and urban living environments are micro factors that have been used to explain low levels of physical activity globally and in Europe. Macro factors associated with low levels of physical activity include socio-economic conditions. The South West Devon City is one of the most deprived 25 percent of local authorities in England (SWO, 2011). Therefore, deprivation may explain why the South West Devon City's physical activity participation is lower (11.95%) for all socioeconomic groups compared to national levels of participation (16.08%) (Sport England, 2010).

### ***2.5 Physical inactivity: Costs and implications***

In the UK it is estimated that physical inactivity is associated with causing: 10.5% of coronary heart disease cases; 18.7% of colon cancer cases; 17.9% of breast cancer cases; 13.0% of type 2 diabetes cases; and 16.9% of premature all-cause mortality (Lee et al., 2012). The estimated direct treatment costs of inactivity in the UK have shown an increase over the past six years from £0.9 billion in 2007 (Scarborough et al., 2011) to £0.94 billion in 2010, costing each Primary Care Trust in England approximately £6.6 million (British Heart Foundation, 2013). These costs are likely to be considerably higher if indirect treatment costs for coronary heart disease, colon cancer, breast cancer, type 2 diabetes cases and premature all-cause mortality are taken into consideration (British Heart Foundation, 2013). It has been estimated that the indirect treatment costs for Primary Care Trusts range from £1.3 million to £17.7 million per year (British Heart Foundation, 2013).

### ***2.6 The emergence of physical activity promotion in public health policy***

The first policy initiative in the UK that aimed to tackle inactivity coincided with a change in political landscape following the 1997 General Election (Department of Health, 1999). The aim was to reduce the risk of heart disease from chronic and preventable diseases across all population groups. *Saving Lives: Our Healthier Nation*, contained specific targets, to reduce deaths from coronary heart disease and

strokes by 40 percent, whilst recognising the role of physical activity for health improvement (Department of Health, 1999). This was followed by the *National Service Framework for Coronary Heart Disease* (NSFCHD) (Department of Health, 2000). The purpose of NSFCHD was to develop local multiagency alliances to reduce the incidences of coronary heart disease through promotion of physical activity, healthy eating and reducing the prevalence of overweight, obesity and smoking (Department of Health, 2000).

The Labour Government (1997-2010) once elected, set ambitious targets for increasing the number of people who met the Chief Medical Officer's physical activity recommendations, of 150 minutes per week to 70 percent of the population by 2020 (Department of Culture, Media and Sport, 2002). The White Paper entitled *Choosing Health: making healthier choices easier* (Department of Health, 2004a) set out the Labour Government's health priorities for the following two years. One of the planned priorities was to increase physical activity levels with exercise referral schemes being one of the methods to achieve this (Department of Health, 2004a). Physical activity targets were reviewed in 2005 as the previous targets were considered to be unachievable. New short term (three year) targets of 50 percent were set (Department of Health, 2005). However, the Labour Government did not have a strategy in place to assess this, nor were they likely to be in power in 2020. This highlights the futility of having a physical activity target that was completely unreachable.

In 2005 the Public Health Interventions Advisory Committee (PHIAC) were commissioned by the National Institute for Health and Clinical Excellence (NICE), to assess the effectiveness of physical activity interventions. Exercise referral schemes were assessed in relation to short term, medium term and long term effectiveness, as well as cost effectiveness by NICE (2006). The NICE (2006) guidelines stated that: exercise referral schemes can have positive effects on physical activity in the short term (6–12 weeks); that exercise referral schemes can significantly promote physical activity levels in the elderly; and that the exercise referral schemes are ineffective at promoting physical activity in the long term (over 12 weeks) or over a very long time frame (over 1 year). A recommendation was that none of the commonly used methods (exercise referral schemes, pedometers, community based physical activity

programmes for walking and cycling) for promoting physical activity should be used within Primary Care Trusts, unless they formed part of a Department of Health research study (NICE, 2006). Despite this the guidelines indicated that short term interventions in primary care could be cost effective. The guidance stated that 'the net cost gained per person was from around £20.00 to £440.00 per person per year' (NICE, 2006:24). NICE also estimated that 'the net cost savings to the health service compared to no intervention, from preventing disease and other conditions varied between £750.00 and £3150.00 per person per year' (NICE, 2006, p.24). In addition the guidance also stated that exercise referral schemes resulted in a better quality of life for the patients concerned. Physical Activity Care Pathways (PACP) have more recently been shown to have a relatively modest cost, in the region of £345.00/£284.00 per patient completing a PACP, based on brief intervention (James et al., 2010).

The Public Health Interventions Advisory Committee (PHIAC) commissioned by NICE identified a number of gaps in the evidence relating to the specific interventions under examination (NICE, 2006). Very few studies were used as the evidence base for the four interventions examined in the short, medium and long term. A lack of evidence relating to the long term outcomes of the physical activity intervention and the different impacts of the interventions on gender, age and socioeconomic position were also identified (NICE, 2006). Therefore, the validity of the NICE (2006) guidance has come into question, as PHIAC identified insufficient evidence to recommend the promotion of physical activity in all but one of the four interventions. The only intervention that PHIAC recommended was brief interventions (NICE, 2006). Yet at the same time NICE added to the confusion by stating that schemes to promote physical activity should only be used as part of a properly designed and controlled Department of Health research study (NICE, 2006).

A criticism of the Labour Government's health policies relating to healthy lifestyles is that they were not given enough time to effect behaviour change. Two of the main public health policies, *Choosing Health* (Department of Health, 2004a) and *Choosing Activity* (Department of Health, 2005), were short term policies and only given three years to run. Evaluation of these policies appears weak, but they were often presented as being successful. For example the Department of Health (2007)

indicated that the government had achieved many of its key objectives for increasing physical activity. Yet in this document, most comments related to the publication of information to keep people active. As the targets for publishing documents were achieved, the Labour Party's policy initiative was considered successful. Over the duration of the policy, physical activity levels reached a plateau, remaining at 16% of the adult population between 2005 and 2008 (Sport England, 2009). This was despite numerous interventions across the UK, such as *Game Plan* (Department of Health, 2002); *At Least Five a Week* (Department of Health, 2004); and *Change4Life* (Department of Health, 2008).

More recently, commissioning guidance for new physical activity care pathways was produced for the NHS called *Let's Get Moving: physical activity care pathway for the NHS* (Department of Health, 2009). This was in recognition of the strain that inactivity was placing on the NHS in relation to medication, access to services and the financial costs of treating inactivity. The intention of the guidance document was to help the NHS move towards a lower cost base and greater efficiency. The guidance document recognised that the direct cost base of the main diseases caused through inactivity were between £1 billion and £1.8 billion per year, and that indirect costs were over £8 billion per year (Department of Health, 2009). A limitation of the guidance document was that despite the positive health outcomes and financial savings identified, *Let's Get Moving* (Department of Health, 2009) is only a recommendation. Primary Care Trusts (PCTs) had the option to commission the system in part, in whole or not at all. It is also questionable how many PCTs run exercise referral schemes as part of a controlled research study, as recommended in the NICE (2006) guidance. Insisting that schemes are run as part of a controlled study is unlikely to encourage more GPs to commission schemes.

An evaluation of a physical activity care pathway was conducted in South Staffordshire by James et al., (2010), using the framework set out by the Department of Health (2009). The design of the evaluation was a mixed-method prospective longitudinal follow up. Only 20 percent of the 623 patients that initially completed the GP-Physical Activity Questionnaire (GP-PAQ) consented to participate further, with very few (n=8) progressing to the end stage (3 month follow up) (James et al., 2010). One explanation for the low levels of patient participation was a lack of information on

the types of physical activity opportunities and approaches, at the point of completing the GP-PAQ (James et al., 2010). A limitation of the evaluation is that it only focuses on the experiences of those engaged at the initial stages of the physical activity care pathway, therefore it is unable to comment on long term physical activity behaviour change. The evaluation also identified the need for start-up investment to provide an adequate variety of physical activity opportunities (James et al., 2010). Further recommendations include the need to increase patient support from the lifestyle advisors, along with effective communication systems between all those involved in the physical activity care pathway (James et al., 2010).

At the outset the Coalition Government's health policy *Healthy Lives Healthy People* (Department of Health, 2010a) focused on private sector involvement and local provision, with the emphasis of 'nudging' people into healthy behaviours. The context of the policy document was to recognise that different stages of life, present different health challenges. The policy focuses on how well people are in the context of five different life stages: starting well; developing well; growing up well; living and working well; and ageing well (Department of Health, 2010). A criticism of the Coalition Government's health policy is its use of subjective measures such as wellbeing to assess health. In 2012 the Coalition Government commissioned the Office of National Statistics to provide a richer picture on how society was doing (Office of National Statistics, 2012). The Office of National Statistics (2012) used questions in its survey to determine health and wellbeing such as: how happy were you yesterday; how anxious were you yesterday, how satisfied are you with your life. The value of assessing subjective measures of health and wellbeing is questionable considering the socio-economic cost base of lifestyle diseases caused by inactivity (British Heart Foundation, 2013).

The Coalition Government wants to deregulate public health provision and encourage organisations to subscribe to voluntary codes of practice (Department of Health, 2010a). An example of this is the development of the *Change4Life* campaign through a 'Great Swapathon' of £250 million pounds worth of partner-vouchers, to make lifestyle choices easier, through work with businesses and the voluntary sector (Department of Health, 2010a). The Coalition Government's health strategy places health inequalities at the top of the agenda, aiming to build upon the findings of the

*Marmot Review* (2010). Primary Care Trusts are to be abandoned in 2013 and local communities are to be placed at the heart of the agenda, through decentralisation of health care provision (Department of Health, 2010a). The Coalition Government have given GPs control of local health provision budgets, and turned aspects of healthcare, such as mental health provision into social enterprises (Department of Health, 2010a). However, it is hard to see how health inequalities can be reduced with the introduction of £20 billion in 'efficiency savings' for the NHS by 2014 (Department of Health, 2010a). The Government's strategy *Healthy Lives Healthy People*, has included a lottery investment of £135 million for a mass participation and community sports legacy programme (Department of Health, 2010a). This equates to approximately £2 for each person in England. Unfortunately, this is unlikely to have an impact on increasing physical activity levels and produce the associated health benefits.

In 2011 the Coalition Government published a report on physical activity for health entitled *Start Active, Stay Active* (Department of Health, 2011). The report acknowledged the health, economic, environmental and developmental benefits of physical activity, and recognised the additional need to target early years and older adults. The report suggested a more flexible approach to physical activity that included a life course approach, more vigorous physical activity, combining vigorous and moderate intensity activity, emphasising daily activity, and produced new guidelines for sedentary behaviour (Department of Health, 2011). Whilst this more comprehensive approach to physical activity was welcomed, the targets given for adults (19-64 years) are unclear. The physical activity targets include the previous 30 minutes of moderate intensity activity, five days a week, and include 75 minutes of vigorous activity per week, or a combination of moderate and vigorous activity (Department of Health, 2011). A further addition is that resistance exercises are recommended twice a week. Merely, stating that the UK population needs to be more active, when activity levels have been declining in recent years, is unlikely to increase physical activity behaviour. What is necessary is clear strategies, tactics and guidelines to encourage people to adopt and sustain long term physical activity behaviour change. Practical guidance on increasing physical activity behaviour is not clearly evident in *Start Active, Stay Active* (Department of Health, 2011).

## **2.7 Physical activity and health policy: Contemporary developments**

As a result of the increase in health policy development to combat inactivity and obesity, numerous physical activity based schemes have developed (Department of Health, 2009). Physical activity interventions have developed in two specific areas, these being primary care, and the community (Dugdill et al., 2009). Primary care interventions include: brief opportunistic advice; provision of health promotion literature; office-based counselling; and exercise referrals (Fox et al., 1997). The effectiveness of these interventions have been questioned, with evidence suggesting that they are at best only likely to produce short term increases in physical activity (NICE, 2006). Community based physical activity interventions include: walking programmes; cardiac rehabilitation programmes; sports for health programmes; exercise referral schemes; exercise and weight management programmes; and falls prevention exercise classes (Dugdill et al., 2009). Due to the differences in nature of evaluation, design, delivery and funding of the above interventions it is difficult to draw conclusions on their effectiveness. Exercise referral schemes have also come into question more recently, in a systematic review on the effectiveness of schemes in primary care (Pavey et al., 2011). The Pavey et al., (2011) review shed uncertainty over the effectiveness of schemes to increase physical activity, health or fitness indicators, and highlighted low uptake and adherence to schemes. A limitation of the randomised control trials used in the Pavey et al., (2011) systematic review is that most of the interventions were of the standard 6 – 12 week short term duration, and that short term interventions are likely to produce short term effects. Therefore, medium to long term follow up is unlikely to demonstrate, physical activity, health or fitness gains from short term interventions (Riddoch, Puig-Ribera & Cooper, 1998).

Exercise referral schemes are one type of physical activity intervention that is common to both primary care and community based settings. The number of schemes have grown significantly in recent years from approximately 200 in 1994 (Biddle, Fox & Edmunds, 1994) to approximately 600 in 2011 (Pavey et al., 2011) despite their effectiveness being questioned. However, physical activity referral schemes are thought to be the largest community based physical activity interventions in the UK (Crone, et al., 2004).

## **2.8 Summary**

This chapter has considered that one of the major difficulties associated with measuring health is the need for a precise definition. This is problematic as common definitions focus on illness, disease, fitness, mortality, health status, social role, ideal condition or distance from normality. Theoretical models can be used to develop an understanding of health within the English health care system, and how physical activity can be located within it. Physical activity interventions in primary care, such as exercise referral schemes can be located within the biomedical model as they focus on the patient's physiological state, and referral criteria relate to clinical conditions (Department of Health, 2001). However, other primary care interventions such as the Art Lift Project (Crone et al., 2012) would be harder to locate within this model due to the psychosocial dimensions of the intervention. A reaction against one of the dominant aspects of this model, being the dichotomy between mind and body, led to the development of the sociomedical model. The sociomedical model considers social aspects of disease and illness in addition to biomedical aspects. Through understanding the social factors that have caused diseases, the sociomedical model can become effective at providing the necessary support for patients to engage in physical activity behaviour such as exercise referral.

Whilst the sociomedical model focuses on the capacity to perform everyday roles and tasks, it also acknowledges social and cultural differences. The social determinants model goes further by identifying a multi layered approach to understanding health inequalities, and demonstrates how public health policy can be developed to reduce health inequalities. The social determinants model lacks the practical approach needed to reduce health inequalities. The social determinants model suggests modifying lifestyle factors, but to be more effective it needs a clearer evidence base to bring about policy change. Little change has taken place in relation to health inequalities over the past 30 years. Low levels of physical activity have been associated with poor health status. Therefore, developing physical activity schemes in areas of high social deprivation would be a logical way to bring about improvements in health status. Physical activity care pathways that develop long term physical activity behaviours would be one way of achieving this. However, for policy change to take place a stronger evidence base will be needed that demonstrates the effectiveness of long term physical activity behaviour change.

The health benefits from physical activity are numerous and indisputable. However, global levels of physical activity remain low at approximately 33%. High levels of deprivation have been associated with low levels of physical activity. This can be clearly seen when analysing participation rates nationally and locally in England. High levels of inactivity are costing the UK government billions of pounds on a yearly basis. As a result of the increasing costs of inactivity, physical activity interventions have become more prominent in UK government policy over the past twenty years. Despite questionable evidence that supports the effectiveness of physical activity interventions; numerous schemes have developed in primary health care and in the community. The biggest number of physical activity interventions that have developed in the UK are exercise referral schemes. Gidlow and Murphy (2009) give two explanations for this, firstly, 75% of the British population visit their GP once a year which provides the opportunity for health professionals to identify patient groups that could benefit from physical activity intervention. Secondly, health professionals are regarded as reliable sources for lifestyle advice.

Having looked at the theoretical context of the study; reviewed physical activity from a range of perspectives; examined the relationship between health and social inequalities; analysed the emergence of physical activity in public health policy, in the next chapter a range of physical activity interventions used for public health promotion are examined.

## **Chapter Three**

### **Physical Activity Interventions in Public Health**

#### ***3.0 Introduction***

The previous chapter has established the theoretical context for this study from the literature reviewed and examined the relationships between physical activity and public health promotion. The review of literature identified that physical activity referral schemes are thought to be the largest community based physical activity interventions in the UK (Crone, et al., 2004). Following from this, the present chapter critically examines the multitude of conflicting evidence on the effectiveness of physical activity promotion in public health.

The first section of this chapter examines a range of physical activity interventions used for public health promotion in secondary and primary care. The interventions in secondary care include cardiac rehabilitation and weight management schemes. Primary care interventions include walking groups, falls prevention and brief interventions. The section concludes by examining exercise referral schemes as a form of physical activity promotion in public health, and the emergence of the schemes in public health policy. The second section of the chapter provides an overview of the different evaluation types used for exercise referral schemes and then reviews the evidence from more specific evaluation types, these being experimental quantitative, non-experimental quantitative and qualitative evaluations. The final part of the chapter assesses the impact that different outcome measures contained within scheme evaluations, can have on the effectiveness of schemes.

#### ***3.1 The prominence of physical activity interventions in public health promotion***

Crone & Baker (2009) have highlighted that physical activity interventions used to promote public health are varied by type. For example, they can include walking groups; condition-specific services such as falls prevention and exercise-based cardiac rehabilitation; and weight management schemes; and brief interventions. These interventions are delivered in different care settings, such as primary and secondary care and have their own evidence base. However, the effectiveness of these interventions has come into question in recent years, as mentioned in chapter

one. The following section appraises the effectiveness of these interventions more rigorously, based on the current data available, and are discussed by care setting and type.

### ***3.1.1 Cardiac rehabilitation as a physical activity intervention in secondary care***

Cardiac rehabilitation schemes have provided contradictory information on the effectiveness of physical activity interventions in secondary care. Shepherd's (2009) systematic review of eleven studies found a strong case for long term physical activity interventions for patients who had recently experienced a cardiac event. However, a previous systematic review of patients attending cardiac rehabilitation programmes in Canada, the USA and Australia, following a cardiac event demonstrated generally low (23%) levels of adherence to schemes (Cortés & Arthur, 2006; Dugdill et al., 2005). Despite low adherence being identified amongst cardiac rehabilitation patients, significant improvements in health status have been found with this type of patient in the USA, particularly for those with low baseline physical activity capacity (Lavie and Milani 1994). Improvements in health status included reductions in triglycerides and body fat percentage, along with increases in high density lipoprotein cholesterol (Lavie and Milani 1994). However, the Lavie and Milani (1994) study did not identify numbers of patients who adhered to the programme, as the data were obtained from a review of patient's medical records. Therefore, there is insufficient evidence to draw conclusions on the effects of physical activity interventions on patients who have followed a cardiac rehabilitation programme in a secondary care setting.

### ***3.1.2 Weight management as a physical activity intervention in secondary care***

Specialist physical activity interventions for weight management in secondary care have also produced conflicting results. The Shepherd (2009) systematic review found limited evidence that supports the use of physical activity for controlling obesity, particularly for the severely obese, and that the barriers for physical activity participation in morbidly obese adults were high. However, the systematic review did find that physical activity could have a positive impact on reducing Body Mass Index (Shepherd, 2009), although inconsistencies, differences in outcome measures and limited data made judgments about effectiveness of physical activity difficult to make (Shepherd, 2009). A recent systematic review by Jolly et al., (2011) found weight management schemes in secondary care to be less effective than commercial weight

loss schemes such as Weight Watchers at 12 weeks and 12 months. Secondary care schemes were ineffective as they did not sustain weight loss at one year compared to commercial schemes, and were less cost effective (Jolly et al., 2011). Limitations of the Jolly et al., (2011) systematic review include differences in support available to the intervention groups. The commercial groups would have had larger numbers of attendees at their meetings, than the one to one pharmacy and GP sessions. Therefore, the peer support and pressure that contribute to the success of commercial group schemes would not have been present in the NHS interventions. A further limitation of this study is that the Weight Watchers group had significantly higher attendance than the NHS pharmacy and GP intervention groups. This could have positively influenced the support available to the commercial group and impacted on the overall success of the scheme. The lack of experience and limited level of training provided by the NHS run groups, could have also contributed to their lack of success (Jolly et al., 2011). The Jolly et al., (2011) study also found that self-reported physical activity levels were higher in the commercial groups, where peer support would have been greater compared to the NHS groups. This is in keeping with research elsewhere that has shown that support systems can improve adherence to physical activity interventions (Crone et al., 2004; Crone et al., 2005; Gidlow et al., 2005; Horne et al., 2010; Williams et al., 2007).

A longitudinal prospective cohort study on obesity and cardiorespiratory fitness, found that a lack of cardiorespiratory fitness was a bigger predictor of ill health than obesity in isolation (McAuley, Smith, Emerson & Myers, 2012). The study found no differences between the mortality rates from obese fit and non-obese fit men, but that non-obese and obese unfit men were 2.2 and 1.9 times more likely to die respectively (McAuley et al., 2012). The study found that cardiorespiratory fitness altered the obesity paradox such that mortality risk was lower for obese and non-obese men who were fit (McAuley et al., 2012). Limitations of this study include the use of Body Mass Index (BMI) as a tool for representing obesity. BMI does not measure body adiposity either at subcutaneous or deep levels, therefore it is difficult to make assumptions about BMI and mortality rates as deep body adiposity (levels of fat surrounding the vital organs) were not considered. A further limitation of this study is that no obvious distinctions are made between classifications of obesity and mortality. Consequently, the data presented from this study should be considered

cautiously. It appears that physical activity could have an impact on obesity in relation to reductions in BMI and mortality rates. Commercial weight loss groups may also be more effective than NHS interventions, at sustaining weight loss and physical activity levels in the short and long term (Jolly et al., 2011).

### ***3.1.3 Walking as a physical activity intervention in primary care***

Community based walking interventions have been used in recent years to promote physical activity levels in the short, medium and long term. However, the National Institute of Health and Clinical Excellence (NICE) (2006) guidelines for increasing physical activity levels, has indicated that there is not enough evidence to recommend their use for the promotion of physical activity, unless part of a Department of Health controlled research study (NICE, 2006). Furthermore, the NICE (2006) guidelines confuse the issue by stating that health professionals should continue to promote walking as a means of incorporating physical activity into peoples' lifestyles; this despite stating that there is equivocal evidence to suggest that walking schemes do not increase physical activity levels in the short, medium or long term (NICE, 2006). A systematic review of 58 interventions to promote walking that included 19 RCTs and 29 non randomised trials, found that the most effective interventions could increase walking in the short term by up to 30 – 60 minutes per week on average (Ogilvie et al., 2007). Discrepancies between the Ogilvie (2007) and NICE (2006) findings could be explained by the higher number of studies included in the Ogilvie (2007) systematic review, compared to those used in the NICE (2006) guidelines. The NICE (2006) evidence was based on four studies whereas the Ogilvie et al., (2007) systematic review drew its conclusions from 58 studies. This indicates that there is more evidence to support the use of walking to promote health benefits than not. However, a criticism of the Ogilvie et al., (2007) study is the review criteria used. The study only focused on walking as a means of transport and was predominantly reliant on randomised controlled trial data, as the data from these studies were considered easier to evaluate. This meant that a true picture may not have been reflected in the findings, as valuable information hidden in qualitative studies was not considered.

### ***3.1.4 Falls prevention as a physical activity intervention in primary care***

Dinan, Lenihan, Tenn & Liffie (2006) conducted a study on a practice-based physical activity intervention in a health clinic for the elderly. The intervention consisted of

chair based activities once a week at the clinic, followed by three home-based sessions for a group with an average age of 75 years (Dinan et al., 2006). The patients were assessed at baseline and eight week completion with a Timed Up and Go Test (Podsiadlo & Richardson, 1991). From those patients who had been referred into the scheme, a high percentage (89%) took up the physical activity programme, 74% completed stage one (conducted within primary care settings) and 63% completed stage two (conducted within community based classes at local leisure centres). The Dinan et al., (2006) study showed that physical activity interventions within a primary care setting, can be effective at increasing medium term physical activity levels for elderly patients. A limitation of the Dinan et al., (2006) study was that the high number (4) of sessions undertaken by the participants, compared to the normal (1–2) sessions a week, make comparisons with other studies difficult. However, this may also be one explanation for the high levels of adherence to the programme. Sherringham et al., (2008) completed a systematic review (44 RCTs) of the effectiveness of physical activity for falls prevention in the elderly. Sherringham et al., (2008) found that physical activity may reduce the rate of falls by 17 percent. To be effective at reducing falls rates, Sherringham et al., (2008) found that balance training needed to be combined with walking. They also found that if the physical activity intervention was walking only, the risk of falls increased. The amount of physical activity identified as necessary to reduce falls, was two hours per week over 25 weeks (Sherringham et al., 2008). A further systematic review conducted by Shepherd (2009) found physical activity to be an effective means of falls prevention. Shepherd (2009) highlighted that strength and balance based physical activity, needed to be combined with risk assessment and education to be effective. The evidence via these studies suggests that physical activity can not only promote medium term physical activity levels in the elderly, but it can also significantly reduce the risk of falls.

### ***3.1.5 Brief interventions as a physical activity intervention in primary care***

Brief interventions (also known as motivational talk, counselling or motivational interviewing) have been used to promote physical activity behaviour for different types of patients, for example, diabetics (Lohman, Seirsma & Olivarius, 2010), obese patients (Hillsdon, Thorogood, White & Foster, 2002), and patients with chronic heart failure (Brodie & Inoue, 2005). Motivational interviewing has also been used to

encourage physical activity as part of smoking cessation programmes (Ackermann et al., 2005). Brief interventions have been identified as an effective means of physical activity promotion in the NICE (2006) Public Health Intervention Guidance, in the short and long term. However, to be effective in the long term, NICE (2006) recommended the use of several follow up sessions, over a period of 3 to 6 months after the initial consultation.

A systematic review of 27 studies (mainly RCTs) that purported to have used motivational interviewing for physical activity behaviour change, reported only three studies with significant findings (Breckon, Johnston & Hutchinson, 2008), which is in contrast to the findings of Hutchinson, Johnston & Breckon (2009). The review by Breckon et al., (2008) identified that most of the studies were underpinned by the transtheoretical model of behaviour change, as identified as being necessary by Hutchinson et al., (2009) for a robust approach to using brief interventions. However, the Breckon et al., (2008) systematic review did not indicate whether some or all of the four dimensions reported in Hutchinson et al., (2009) were present in their findings. Therefore, an explanation for the low number of studies reporting significant findings could be, that the four dimensions reported as being necessary by Hutchinson et al., (2009) for behaviour change were not present. Breckon et al., (2008) did show that some studies reported increases in physical activity behaviour and physiological health outcome measures, although only three of the studies reported significant findings. Breckon et al., (2008) also identified discrepancies in training provision for the counsellors; in the interventions given and differences in the outcome measures used. In turn Breckon et al., (2008) concluded that in order to determine whether motivational interviewing is an effective technique for physical activity behaviour change, more attention should be paid to the design, training, delivery and receipt of physical activity counselling.

Brief interventions have also been used in American clinic based study to encourage patients who smoked to become more physically active (Ackermann et al., 2005). The study demonstrated little improvement in physical activity between the intervention (35%) and control (28%) groups at the four month follow up assessment (Ackermann et al., 2005). The patients in the study were considered to be at the 'contemplative stage of change', therefore, other factors must have impacted on the low percentage

of patients still active at the four month follow up. An explanation for this could be that patients were only counselled if the health professional identified the patient to be at the contemplative stage of change. Only 45% of intervention patients received physical activity advice. This had the effect of reducing the numbers of patients likely to be exercising at four months. James et al., (2010) found brief interventions to be even less effective at encouraging patients to be physically active at a three month follow up. In this UK study only 1.3 percent (n=8) of the original 623 patients progressed to the end stage, three month follow up (James et al., 2010). However, if only the patients who had received the brief intervention (n=29) are considered, similar percentages, 28 percent (n=8) reached the end stage as those in the Ackermann et al., (2005) study.

Brodie & Inoue (2005) examined the use of motivational interviewing to promote physical activity for people with chronic heart failure. The study used three intervention groups: motivational interviewing and standard care; standard care and motivational interviewing. Two measures were used, the first being self-reported energy expenditure, the second being time taken to complete a six minute walk (Brodie & Inoue, 2005). Details were provided on the motivational interviewing intervention cognisant with those identified by Hutchinson et al., (2009). Brodie & Inoue (2005) reported increases in energy expenditure for both of the groups that included a motivational interviewing intervention at the five month follow up point, and decreases in energy expenditure for the standard care group. Brodie & Inoue (2005) also found that the standard care only group, completed the greatest distance in the six minute walk, although the differences between all the intervention groups were not significant. Therefore, the evidence for motivational interviewing as a means of increasing physical activity from this study is questionable. For example, the increases in energy expenditure were self-reported without acknowledgement of how this method may over represent physical activity levels (Department of Health, 2008, Prince et al., 2008). An explanation for the standard care group reporting decreases in energy expenditure at the five month follow up compared to baseline, could be because they had higher baseline physical activity levels than the other two intervention groups. This would mean that to show increased energy expenditure at the follow up, the standard care group would have had to have had higher energy expenditure over the intervention period than the other two groups. A further limitation

of Brodie & Inoue (2005) was the lack of detail relating to the standard care groups intervention.

Hillsdon et al., (2002) conducted a randomized controlled study on two different types of motivational advice used to encourage physical activity behaviour in hypertensive obese patients, those being Brief Negotiation (BN) and Direct Advice (DA). The authors found that both the intervention and control groups demonstrated increased levels of physical activity at the twelve month follow up. The intervention groups show an overall four percent greater increase in energy expenditure compared to the control groups. However, the BN group had a ten percent higher increase than the DA group, and both groups showed reductions in blood pressure (Hillsdon et al., 2002). Whilst this study indicated that motivational interventions can have an impact on physical activity behaviour, the differences were not much greater than the non-advice control group (Hillsdon et al., 2002). A limitation of this study is that the data was collected from self-report techniques, which have been shown to over represent perceived levels of physical activity (Department of Health, 2008; Prince et al., 2008).

A systematic review of 24 studies (21 RCTs and 3 non RCTs) conducted by Hutchinson et al., (2009), also showed that motivational interviewing can be effective means of increasing physical activity levels. The review found that motivational interviewing techniques could produce increases in physical activity behaviour in the short and long term (Hutchinson et al., 2009). With regard to short term interventions of less than six months, 18 of the 24 studies reported significant effects of motivational interviewing in terms of stage of progression, activity levels or both (Hutchinson et al., 2009). In relation to long term interventions (for example, six months or longer) eight of the 24 studies reported a significant effect of motivational interviewing on physical activity behaviour change. Hutchinson et al., (2009) identified that to have purported to have used the transtheoretical model of motivational interviewing, the following four dimensions needed to present: stages of change; process of change; decisional balance; and self-efficacy (Hutchinson et al., 2009). The review also found that from the seven interventions that used all four aspects, six reported short and long term increases in physical activity behaviour. The 17 interventions that did not use all four aspects of the transtheoretical model, reported significant short term findings but only one long term finding (Hutchinson et al., 2009).

Therefore, the evidence indicates that for long term physical activity behaviour change to take place, all four dimensions of the model have to be correctly employed. This finding was also supported by a Danish study on the impact of motivational interviewing on the fitness levels of type two diabetic patients (Lohmann et al., 2010). Lohmann et al., (2010), also incorporated the four dimensions identified by Hutchinson et al., (2009) in their study. The Lohmann et al., (2010) study observed 80% adherence rates to a physical activity intervention over 18 months duration. They found significant increases in fitness and physiological markers such as improvements in  $\dot{V}O_2\text{max}$ , strength gains and high density lipoprotein cholesterol levels. However, they did not find any changes in waist circumference, body mass index or fasting plasma glucose levels.

The publication of *Let's Get Moving* (Department of Health, 2009) reinforced the need for physical activity interventions in primary care through brief interventions, and provided commissioning guidance for health professionals. Following the recommendations of NICE (2006) and the (Department of Health, 2009), several studies and systematic reviews have taken place as a means of analysing the effectiveness of brief interventions in primary care, with contradictory findings. To date two studies have evaluated the *Let's Get Moving* (Department of Health, 2009) physical activity care pathway (Bull and Milton, 2010; and James et al., 2010). They presented similar findings with approximately 28 percent of patients receiving the intervention, attending the follow up (Bull and Milton, 2010; and James et al., 2010). The studies by Bull and Milton (2010) and James et al., (2010) used motivational interviewing interventions cognisant with those identified by Hutchinson et al., (2009). The Bull and Milton (2010) study identified the problems associated with variations in motivational interviewing techniques used by health professionals, such as inconsistent delivery of the brief interventions; a lack of confidence in delivery; and time constraints. Inconsistencies were also identified in the time allocated for screening patients, which ranged from between 1 to 4 minutes and 6 to 23 minutes (Bull and Milton, 2010), and 3 to 5 minutes allocated for follow up interviews. An explanation for the short time allocations allocated by the health professionals could be that, this enabled the interventions to take place during a normal consultation period. Limitations of this study that could account for the low attendance at the follow up are that the NICE (2006) requirements of several follow up periods over a three to

six month duration were not met. Studies that have used multiple follow ups over the course of an intervention have shown higher adherence rates. For example, 50 percent attendance rates at a follow up health check, were achieved in the Hillsdon et al., (2002) study, when telephone support was given on six occasions over a twelve month duration.

The brief intervention in the James, Crone, Curry & Gidlow (2010) study was given by non-specified lifestyle advisors, compared to health professionals in the Bull and Milton (2010) study. This may account for the higher number of patients taking up the brief intervention in the Bull and Milton (2010) study in comparison to James et al., (2010), which was 60 and 5 percent (n=8) respectively. From the eight patients who agreed to take part in the follow up, only one of them had taken part in the physical activity care pathway (James et al., 2010). However, it was revealed that a lack of information at the point of completing the General Practice Physical Activity Questionnaire may have prevented patients wanting to take-up the scheme (Department of Health, 2006c). A lack of information on joining physical activity schemes has also been identified as a trigger for non-participation in a recent qualitative study by (Curry, Crone, James & Gidlow, 2011). The James et al., (2010) study found that the majority of patients who completed the three month follow up were from the least deprived social groups (87.5%) and that those who did not were from the most deprived social groups (12.5%). Therefore, the evidence from Bull and Milton (2010) and the James et al., (2010), would suggest that brief interventions have a limited effect on encouraging patients to adopt a physically activity behaviour, although due to the low percentage of patients who attended the follow up and engaged in the pathway in the James et al., (2010) study, it is difficult to make judgments on the effectiveness of the intervention, except to identify that there was a lack of take-up by the patients. The Curry et al., (2011) study examined five key triggers for physical activity participation: physical infrastructure; information infrastructure; administrative infrastructure; participant constraints and participant preferences. Participant triggers were found to be the main reason for lack of participation in physical activity interventions (Curry et al., 2011). Participant triggers included apprehension about cost, illness, dislike of formal physical activity, and not wanting to socialise with the elderly or unfit (Curry et al., 2011). Therefore, participant

triggers, rather than infrastructure triggers can be a stronger influence on the success of a scheme.

There is conflicting evidence around the effectiveness of brief interventions for physical activity behaviour change in a primary care setting. One of the main explanations given for this are, the inconsistencies evident in the design, training, delivery and receipt of physical activity counselling (Bull and Milton, 2010). However, the evidence presented has indicated that brief interventions may be an ineffective method, for achieving physical activity behaviour change (Breckon et al., 2008; Curry et al., 2011; Hutchinson et al., 2009; Lohmann et al., 2010; NICE, 2006). Where studies have used the four dimensions of motivational interviewing identified by Hutchinson et al., (2009) some positive associations have been identified for long term behaviour change.

### ***3.1.6 Summary of physical activity interventions for public health promotion***

There are a number of interventions that have been developed with the aim of increasing physical activity behaviour in a variety of health care settings. In secondary care settings, there is insufficient evidence to support the effectiveness of cardiac rehabilitation programmes to promote physical activity, although improvements in biochemical markers have been identified as a result of patient's engagement with an physical activity programme (Lavie and Milani 1994). Secondary care weight management schemes may be less effective than commercial weight loss programmes, at sustaining weight loss and physical activity levels in the short and long term (Jolly et al., 2011). However, secondary care schemes may be effective at reducing body mass index levels and mortality rates of obese patients, through participation in cardiovascular exercise (Shepherd, 2009).

Primary care interventions such as walking groups and falls prevention programmes for the elderly may be effective methods for health and physical activity promotion. This is despite the confusing recommendations from the NICE (2006) physical activity guidelines detailed in section 2.7. The evidence presented has revealed that walking schemes can promote physical activity behaviour in the general population in the medium term (Ogilvie et al., 2007), and within elderly populations (Dinan et al., 2006; Shepherd, 2009; Sherringham et al., 2008). There is contradictory evidence on the

effectiveness of brief interventions, as a means of promoting physical activity behaviour in a primary care setting. However, when certain criteria are adhered to, long term behaviour change may be possible (Hutchinson et al., 2009). The following section critically examines the most prevalent physical activity intervention in the UK, that being exercise referral schemes.

### ***3.2 Exercise referral schemes as a form of physical activity promotion in public health.***

The first exercise referral schemes emerged in the early 1990s, with the number growing over the following years (Riddoch et al., 1998). The number of schemes have increased from approximately 200 in 1994 (Biddle et al., 1994) to approximately 600 in 2011 (Pavey et al., 2011). Exercise referral schemes have been known as exercise referral programmes, exercise on prescription, GP exercise referral, physical activity referral (Taylor et al., 1998). More recently these schemes have been known as physical activity referral schemes (Crone et al., 2008). Gidlow & Murphy (2009) have highlighted how schemes involve collaboration between health professionals and exercise professionals. Referrals in primary care can be made from GPs, practice nurses or physiotherapists (Dugdill et al., 2005) and patients can also refer themselves (Gidlow & Murphy, 2009).

Programmes of activity are devised by exercise professionals that usually last between 8 – 12 weeks (Crone et al., 2004; Dinan et al., 2006; Dugdill et al., 2005). Patients generally attend 1-2 sessions a week that are delivered in a variety of settings. For example, leisure centres, primary care settings, at home or through a combination of home based and leisure centre or home-based and primary care (Crone et al., 2008; Dinan et al., 2006; Leijon et al., 2010). Exercise referral schemes typically target patients with coronary heart disease risk factors for example hypertension, smoking, inactivity, obesity or raised cholesterol (Gidlow & Murph, 2009). A typical example of the exercise referral process can be seen below (Figure 4).

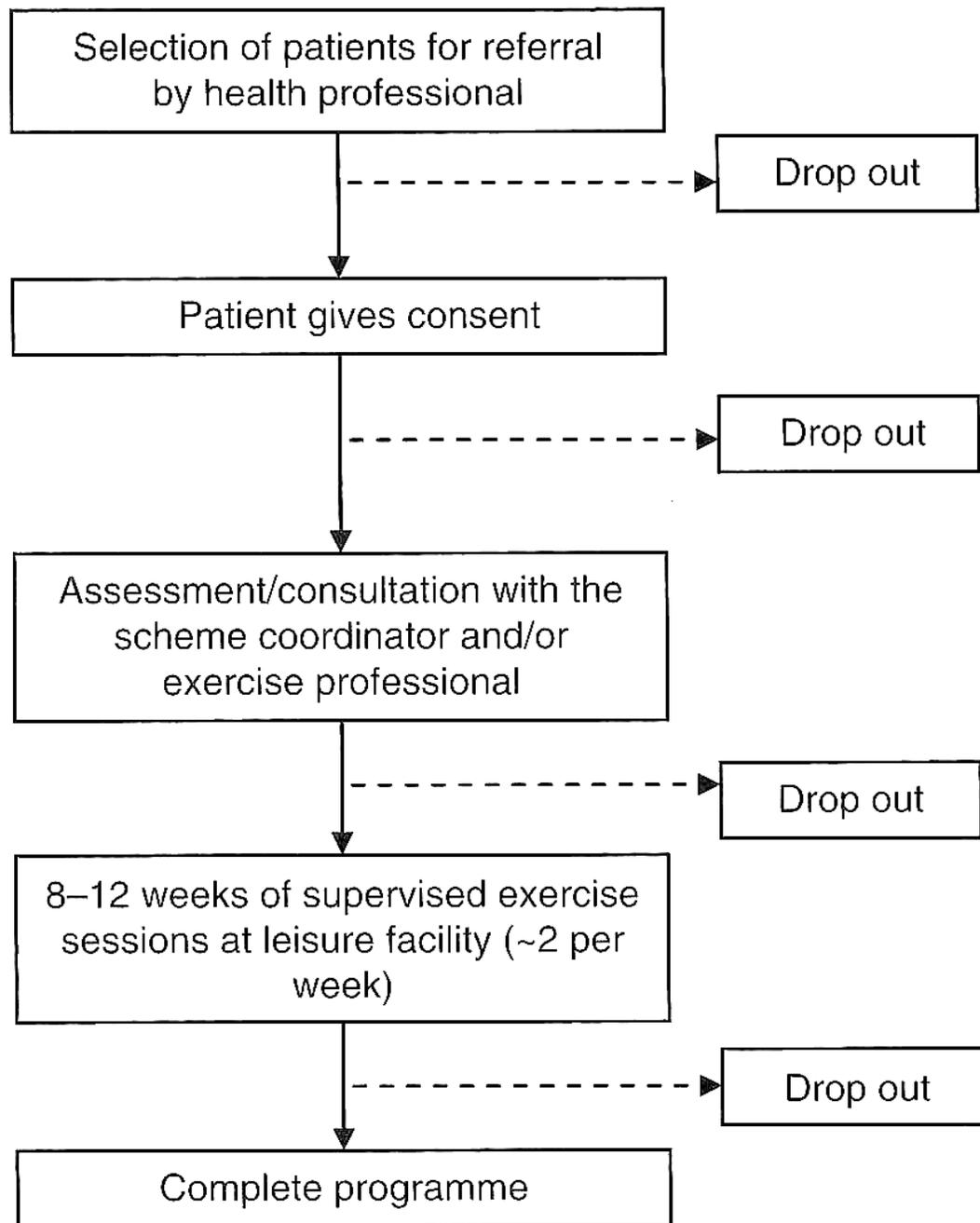


Figure 4: Physical activity referral process. (Gidlow et al., 2008)

### **3.2.1 Exercise referral schemes and their emergence in public health policy**

A review of exercise referral schemes conducted towards the end of the 1990s identified growth of the schemes without strategic vision (Hillsdon, 1998). This, according to Hillsdon (1998) resulted in an uncoordinated approach to their development 'without a clear structure, guidance for referral, or any quality control mechanisms' (Hillsdon, 1998, p.53). Coincidentally, a more coordinated approach was adopted by the Labour Government, who actively promoted coordinated health partnerships (Department of Health, 1998).

A coordinated approach to the delivery of exercise referral schemes was made with the publication of the *National Quality Assurance Framework for Exercise Referral Schemes* (NQAF for ERS) (Department of Health, 2001). However, whilst emphasising the importance of evaluation, the *NQAF, ERS* (Department of Health, 2001) had no clear systematic guidelines for evaluation. This led to numerous schemes being developed without consistency or comparable data (Sowden and Raine, 2008). The development of exercise referral schemes gained more prominence through their inclusion in the policy document *Health Challenge England: The next steps for Choosing Health* (Department of Health, 2006a). However, the Labour Government appeared to be too quick to commission new policies, without full evaluations on effectiveness, as was the case with exercise referral schemes (Sowden and Raine, 2008). A consequence of the lack of exercise referral scheme evaluation is that the task of identifying improvements in health status and reductions in health inequalities becomes an unrealistic aim of the schemes (Sowden and Raine, 2008). An explanation for this is that socio-demographic data could be difficult to collate, as no standard definitions of what constitutes this type of data were issued (Sowden and Raine, 2008).

The lack of evaluation criteria could also effect future direction of exercise referral schemes, particularly with the change of Government in 2010. The Coalition Government's health policies appear to focus on private sector involvement and local provision, with the emphasis on 'nudging' people into healthy behaviours. The Coalition Government wants to deregulate public health provision and encourage organisations to subscribe to voluntary codes of practice before resorting to regulation (Department of Health, 2010a). Adopting voluntary codes of practice in relation to

exercise referral may have a detrimental effect on the number of patients attending schemes. The Government's current policy of placing GPs in control of health budgets, may lead to a lack of prioritisation of schemes and an increase in drug treatments for inactivity, as the potential for profit would be greater.

Guidelines have been produced by the British Heart Foundation in the form of an Exercise Referral Tool Kit (British Heart Foundation, 2010a). The Tool Kit was designed for the implementation and evaluation of exercise referral schemes. The Tool Kit aimed to provide an easy to read practical guide for all of the professionals involved in delivering schemes. One limitation of the Tool Kit is in its recommendations for screening tools to be used by health professionals to determine patient suitability for entry into the scheme. The Tool Kit suggests using a combination of tools such as the General Practice Physical Activity Questionnaire (Department of Health, 2006c), and cardiovascular disease risk screening tool (Irwin and Morgan, 2003). Whilst it should be noted that clearer guidance has now been provided for general patient suitability for entry into a scheme (British Heart Foundation, 2010a), this guidance is unlikely to be suitable for patients living in areas of high social deprivation, as it does not take into consideration the more complex psycho-social needs of patients living in such areas. Therefore, these basic tools are unlikely to assist health professionals in ascertaining the suitability of patients to participate in schemes.

### ***3.3 Critical review of evaluation methods used to determine the effectiveness of physical activity interventions***

This section examines and critically reviews the evidence for exercise referral schemes in the promotion of physical activity. In order to determine the impact that schemes have on promoting physical activity, the three most common types of evaluation will be examined. The first part of this review focuses on a general overview of the different evaluation types used for exercise referral schemes. The second part examines the evidence from more specific evaluation types, these being experimental quantitative, non-experimental quantitative and qualitative evaluations.

#### ***3.3.1 General overview of evaluation types used to determine the impact of physical activity interventions***

Three main evaluation types have been identified to determine the effectiveness of schemes on increasing physical activity behaviour (Gidlow et al., 2008). These evaluation types include the following three broad categories: experimental quantitative (controlled and randomized controlled trials); non-experimental quantitative (uncontrolled longitudinal cohort studies); and lately qualitative research (Gidlow et al., 2008).

Controlled and randomized controlled trials (RCTs) maximise external validity through controlling for the effects of confounding variables by using strict experimental controls, which allow for the detection of intervention effects (Gidlow et al., 2008). A significant advantage of RCTs is the isolation of the intervention effect, through the use of a control group, without which it would be difficult to attribute change (Gidlow et al., 2008). A limitation of RCTs is that recruitment of patients tends to be low as has been shown in numerous studies (Ackerman et al., 2005; Crone et al., 2008; Harrison et al., 2004; Hillsdon et al., 2002; James et al., 2009; Morgan, 2005; Van Heuvelena, Hochstenbachc, Brouwers & De Greefa, 2006). Furthermore, some RCT studies have indicated low numbers (20% - 40%) of patients active at completion of schemes (Ackerman et al., 2005; Morgan, 2005; Gidlow et al., 2005). One method of RCT recruitment is through selection from clinical record databases (Gidlow et al., 2008). This method has been criticised for not providing context specific evidence and facilitating the application of findings to practice (Gidlow et al., 2008). If the

experimental setting cannot replicate practice, it is questionable as to what degree any findings from RCTs can be used to inform practice (Gidlow et al., 2008).

Uncontrolled and longitudinal cohort studies (LCSs) can address the weakness identified with recruitment in RCTs, above. This is because internal validity is a characteristic of LCSs, as they take place within real life situations (Gidlow et al., 2008). A further strength of LCSs is that the method of recruitment tends to be through health professional referral (Gidlow et al., 2008). Consultation with health professionals during the initial referral phase has been shown to be more likely to engage patients into a scheme (Cortes and Arthur, 2006; Dinan et al., 2006; James et al., 2008; Jones, Harris, Walker & Coggins, 2005), than recruitment through databases (Crone et al., 2008; James et al., 2010). A longitudinal cohort study conducted in the USA that recruited through electronic medical records system demonstrated low uptake (28%) and low adherence (9%) at 6 months (Damush, Stump, Saporito & Clark, 2001). Their recruitment method may have a larger impact on engaging patients with a physical activity intervention than the type of study design. However, some longitudinal studies have demonstrated higher numbers (57% and 48%) of active patients at completion (James et al., 2009; Gidlow et al., 2007). One explanation for the higher levels of physical activity from large quantitative studies is that they focus on health outcomes as well as attendance. Seeing tangible improvements in health measures may have helped to motivate the patients to complete exercise referral schemes.

Qualitative evaluations can be valuable as they allow the exploration of the different perceptions and experiences of all of those involved in the exercise referral process (Crone et al., 2005). Qualitative approaches may also improve understandings of why certain interventions do, or do not work; why health professionals under or over-refer; or why certain groups may be more suited to referral than others (Gidlow et al., 2008). Vinson and Parker (2012) have shown that qualitative research can provide data on the organisation of schemes, client engagement, and the nature and extent of client support networks. Qualitative approaches can also be used for capturing patterns of patient behaviour, such as: adherence and completion rates; variations in referral rates between health professionals; or changes in physical activity behaviour throughout a scheme (Gidlow et al., 2008).

In summary, RCTs are still the dominant method of evaluation within physical activity and health promotion, despite opposition to their sole use (Barreto, 2005), despite recognition that a multi method approach appears more effective (Gidlow et al., 2008). A more diverse approach to the evaluation of physical activity has the potential to produce a wider evidence base, and help to develop a more coherent approach to evidence based practice in this field.

### ***3.3.2 Specific examination of randomised control trials to determine the effectiveness of physical activity interventions***

Recent research has focused on randomized controlled trial (RCT) design. Evidence from these studies suggests exercise referral schemes may not be an effective means of promoting physical activity. Systematic reviews of RCTs used to evaluate schemes have demonstrated low levels of physical activity behaviour. For example, a systematic review of RCTs on the effectiveness of schemes at promoting physical activity, found a statistically significant decrease in the numbers of people participating in moderate intensity exercise (Williams et al., 2007). Williams et al., (2007) identified an 80% drop out rate from those referred into schemes, with 17 adults needing to be referred for one to become moderately active. A review by Pavey et al., (2011) on the effectiveness of schemes in primary care, found that they can increase physical activity levels. However, the numbers of patients participating in 150 minutes of moderate activity per week was no more than for usual care, no intervention or other physical activity interventions (Pavey et al., 2011). The Pavey et al., (2011) review consisted of eight randomised control trials and 14 observational studies that included 10 qualitative studies. Pavey et al., (2011) identified a lower uptake from qualitative studies compared to randomised control trials, 66% v 79% respectively. The review also identified that qualitative studies can have higher adherence rate than quantitative studies at 48% v 37% respectively (Pavey et al., 2011). Furthermore, Pavey et al., (2011) identified that qualitative studies have reported schemes as having a range of physical, psychological and social benefits, plus an impact on health behaviours. However, only a few studies reported sustainable physical activity behaviours or take-up of physical activity outside of the gym environment (Pavey et al., 2011). Despite the positive findings from the qualitative research, it was concluded that the benefits of exercise referral schemes were uncertain (Pavey et al., 2011). One explanation for this is that the evidence

hierarchy remains dominant for the use of RCTs for public health research, despite the criticisms that have been directed towards this approach such as low recruitment and adherence to schemes (Gidlow et al., 2008). A recent pragmatic randomised controlled trial on the impact of physical activity on depression, indicated increased levels of physical activity at follow up and 12 months post randomisation (Chalder et al., 2012). This suggests that pragmatic randomised controlled trials that include a physical activity intervention (Chalder et al., 2012; Mutrie et al., 2007), may be a more acceptable form of controlled trial to use with physical activity interventions in the future.

In summary, inconsistent evidence is available when RCTs are used to assess the effectiveness of exercise referral. The majority of RCTs have indicated that exercise referral schemes are ineffective at promoting physical activity behaviour. RCTs highlight dropout rates, and that increases in physical activity levels may be no greater than from other interventions. Therefore, it would appear that additional factors such as support systems may have a bigger impact on adherence to physical activity behaviour than the type of study used to evaluate them. A recent systematic review of exercise referral schemes revealed that they can improve moderate levels of physical activity in the short term. Furthermore, a recent pragmatic RCT that included a physical activity intervention showed that long term increases in physical activity levels are possible.

### ***3.3.3 Specific examination of non-experimental quantitative studies used to determine the impact of physical activity interventions***

Data available from non-experimental quantitative studies on the impact of exercise referral schemes on physical activity behaviour is also inconsistent. Several studies have shown relatively high numbers of patients adhering to physical activity at the end of a scheme (Dinan et al., 2006; Gidlow et al., 2007; James et al., 2009; Jones et al., 2005; Lee et al., 2009; Leijon et al., 2010; Sowden, Breeze, Barber & Raine, 2008). Similar numbers of studies have shown physical activity behaviour to be low, following completion of a scheme (Crone et al., 2008; Damush, et al., 2001; Dugdill et al., 2005; James et al., 2010). Some studies that have shown exercise referral schemes to be effective at physical activity promotion, have been for the 8 -12 week duration, Dinan et al., (2006) (8 weeks), Lee et al., (2009) (10 weeks), Leijon et al.,

(2010) (12 weeks). Schemes that have been run for shorter durations of between eight and 14 weeks have shown high completion levels of 74% (Dinan et al., 2006) and 48% (Gidlow et al., 2007). Other schemes that ran over a similar duration have shown lower completion levels at 20% (Gidlow et al., 2005) and 34% (Dugdill et al., 2005). The varying durations of exercise referral schemes can make comparisons difficult. Some schemes (for example in Sweden) are ongoing and do not have an end point (Leijon et al., 2010); referral schemes in UK can have varying durations of 8 (Dinan et al., 2006), 12 and 14 weeks (Dugdill et al., 2005). Schemes have also been run for longer durations of up to six months in the UK (James et al. 2009). There does not appear to be any relationship between adherence levels and the duration of a scheme. One scheme that ran for six months in the USA, demonstrated low levels (9%) of completion (Damush et al., 2001). A scheme that ran in the UK for six months demonstrated high (57%) levels of completion (James et al., 2009).

In contrast to the findings from the systematic reviews of RCT data, that highlighted low (37%) adherence rates to schemes, high levels (57%) have been found from a longitudinal population cohort study (James et al., 2009). The James et al., (2009) study had an activity intervention of six months, compared to the typical 10–12 week period in the systematic reviews (Williams et al., 2007; Pavey et al., 2011). The increased duration of the intervention in the James et al., (2009) study is likely to have had an impact on the health outcomes of the patients. Health outcomes assessed throughout the James et al., (2009) study included blood pressure and body mass index, which are known to respond effectively to physical activity (Hillsdon et al., 2002). From the patients who completed the intervention 33% had a significant reduction in body mass and 49% had a reduction on blood pressure (James et al., 2009). Other aspects that should also be considered to have influenced physical activity levels include effective support systems, a flexible patient centred approach to the exercises, time and day of the classes, variety of activities on offer, and the older age of the patients (James et al., 2009). Interestingly an RCT in the Netherlands by Van Heuvelena et al., (2006) had comparably high levels of physical activity adherence to the James et al., (2009) study. Explanations for this include that the Dutch study was also conducted over a longer period of time (18 weeks), compared to 10 – 12 weeks commonly used in the UK. The patients in the Dutch study also had effective support systems in place throughout the scheme from exercise professionals

and a partner (Van Heuvelena et al., 2006). This would suggest that duration and support mechanisms can also have an impact on adherence, as well as the type of study design.

In conclusion it should be noted that the schemes above were run in different countries, had different types of patients and used different interventions. Therefore, the quantitative evidence on the effectiveness of schemes at promoting physical activity is inconclusive. The duration of schemes may have an impact on increasing physical activity levels, but this variable is unlikely to work in isolation. A more common sense perspective on the impact of the duration of a scheme on increasing physical activity is that the longer a scheme runs the more chances people have to drop out. Another perspective is that the longer the scheme, the more likely the patients is to see tangible improvements in health status. With tangible improvements in health status, comes increased motivation to continue with a physically active lifestyle. The inconsistencies that have been highlighted in the non-experimental quantitative studies may account for their non inclusion in the systematic reviews of exercise referral schemes.

#### ***3.3.4 Specific examination of qualitative studies used to determine the impact of physical activity interventions***

Far fewer qualitative studies have been conducted on the impact of exercise referral schemes. This review identified eight studies that included data relating to the impact of schemes on physical activity behaviour (Cooper et al., 2005; Crone et al., 2004; Day and Nettleton, 2001; Fox and Biddle, 1997; Little and Lewis, 2006; Sharma et al., 2012; Vinson & Parker, 2012; Wormold et al., 2006). These studies represented exercise referral schemes as having a favourable impact on the promotion of physical activity, than is generally represented with RCT evaluations. However, comparability of data is difficult due to the differences in study objectives, design and funding. Qualitative studies have identified a range of findings associated with people's decisions to adopt physical activity behaviours as well as barriers to continue.

Cooper et al., (2005) investigated patients' beliefs about cardiac rehabilitation. Cooper et al., (2005) used face to face interviews with 13 patients either in hospital or at home, to determine their beliefs about the role of cardiac rehabilitation following a

heart attack. Cooper et al., (2005) identified four key themes: content of the course; perceived benefits; explicit barriers to attendance; and causal attributors for heart attack. Some of the patients had misconceptions of the types of physical activity required, and believed that weight lifting was appropriate physical activity. Some of the patients were also concerned about their levels of fitness, and being self-conscious about physical activity. The misconceptions were seen as a barrier to attending cardiac rehabilitation (Cooper et al., 2005). However, other patients believed that cardiac rehabilitation was an important part of the recovery process, would help them return to work and increase their self confidence (Cooper et al., 2005). An interesting finding was that the patients could not identify the causal attributors to their heart attack (for example, stress, lack of physical activity, smoking, high cholesterol) and were mystified as to why it had occurred (Cooper et al., 2005). Limitations of the study include a lack of clarity for when and where the patients were interviewed, which may have impacted on the patient's reluctance to engage with the programme. Cooper et al., (2005) stated that as a matter of course, nurses discussed rehabilitation with patients whilst in hospital. This may have been too soon for the patients, who may have been more concerned with coming to terms with their heart attack, than taking up a physical activity programme.

The findings from Cooper et al., (2005) are in contrast to that of the Little and Lewis (2006) study on the influences of long-term physical activity adherence in older patients with cardiac disease. Little and Lewis (2006) used in-depth semi structured interviews with a group of five elderly patients, 12 months after release from hospital. Little and Lewis (2006) found that the patients had a positive attitude and understood the value and benefits of physical activity. They found that support systems were very important for adherence to a programme, in particular from family, friends and health professionals (Little and Lewis, 2006). The biggest barriers to physical activity were considered to be physical ones, such as angina and arthritis (Little and Lewis, 2006). Other barriers were the types of physical activity, as some classes contained mixed abilities, patients found it hard to keep up the pace. Although these barriers did not stop the patients exercising, it did stop them exercising at the correct frequency to maintain health benefits (Little and Lewis, 2006). Little and Lewis (2006) concluded that a positive attitude to physical activity may be more influential for older patients suffering from cardiac disease, than the barriers described. Limitations of this study

include the small sample size used and the lack of information relating to the intervention.

Crone et al., (2004) carried out a case study of professional practice in maintaining quality in exercise referral schemes. This involved partnership approaches aimed at quality assurance and parity of service in the delivery of a scheme in Somerset. Crone et al., (2004) recognised that Somerset used a coordinated approach to exercise referral with an established system of multi-agency alliance linked to Somerset Specialist Health Promotion Service. The system was reviewed by Grant et al., (1999) and found that: three quarters of patients completed the programme of between eight to twelve weeks; patients increased their physical activity levels from baseline to six month follow up; and that patients reported improvements in perceived health such as physical functioning and vitality. As a result of the positive review, a Proactive Management Service (PMS) was set up. The PMS comprised of a multidisciplinary team of exercise scientists that aimed to monitor, maintain and improve the service. The PMS provided consultancy and support to leisure and health professionals involved in exercise referral and included a central referral mechanism and consultancy service (Crone et al., 2004). The importance of the first contact by the physical activity councillor was highlighted by Crone et al., (2004) who identified that the patient must feel that they were appropriate for referral following the consultation. Although the majority of patients joined the scheme, cost, availability and accessibility were identified as barriers to referral (Crone et al., 2004). A limitation of the scheme was that the system could break down due to high staff turnover found within the leisure industry, which could have a negative impact on patient care and support (Crone et al., 2004).

Day and Nettleton (2001) undertook a long term, five year follow up study of the Scottish Borders general practitioners exercise referral scheme. Forty percent of the patients from the original group of 324 returned a questionnaire on their current levels of physical activity. From the patients who returned the questionnaires, forty percent reported that they were still active up to three times per week, and sixty six percent reported that they were either a lot more or a little more active, than they were five years ago (Day and Nettleton, 2001). These patients reported that it was the exercise referral scheme that had enabled them to become more active (Day and Nettleton,

2001). In addition to becoming more active the patients also reported other benefits from the scheme including: greater confidence when meeting people; being able to go back to work or take on voluntary work; using the car less and walking and cycling more; learning to relax; and stopping smoking (Day and Nettleton, 2001). Limitations of the study include the lack of detail relating to the type and duration of the intervention, and acknowledgement that recall methods inherently over represent activity levels (Department of Health, 2008, Prince, 2008). This suggests that physical activity levels may have been lower than those reported.

Fox et al., (1997) undertook a qualitative study to assess the effectiveness of physical activity promotion through primary health care in England. Fox et al., (1997) selected fifty schemes for the study from a range of demographic areas, including GP practice and leisure centre managed schemes. Fox et al., (1997) found that exercise referral schemes: only involved a small percentage of the patient base from which they were drawn; that attendances at inductions were in the region of sixty to seventy percent; that unsophisticated evaluation schemes were in place; there was no resourcing to conduct long term evaluations; and that most schemes used short term changes in biomedical and fitness parameters to evaluate the schemes. Fox et al., (1997) identified that successful schemes needed to have three enthusiastic and knowledgeable key personnel, these being the health professional, physical activity counsellor, and the exercise leader (Fox et al., 1997). They also found that schemes without people in these roles were more likely to be unsuccessful (Fox et al., 1997). A limitation of this study is the imbalance between the two different types of data collections methods, and the effect that the differences in data obtained from 50 phone interviews and 11 case studies had on the findings. Strengths of the study are the inclusion of practices from most regions in England; from a range of rural and urban locations; and from middle and working class areas, which enhanced the trustworthiness of the data obtained.

Sharma et al., (2012) conducted a study on experiences of exercise referral from the perspective of people who had suffered a stroke. Sharma et al., (2012) described increased physical and psychological wellbeing as a result of the intervention. Nine stroke survivors participated in a three month exercise referral scheme, twice a week, run by physiotherapists at a leisure centre. The patients reported increased exercise

engagement and confidence, internal control of their conditions, and enhanced lifestyle, work and social roles (Sharma et al., 2012). The emergent theme was how the patients believed that the scheme was influential in enabling them to take control of their condition, and regain their independence following a stroke (Sharma et al., 2012). Limitations include the small sample used and the variations in time, post stroke before taking up the scheme. For example, the scheme may have had a greater impact on a patient who was four years post stroke than a patient who was six months post stroke. A four years post stroke patient may of had longer to establish a pattern of behaviour without the exercise intervention and therefore may have noticed a more dramatic effect from it.

Vinson and Parker (2012) analysed client perspectives of physical activity referral schemes (PARS), to gain an understanding of the service and support given. The analysis revealed three key areas affecting the client perceptions of the quality of the service. These included: the organisation of the provision; client engagement with the PARS community; and the nature and extent of support networks (Vinson and Parker, 2012). Vinson and Parker (2012) found that the more flexible a scheme was on the timings of sessions, the more likely a client would attend. The second finding was that professional relationships with the staff were important for adherence. This is because the client felt more confident when working with the same member of staff, as familiarity lead to an awareness of their medical conditions and personal limitations (Vinson and Parker, 2012). The third finding from Vinson and Parker (2012) was the importance of client support networks, also identified in other qualitative studies (Crone et al., 2004; Fox et al., 1997; Wormald et al., 2006). The clients stated that the scheme organisers were crucial in motivating them to attend the classes, through contacting clients if they appeared to be in the process of dropping out (Vinson and Parker, 2012). Vinson and Parker (2012) also identified social integration with other service users as an important aspect for attendance, along with support from experienced patients.

Wormald et al., (2006) examined participants' perceptions of a lifestyle approach to promoting physical activity. The study's intervention aimed to provide a complementary service to the exercise referral scheme. This was in the form of six consultations with an activity lifestyle adviser, over the 12 week duration of the

scheme (Wormald et al., 2006). Wormald et al., (2006) examined: the referral process; operational aspects of the service; and perceived benefits of the service. An examination of the referral process found differences in health professional's knowledge of the scheme, with the majority not well informed as to what the scheme entailed (Wormald et al, 2006). Furthermore, patients reported disappointment in their health professional's lack of interest in their progress (Wormald et al., 2006). An analysis of the operational aspects of the scheme found that despite being offered six consultations, the patients only saw their lifestyle advisor on two or three occasions. An explanation for this was they felt that a monthly meeting was more appropriate than fortnightly meetings (Wormald et al., 2006). Wormald et al., (2006) also found that the personality of the advisor had a significant impact on the success or failure of the system, a point recently supported by Vinson and Parker (2012). Wormald et al., (2006) also found that most patients perceived that they were more active as a result of the support given to them from the activity lifestyle advisor. Explanations for this include that the patients had progressed onto other activities such as gym visits; that they had been able to change their physical activity behaviour, outlook and way of thinking; and that they would be able to continue with these changes for the long term (Wormald et al., 2006). Limitations of the study include the lack of information on the type of physical activity intervention, low response rate, and the small sample size of eleven patients.

In summary, similarities identified in the qualitative studies reviewed, relate to factors associated with the success of schemes. They include the importance of support systems from friends, family, exercise and health professionals (Crone et al., 2004; Fox and Biddle, 1997; Little and Lewis, 2006; Vinson and Parker, 2012; Wormold et al., 2006). Improvements in psychological wellbeing including general, exercise, and social self confidence were identified as reasons for the success of schemes (Cooper et al., 2005; Fox et al., 1997; Little and Lewis, 2006; Sharma et al., 2012; Vinson and Parker, 2012; Wormald et al., 2006). Referral schemes have also been identified as an important part of the recovery process for heart attack and stroke patients, enabling them to return to work (Cooper et al., 2005; Day and Nettleton, 2001; Sharma et al., 2012).

Differences identified in the qualitative studies that relate to barriers associated with the success of schemes include: misconceptions about the types of physical activity required when taking part in a scheme; fitness levels required; and the causes of the patients medical conditions (Cooper et al., 2005; Day and Nettleton, 2001; Vinson and Parker, 2012). Cost, transport and availability of classes have been identified as barriers to the success of schemes (Crone et al., 2004; Vinson and Parker, 2012). Fox et al., (1997) found that low referral rates and lack of evaluation systems may also be a barrier to referral. Wormald et al., (2006) found that health professional's lack of knowledge and interest in the patient's progress, were also barriers to the success of schemes.

### **3.4 Differences in outcome measures used to assess exercise referral schemes**

The outcome measures used in exercise referral schemes have a bearing on the assessment of success, of the schemes. Therefore, the type of outcome measured used is important in explaining impact, as when attendance and completion are used in isolation they tend to have a negative impact on the success of schemes (Damush et al., 2001; Gidlow et al., 2008; Morgan, 2005; Morton et al., 2008). When health outcomes measures are included in addition to attendance and completion, success is usually reflected more positively (Dinan et al., 2006; Dugdill et al., 2005; James et al., 2009).

Attendance and completion tend to be the most common outcome measures used to assess the effectiveness of schemes (James et al., 2008; Jones et al., 2005; Little and Lewis, 2006; Leijon et al., 2008; Morgan, 2005; Morton et al., 2008; Taylor and Fox, 2005). Some schemes that have focused on completion and attendance as outcome measures have demonstrated relatively low levels of completion (Damush et al., 2001; Gidlow et al., 2008; Morgan, 2005; Morton et al., 2008). Studies that have been conducted on schemes that use a combination of attendance, completion and health outcomes tend to be more successful in the medium to long term (Dugdill et al., 2005; Hillsdon et al., 2002; James et al., 2009; Leijon et al., 2010). This is in relation to perceived as well as measured health outcomes and is irrespective of the health outcome assessed (Dinan et al., 2006; Dugdill et al., 2005; James et al., 2009). One explanation for this would be that it takes longer than twelve weeks for a patient to acquire tangible evidence of improvements in health status. Once this occurs, it may become a significant motivational factor to exercising, with longer periods of physical activity producing ever larger tangible improvements in health. From the literature reviewed it would appear that in the UK the duration of schemes needs to be longer than the standard 12 weeks. Outcome measures also need to combine attendance, completion and health. As improving health is the main driver behind exercise referral schemes, it would make sense to have health outcome measures prominent in evaluation studies.

Studies that have used follow up levels of physical activity as an outcome measure, generally show low levels in the medium term (four to six months) (Ackerman, et al., 2005; Dugdill et al., 2005; Harrison, Roberts & Elton, 2005) and the long term (12

months) (Dugdill et al., 2005, Harrison et al., 2004). However, a study conducted by (Leijon et al., 2010) demonstrated that over half of patients were still active at the 12 month follow up stage. Explanations for the success rates with the Leijon et al., (2010) study include, that high levels of support were available to the patients throughout the study. A limitation of some of these longitudinal studies is the use self-report methods to assess physical activity levels, and that longitudinal self-report data is inherently unreliable (Department of Health, 2008, Prince et al., 2008).

Self-report methods for physical activity have been identified as inherently unreliable due to memory deterioration, and difficulties associated with self-reporting frequency and intensity of activity (Armstrong and Welsman, 2000). The Prince et al., (2008) systematic review compared the accuracy of self-report data, to objective data collected using accelerometers. Prince et al., (2008) found that people over reported physical activity levels by approximately two thirds. Prince et al., (2008) also found that women tended to over report physical activity levels more so than men did. These gender differences in self-reporting of physical activity are more likely to be explained by differences in self-report methods than gender. Both activity diaries and seven day recall questionnaires were used to collect the data, but Prince et al., (2008) did not stipulate gender use with each technique. If activity diaries had been used more by one gender than the other, the results may have been inaccurate. Armstrong and Welsman (2000) have demonstrated that activity diaries can be more accurate measure of physical activity, as they can record the data closer to when the physical activity behaviour occurs, compared to a seven day recall method. Despite the limitations of self-report methods identified, this is an important issue from a pragmatic perspective. Self -report methods have to be used as other methods of data collection are too costly.

### **3.5 Summary**

A range of physical activity interventions have been and are still being used for public health promotion in both primary and secondary care. Secondary care interventions include cardiac rehabilitation (Cortes & Arthur, 2006; Lavie & Milani, 1994; Shepherd, 2009) and weight management schemes (Jolley et al., 2011; McAuley et al., 2012; Shepherd, 2009). Primary care interventions include walking schemes (NICE, 2006; Ogilvie et al., 2007) falls prevention programmes (Dinan et al., 2006 Sherringham et al., 2008) brief interventions (Brodie & Inoue, 2005; Hillsdon et al., 2002; Hutchinson et al., 2009; James et al., 2010) and exercise referral schemes (Crone et al., 2004; Crone et al., 2005, Crone et al., 2008; Dugdill et al., 2005). The evidence base for physical activity interventions for public health promotion, suggest that a primary care setting may be more effective than a secondary care setting, for physical activity promotion. Although it should be noted that contradictory evidence exists for the effectiveness of physical activity promotion in both care settings. Exercise referral schemes are by far the biggest physical activity intervention for public health promotion in the UK.

Since 2003 evidence suggests that whilst numerous studies have been completed on exercise referral schemes, there has been a disparate approach to study design in the UK (Sowden and Raine, 2008). One reason for this may be the lack of clear guidance on systematic evaluation of the schemes. If systematic processes were used to evaluate studies that related to their size, set criteria and health outcome measures, comparisons may be easier to make. Potentially this would lead to more coherent sets of data on the subject of exercise referral schemes. Government bodies such as NICE may wish to consider a coordinated approach to the development of clear evaluation systems, through a revision to the National Service Framework for the evaluation of schemes.

A critical review of evidence relating to the suitability of exercise referral schemes for the promotion of physical activity has highlighted that different evaluation types produce different results. The evaluation type that presents schemes most favourably is qualitative evaluations. In addition to capturing patterns of patient behaviour, qualitative studies also enable researchers to develop new lines of enquiry, which may be used to inform the structure and direction of future schemes. Arguments

against the use of qualitative studies include bias due to the small sample sizes, and the lack of generalisability of the data. If more qualitative studies were conducted, pooled data could be used to generalise the findings. Lincoln and Guba (1985) have identified that external validity in qualitative studies may be achieved through transferability of the data, where observers from other contexts can make judgements about the applicability of findings to their contexts. Randomised control trials tend to present exercise referral schemes as ineffective methods of physical activity promotion, whereas longitudinal studies tend to present inconsistencies in whether exercise referral schemes are effective methods of physical activity promotion.

Where outcome measures of attendance and completion have been used to evaluate exercise referral schemes, they have generally portrayed schemes as being unsuccessful (Damush et al., 2001; Gidlow et al., 2008; Morgan, 2005; Morton et al., 2008). The evidence reviewed would suggest that if prominent health outcomes measures were used throughout a scheme, the levels of completion would increase (Dinan et al., 2006; Dugdill et al., 2005; Hillsdon et al., 2002; James et al., 2009; Leijon et al., 2010). The implications for this are two-fold. Firstly, exercise professionals could enhance adherence to schemes by focusing on individual patient health outcomes. Secondly, if exercise referral scheme evaluations included health outcome measures, schemes may be presented more positively, and patients may benefit from the long term effects of physical activity on their medical conditions.

Having looked at a range of physical activity interventions in public health and provided an overview of evaluation types used for exercise referral schemes. The following chapter initially examines a range of national and international perspectives on exercise referral schemes and draws conclusions in relation to factors associated with effectiveness. The second part of the chapter reviews the limited evidence from health professionals' perspectives of the exercise referral process.

## Chapter Four

### Exercise Referral Schemes: Evidence-based practice

#### **4.0 Introduction**

The previous chapter has examined the effectiveness of physical activity promotion in public health and exercise referral. This chapter examines the evidence base for exercise referral schemes. The first section critically examines a range of national and international perspectives on exercise referral schemes. The second section critically reviews the limited evidence associated with health professionals' perspectives of the exercise referral process in the United Kingdom.

#### **4.1 The limitations of using effectiveness as an analytical tool**

What constitutes effectiveness of a scheme can have different interpretations. Effectiveness of a scheme has been identified as attending at least 80 percent of the prescribed sessions (Crone et al., 2008; Gidlow et al., 2007; James et al., 2008). Some schemes do not have effectiveness criteria as they are ongoing (Damush et al., 2001), whereas others consider effectiveness as attending one session per week for six weeks (Morton et al., 2008). This part of the review examines a range of evidence relating to the effectiveness of exercise referral schemes including: the type of medical condition; age; gender; patient support systems; and socio-economic status.

#### **4.2. Physical activity interventions for patients with different medical conditions**

A difficulty associated with making sense of scheme effectiveness relates to the different medical problems that patients have prior to referral. To gain a better understanding of the connections between medical conditions and the effectiveness of a scheme, the following section will critically examine the impact of schemes for patients with coronary heart disease risk factors; diabetes; and those who have suffered a cardiac event.

For the purposes of this section coronary heart disease (CHD) risk factors are taken to relate to the following medical and behavioural risk factors: high blood pressure, high cholesterol, overweight, obesity, diabetes and inactivity (British Heart Foundation, 2010b). Patients with the above CHD risk factors appear to be the largest group referred for physical activity (Dugdill et al., 2005; Fox et al., 1997; Harrison et

al., 2005; Harrison et al., 2004; Hillsdon et al., 2002; James et al., 2008; Leijon et al., 2010; Taylor et al., 2005; Van Heuvelena et al., 2006). An explanation for this is that exercise referral schemes were initially set up to address coronary heart disease risk factors. This was because of the known historical benefits that physically active behaviour has on reducing the incidence of a heart attack when compared to sedentary behaviour (Morris, Heady, Raffle, Roberts & Park, 1953). Adherence rates for these types of patients appear to be consistent with moderate to high levels of adherence (Dugdill et al., 2005; James et al., 2008; Leijon et al., 2010; Taylor et al., 2005; Van Heuvelena et al., 2006). Although, one of the Dugdill et al., (2005) studies showed low (36%) adherence levels. This could be due to patients with different types of diseases being referred into the two schemes. Patients in scheme 'A' of the Dugdill et al., (2005) study had conditions that could be classified as coronary heart disease risk factors, whereas patients in scheme 'B' predominantly had conditions that are classified as muscular skeletal. The Shepherd (2009) review of evidence on exercise referral for people with chronic conditions identified beneficial effects for people with the following conditions: cardiac event; lung disease; falls prevention; and patients who had suffered a stroke. Furthermore, the Shepherd (2009) review found limited evidence for physical activity in controlling severely obese patients and recommended a cautious approach for the severely obese. Shepherd (2009) also identified that physical activity can be effective for obese patients with diabetes in relation to body mass index, fitness and blood sugar levels. Judgements on effectiveness were difficult to make due to differences in outcome measures used and the limited data available (Shepherd, 2009).

Three studies on the effects of physical activity on diabetic patients supported the use of exercise as part of a treatment plan (Backx et al., 2011; Gelaye, Revilla, Lopez, Sanchez & Williams, 2009; Penn et al., 2009). One intervention used motivational interviewing to encourage behaviour change in pre-diabetic patients. The intervention consisted of a combination of physical activity and a healthy eating advice. At the three year follow up, Penn et al., (2009) found that the intervention advice had prevented 55 percent of the patients with impaired glucose tolerance from developing type two diabetes. The intervention administered by Penn et al., (2009) consisted of a combination of healthy eating and physical activity advice in conjunction with 'cook and eat' programmes. A limitation of this study is the lack of information on the

amounts of physical activity achieved by the patients, along with limited detail on the motivation interviewing process. Gelaye et al., (2009) also examined the impact of physical activity on pre diabetic risk factors. The pre-diabetes factor was metabolic syndrome, which is a combination of factors associated with developing type two diabetes and cardiovascular disease such as, obesity, hypertension, hyperglycaemia and hypercholesterolemia (Gelaye et al., 2009). Gelaye et al., (2009) found that those patients, who accumulated less than 150 minutes of moderate intensity physical activity per week, reduced the risk of metabolic syndrome by 21 percent. For those patients who accumulated more than 150 minutes per week the reduction in metabolic syndrome risk was 42 percent. Caution should be applied when data is collected on physical activity solely with the use of questionnaires, due to the over representation of physical activity that has been reported elsewhere (Prince et al., 2008).

Backx et al., (2011) examined the effect of physical activity on patients who had type two diabetes, and found that physical activity could be an effective method of glycaemic control. When supported physical activity in the form of three 60 minute classes plus two unsupported classes, were compared to standard care in the form of physical activity advice, significant differences in a range of bio-markers were found (Backx et al., 2011). For example, beta cell responsiveness; insulin resistance; high and low density lipoprotein cholesterol; and glycosylated haemoglobin, compared to the control group (Backx et al., 2011). The physical activity intervention consisted of twelve weeks of steady state aerobic exercise and interval training (Backx et al., 2011). Both the intervention and control groups received support throughout the twelve week period. However, different types of support were provided. The controls had fortnightly telephone support, whereas the intervention group had face to face contact with an exercise physiologist at all of the classes. Therefore, as the amount of support was different for each group, as was the physical activity undertaken, it was difficult to determine which of these variables had the biggest effect on the patient's diabetes status.

A further study conducted by Huebschmann et al., (2009) on diabetic women and their perceptions of exercise intensity, found that diabetic women perceived physical activity to be harder than their non-diabetic controls. One explanation for this was the

medication that the intervention group was taking. Sixty one percent of the intervention group were taking the same type of medication, which had a reported side effect of lowering oxygen consumption in pigs (Huebschmann et al., 2009). Transferability of the findings from this study was very limited due to the very small sample size (n=13). However, the study did show significant findings in relation to rate of perceived exertion at lower physical activity intensities, and does raise questions with regard to the effects of diabetes medication on cardiorespiratory fitness.

A systematic review conducted by Cortés & Arthur (2006) of patients attending cardiac rehabilitation programmes in Canada, the USA and Australia, demonstrated generally low (23%) levels of adherence to schemes. Despite low adherence being identified for cardiac rehabilitation patients, significant improvements in health status have been found with this type of patient in America, with low baseline exercise capacity (Lavie and Milani 1994). Improvements in health status included reductions in triglycerides and body fat percentage, along with increases in high density lipoprotein cholesterol (Lavie and Milani 1994). However, Lavie and Milani (1994) did not identify numbers of patients who adhered to the programme, as the data was obtained from a review of patient's medical records. In summary there is insufficient evidence to make judgements on the effect that a myocardial infarction can have on the likelihood of a patient adhering to an exercise referral scheme.

There are inconsistencies in the data reviewed, but the following conclusions can be drawn in relation to the types of medical conditions that patients have who are referred for exercise. Patients with coronary heart disease risk factors appear to be the largest group referred for exercise and generally have the highest adherence rates. Physical activity interventions have been shown to be an effective method of glycaemic control in diabetic patients. The Cortés & Arthur (2006) systematic review of patients having suffered a myocardial infarction has shown low levels of exercise referral scheme effectiveness.

#### ***4.2.1 Patients' age characteristics and their impact on completing an exercise referral scheme.***

The Pavey et al., (2011) systematic review of qualitative studies has shown that patients participating in exercise referral schemes range from 15 to 84 years of age. The 45 – 60 year age group has been identified as a common age group for referral into a scheme (Cortés & Arthur, 2008; Dugdill et al., 2005; Sowden & Raine, 2008; Leijon et al., 2008). One explanation given for this is the significant rise in mortality rates from cancer and heart disease at this time of life (Centers for Disease Control and Prevention, 2003). Therefore, as the results of chronic lifestyle diseases manifest themselves; physical activity engagement becomes more of a priority for the health professional and the patient. Completion of schemes can be greater for patients over the age of 55 (Gidlow et al., 2007; Harrison et al., 2005; Jones et al., 2005; and Sowden et al., 2008). Older patients can be twice as likely to complete a scheme compared to younger patients (Dugdill et al., 2005).

High completion levels for elderly patients in the UK have been attributed to the amount of physical activity training undertaken (Dinan et al., 2006). Patients, who engaged in home based exercises in conjunction with an exercise class, have demonstrated high levels of completion with 74% of patients who took up the referral adhering to the eight weeks of prescribed physical activity (Dinan et al., 2006). However, other factors such as age, social support, transport, and the primary care setting, may have also influenced the effectiveness of the scheme. A limitation of this study is that the patients engaged in physical activity three times a week, compared to between one and two classes a week, which tends to be the norm (Morton et al., 2008; Lee et al., 2009). Therefore, the higher number of sessions could have produced quicker improvements in falls prevention measures such as the Timed Up and Go Test (Dinan et al., 2006). Another limitation of the Dinan et al., (2006) study is that it did not state to what extent patients adhered to their home based physical activity, making it difficult to assess the effectiveness of the scheme. The scheme also ran for a shorter period of eight weeks, compared to the normal duration of 10-12 weeks. This could have reduced the attrition rate as other schemes have demonstrated higher levels of attrition at 12 weeks (Dugdill et al., 2005; Gidlow et al., 2005).

From the evidence reviewed, patients who are 55 years age or older are the most likely to complete a scheme (Gidlow et al., 2007; Harrison et al., 2005; Jones et al., 2005; and Sowden et al., 2008). Completion levels for this age group can be twice as high as those for younger age groups. However, in isolation age is not responsible for the effectiveness of schemes as numerous other factors such as social support, transport, the primary care setting, the amount of physical activity undertaken, patient to instructor ratio, living with a partner and specificity of programming, can influence the likelihood of completing a scheme.

#### ***4.2.2 Patients' gender characteristics and the impact of adhering to an exercise referral scheme.***

In the UK twice as many women are referred into exercise referral schemes than men, yet more men complete schemes than women (Dugdill et al., 2005; Gidlow et al., 2007; Harrison et al., 2004; James et al., 2008; Morton et al., 2008). This applies to most types of exercise referral except for those patients being referred following a cardiac event, such as a heart attack. For cardiac rehabilitation patients the trend appears to reverse with more men being referred than women (Cooper et al., 2005; Cortes et al., 2006; Lavie & Milani, 1994; Little & Lewis, 2006). One explanation for this is that more men in the UK suffer heart attacks than women (British Heart Foundation, 2010b). Although the evidence for trend reversal in cardiac rehabilitation patients is limited, as the Cooper et al., (2005) and Little and Lewis (2006) studies were very small scale qualitative studies with low power bias. One explanation as to why more women are referred into schemes than men is that women are more proactive in seeking medical help than men (Barry and Yuill, 2008). Further explanations for the low numbers of women completing a scheme include the impersonality of local authority provision, and the lack of opportunity to develop social relationships (James et al., 2008). Increased physical activity self efficacy in men has also been attributed to higher adherence rates than that for women (James et al., 2008). In turn, other explanations such as support systems, demands on time and physical activity environment, should be considered when theorising gender differences for scheme effectiveness.

### **4.2.3 The impact of patient support mechanisms on the effectiveness of an exercise referral scheme.**

When patient support mechanisms are in place they can be associated with effective exercise referral schemes (Crone et al., 2004; Crone et al., 2005; Gidlow et al., 2005; Horne et al., 2010; Williams et al., 2007) compared to schemes where no support systems were identified (Gidlow et al., 2007; Day et al., 2001; Dugdill et al., 2005; Lavie & Milani 1994). Support mechanisms come in various forms and include family and friends, health professionals and exercise professionals. By far the greatest amount of support comes from exercise professionals who in addition often, have the role of physical activity coordinator (Crone et al., 2005; Dinan et al., 2006; Gidlow et al., 2005; Leijon, Bendtsen, Nilsen, Ekberg & Stahle, 2009; Little & Lewis, 2006). This would seem appropriate as exercise professionals have regular contact with patients, and may be better placed to give advice and support. The second most effective form of support comes from family and friends (Crone et al., 2005; Damush et al., 2001; Little & Lewis, 2006; Van Heuvelena et al., 2006; Wormald et al., 2006). Support from health professionals comes during the initial referral of patients into a scheme, with GPs being the main referrer (James, et al., 2008, Leijon, et al., 2009).

Irrespective of the type of support system in place, it generally increases the effectiveness of a scheme (Crone et al., 2004; Day & Nettleton, 2001; Dinan et al., 2006; Hillsdon et al., 2002; James et al., 2009; Leijon et al., 2009). However, the evidence for this is inconsistent. A review by Morgan (2005) found that even when patients had support from exercise professionals, adherence rates could still be low ( $n < 40\%$ ). A limitation of the Morgan (2005) review is the inconsistent data presented from the studies reviewed, making comparability and generalisations limited. Assessment bias was also identified with different assessments being used for the intervention and control groups, producing higher levels of effectiveness in the control groups compared to the intervention groups.

Evidence has shown that effective support systems can increase the likelihood of adherence to an exercise referral scheme (Ackerman et al., 2005; Crone et al., 2005; Crone et al., 2004; Damush et al., 2001; Wormald et al., 2006), compared to studies where little or no support has been identified (Dugdill, et al., 2005; Gidlow, et al., 2007; Lavie & Milani, 1994). The limitations of some of these studies include the lack

of transferability of the findings due to the small sample sizes used (Crone et al., 2005; Wormald et al., 2006), and no health outcome measures being identified (Ackerman et al., 2005; Damush et al., 2001; Gidlow et al., 2007). All of these studies also lacked details on the types of intervention programmes in place, making comparability impractical.

#### ***4.2.4 The influence of socio-economic status on scheme effectiveness.***

There is limited and contrasting evidence for the links between socio-economic status and scheme effectiveness, with few studies having been conducted. An explanation of the difficulty associated with identifying patterns of socio-economic trends is that the evaluation systems for exercise referral schemes do not follow clear guidelines:

As no standard guidelines were given to evaluate exercise referral schemes, the ability to accrue meaningful evidence to support policy making has been undermined. (Sowden and Raine, 2008, p.840)

Studies that have looked into the impact of socio-economic status on the effectiveness of schemes use different approaches. Some studies collected data on attendance throughout the scheme (Harrison et al., 2005) or adherence (Lee et al., 2009), others have looked at attendance at a three month follow up appointment (James et al., 2010). Whilst others have collected data on attendance and adherence (Damush et al., 2001; Gidlow et al., 2007; James et al., 2009; Sowden et al., 2008). One study found that deprivation had little impact on those attending the first appointment of a scheme (Harrison et al., 2005). Sowden et al., (2008) collected data on attendance and adherence, and identified that referrals were less likely from advantaged socioeconomic communities. In contrast Lee et al., (2009) found adherence rates to be relatively high in rural affluent areas. An evaluation of the South Staffordshire Physical Activity Care Pathway, that used a 'brief intervention' in the form of a physical activity consultation, found low levels (28%) of patients attending a three month follow up (James et al., 2010). The findings from James et al., (2010) in relation to the socio-economic group involvement were similar to that of Lee et al., (2009), as more patients from higher social economic groups attended the three month follow up, than those from lower socio-economic groups (James et al., 2010). The study also found that those who were least active were from the least deprived groups, and the most active were from the most deprived groups (James et

al., 2010). A limitation of the study by James et al., (2010) was the method used to encourage patients to become physically active. The brief intervention method resulted in very few (n=8) patients attending the three month follow up, most of which were from higher socio-economic groups, with an index of multiple deprivation ranking of between four and five.

A study by Gidlow et al., (2007) found that patients from areas of social deprivation were less likely to complete an exercise referral scheme. Despite the large number of patients in the Gidlow et al., (2007) study (n=1,861) enhancing the validity of the data, a limitation of this study is that other factors apart from social status could have been responsible for the low adherence levels. Low levels of adherence could have been associated with the type of referring health professional, an explanation previously put forward by Cooper et al., (2005) and Dugdill et al., (2005) for low uptake and adherence. A further explanation for the ineffectiveness of the scheme in the Gidlow et al., (2008) study, may be the lack of prominent health outcome measures. When health outcome measures are prominent throughout a study, adherence has been shown to be higher (Dugdill et al., 2005; James et al., 2008; Leijon et al., 2010; Sowden et al., 2008). Another contributing factor could have been that no support systems were identified during the study. Support systems have previously been shown to increase the effectiveness of a scheme (Crone et al., 2005; Crone et al., 2004; Horne et al., 2010; Thurston and Green, 2004; Williams et al., 2007; Wormald, et al., 2006). Another study conducted in the USA on African American women of low social status found low adherence levels for an exercise referral scheme (Damush et al., 2001). However, as with Gidlow et al., (2007) it is unlikely that the low adherence levels were restricted to social status. The most likely explanation for low adherence in the Damush et al., (2001) study, is the sub maximal exercise test the patients had to complete prior to enrolling into the scheme. Patients were expected to achieve 80% of their age-related maximal heart rate during the test, which may have been difficult to achieve when suffering from chronic hypokinetic diseases. Additional factors of low baseline activity levels, no inclusion of health outcome measures, and low physical activity self-efficacy are likely to have adversely impacted on effectiveness.

In contrast to the findings from Lee et al., (2009) and James et al., (2010), patients living in areas of deprivation have been found to be just as likely to take-up a referral as those living in more advantaged locations (Sowden et al., 2008). A strength of the Sowden et al., (2008) study is the (n=10,741) number of patients from six Primary Care Trusts, increasing the validity of the findings. Limitations of the Sowden et al., (2008) study include the use of an area-based deprivation score linked to the practice post codes, as a means of determining deprivation levels. Actual patient data on deprivation would have produced a more accurate analyses, as this would have allowed for any variations within a given community, but would have been considerably more time-consuming to collect. Explanations for the effectiveness of schemes in deprived areas may be the locality of the scheme, a supportive environment and meeting other patients with similar health problems (Schmidt et al., 2008). A limitation of the study by Schmidt et al., (2008) is the lack of data relating to the uptake and adherence of the scheme, reducing the scope for comparability to other studies.

The evidence of the impact of socio-economic status on scheme effectiveness is limited. It would appear that whilst referrals may be less likely in more privileged areas; patients from higher socio-economic groups may be more likely to complete a scheme than patients from areas of high deprivation. Explanations for this include reduced pressures on time, transport and finances. However, it must be recognised that the limited data available makes it difficult to determine any clear relationships between effectiveness of a scheme and socio-economic status.

In conclusion, there are inconsistencies in the data reviewed for patients with specific medical conditions (Dugdill et al., 2005; Fox et al., 1997; Harrison et al., 2005; Harrison et al., 2004; Hillsdon et al., 2002; James et al., 2008; Leijon et al., 2010; Taylor et al., 2005; Van Heuvelena et al., 2006). However, the following conclusions can be drawn in relation to the evidence base for exercise referral scheme effectiveness. Patients with coronary heart disease risk factors appear to be the largest group referred for physical activity and have the highest completion rates. Aerobic exercise appears to be an effective mechanism for glycaemic control for patients with type two diabetes. A systematic review by Cortés & Arthur (2006) of

patients having suffered a myocardial infarction, demonstrated relatively low levels of scheme completion.

The age and gender of a patient may have an impact on exercise referral completion. Patients in the 55 plus age group are the most likely to complete a scheme, although, with age comes the increased likelihood of impairments that can affect completion. Twice as many women compared to men get referred into schemes, yet twice as many men complete them. Explanations for this include increased physical activity self-efficacy in men, and the impersonality of local authority leisure provision, having a negative effect on the opportunities for women to develop social relationships. Health professionals may find that by targeting men over the age of 55 could increase the effectiveness of schemes. It appears that there is also a need to increase retention in women who attend schemes.

Support systems and socio-economic background can also impact on scheme effectiveness. Support systems can increase the likelihood of adhering to an exercise referral scheme. From the evidence reviewed this would suggest that a triad of support is needed to increase the effectiveness of schemes (Crone et al., 2004; Day & Nettleton, 2001; Dinan et al., 2006; Hillsdon et al., 2002; James et al., 2009; Leijon et al., 2009). This could take the format of initial support from the health professional to engage the patients with the scheme, followed by support from exercise professionals to develop and maintain physical activity confidence. Patients also need their own systems of support with family and friends, in order to continue developing their future physical activity habits once the initial exercise referral scheme period has come to an end. Although the data is limited and inconsistent it would appear that patients from higher socio-economic groups are more likely to complete a scheme than patients from areas of high deprivation.

In summary the evidence base that supports the effectiveness of exercise referral schemes is inconsistent. However, patients meeting the following criteria may be more likely to adhere to a scheme: patients with coronary heart disease risk factors; patients who are 50 years of age or older; and patients of male gender. The evidence base also indicates that schemes may be more effective if a triad of support is in

place throughout the scheme. Patients from higher socio-economic groups may be more likely to complete a scheme.

### ***4.3 The role of the health professional in physical activity and weight management schemes***

Having explained the evidence base for exercise referral schemes, the second section of this chapter critically examines the role of the health professional in the referral process for exercise and weight management interventions. This section is in two parts, the first part analyses a variety of factors that can impact on the referral process. The second part assesses health professionals' perspectives on weight management with obese patients.

#### ***4.3.1 The role of the health professional in exercise referral schemes***

The majority of studies that have taken place on exercise referral schemes have collected data on the types of health professional that refer patients into schemes, most of these studies are large scale and quantitative in nature (Ackerman et al., 2005; Dinan et al., 2006; Dugdill et al., 2005; Gidlow et al., 2007; Harrison et al., 2004; Leijon et al., 2010). These studies have indicated that GPs are the main type of health professional referring patients for physical activity. However, very few studies show comparisons between referral and completion rates from different health professionals, making generalisations difficult, in relation to the effectiveness of schemes. Despite this, completion rates for schemes appear to be greater when a patient is referred from a nurse (Leijon et al., 2010), and even greater still when referred from a specialist nurse practitioner (Cooper, et al., 2005; Dugdill, et al., 2005). Dugdill et al., (2005) identified that referrals from nurses may result in higher adherence levels than referrals from GPs, at 45 percent and 32 percent respectively. The dearth of studies containing comparable information in this area, suggest the need for a cautious approach to generalising. Explanations given for why adherence rates can be higher from nurse referrals include better interpersonal communication, and more time available during consultation to communicate health promotion messages (Dugdill, et al., 2005).

In contrast to low levels of adherence being found where GPs were the main referrer (Crone et al., 2008; Dugdill et al., 2005; James et al., 2008), two studies have shown

relatively high levels of adherence from GP referrals (Gidlow et al., 2007; James et al., 2009). The 50 percent adherence rate in the Gidlow et al., (2007) study could also be explained by the high number of elderly patients that the study included. The high adherence levels in the James et al., (2009) study also relate to age as well as a high percentage of patients being referred with cardiovascular problems (James et al., 2009). These factors further highlight the complexities involved in determining whether referrals from certain health professionals can impact on scheme effectiveness, as age and medical condition also have an impact.

Harrison et al., (2005) found a variation in the numbers of patients referred from different health professionals. Referrals ranged from one every five years to seven a month, with half of the health professionals only referring between one to ten patients every five years (Harrison et al., 2005). No relationships were found between the type of health professional referring, and the patients attendance at the first exercise referral scheme appointment, or differences in attendance rates between men and women (Harrison, et al., 2005). Furthermore, specificity of referral has been found to be a greater predictor of effectiveness than the type of health professional who referred (Leijon et al., 2010). Limitations of the study by Harrison et al., (2005) include that it did not provide data to support the claim that no differences were found in referral rates between health professionals, making it difficult to draw conclusions about the levels of referrals made between health professionals or their support staff.

#### ***4.3.2 The impact of health professionals' preconceived gender stereotypes, on patient take-up of weight management schemes.***

Preconceived stereotypical views about patients' gender-related behaviours have been identified as a potential barrier to male patients seeking help from their GPs for chronic conditions. For example, Hale, Grogan & Willott (2010) found that male patients were often reluctant to consult with their GP until late in the course of an illness, as a means of preventing their GP perceiving them as being unmanly. Lack of contact with male patients would explain why fewer males were referred into schemes than females. The Hanson, Rasmussen & Ahlstrom (2011) study on general practitioners' and district nurses' conceptions of their encounters with obese patients in primary health care, also found health professionals to have stereotypical views about their patients. For example, Hanson et al., (2011) indicated that male health

professionals had external explanations for their patient's lack of success with weight management, such as a lack of evidence of the success of schemes and poor organization structures, that inhibited the referral. Hanson et al., (2011) also suggested that female health professionals attributed a lack of success of weight management schemes to internal factors such as personal competences, and a lack of patient self-esteem. The health professionals also exhibited stereotypical gender views of men such as stoical behaviour that prevented men accessing health care services (Hanson et al., 2011). These views of male behaviour, as a barrier to accessing services have been challenged by Coles et al., (2010), in a qualitative investigation of men's health needs. Coles et al., (2010) found that men generally wanted to access health care services but felt inhibited due to a lack of routine checks as afforded to women, along with the complicated appointment systems (Coles et al., 2010).

The limited evidence in this area indicates that GPs preconceived stereotypical gender-related beliefs, may have a detrimental impact on male patients attendance at medical consultations. A lack of seeking medical help by male patients has been attributed to the low number of men who take-up exercise referral schemes. Higher numbers of female medical consultations would also account for the higher female take-up rate of schemes. Male health professionals attribute lack of weight management success with patients to external factors, whereas female health professionals tend to consider internal factors for lack of weight management success.

#### ***4.3.3 Health professionals' practices towards promoting physical activity***

GPs have been shown to actively encourage patients to adopt physically active behaviours (McKenna & Vernon, 2004). McKenna & Vernon (2004) used a questionnaire, adhered to by 70 percent of the GPs within a single health authority, to determine how GPs promote lifestyle physical activity. The GPs perceived that only a few of their patients met the Chief Medical Officers recommendations of 30 minutes of moderate intensity physical activity for five days of the week (McKenna & Vernon, 2004). The GPs also believed that half of their patients would benefit from increased physical activity, and that physical activity counselling had a positive effect on changing physical activity behaviour (McKenna & Vernon, 2004). A lack of training for

health professionals was also identified in this study. Only 10% of the GPs reported having had any training relating to the promotion of physical activity with their patients in the past five years (McKenna & Vernon, 2004). A limitation of this study was the lack of information that could be used to help engage patients with physical activity behaviours in the future. Another limitation was that the study did not identify the involvement of other health professionals in physical activity promotion. Nurse referrals have been identified in other studies as having an impact on the effectiveness of schemes (Cooper, et al., 2005; Dugdill, et al., 2005; Leijon, et al., 2010). Despite this, one of the conclusions of this study was to encourage more training of GPs in physical activity counselling. However, training more GPs for could potentially reduce the uptake and adherence to schemes.

Physical activity promotion by health professionals has been shown to significantly increase if the health professional is personally engaged in regular physical activity themselves (McKenna et al., 1998). The McKenna et al., (1998) study on barriers to physical activity promotion by general practitioners and practice nurses, found that both of these groups were three and four times respectively, more likely to promote physical activity if they were regular exercisers. Further explanations for the lack of physical activity promotion by physicians and nurses have been identified as a lack of time, training and protocols (Ribera et al., 2005). As with the McKenna et al., (1998), promotion of physical activity by Spanish physicians and nurses was also dependent on the health professionals' personal interests. Ribera et al., (2005) notes that physical activity promotion was encouraged more from the health professionals who had direct experiences of the benefits of regular exercising

Whilst health professional's advice to patients has been considered to be a key factor in exercise referral scheme engagement, health professionals have been criticised for the lack of preventative support given to elderly patients, in the form of advice on physical activity (Horne, Skelton, Speed & Todd, 2010). Horne et al., (2010) found that patients could be critical of health professionals. Some patients believed that health professionals were only interested in advising patients to become physically active once health problems had been identified (Horne, et al., 2010, p.100). Horne, et al., (2010) highlighted poor communication between health professionals and older patients, and that some older patients believed they were not advised to exercise,

because the health professionals lack of belief in their ability to do so. This reportedly de-motivated the patients from valuing physical activity (Horne et al., 2010). Horne et al., (2010) also found that the short term nature of most exercise referral schemes was a barrier to patient's continuation. Horne et al., (2010) suggested that support from health professionals is not enough by itself to motivate patients to continue exercising. Support also needed to come from exercise professionals and other patients in the physical activity group, if patients were to continue to be physically active (Horne et al., 2010). Despite the need for prevention being an ideal that most GPs may realistically aspire to, this is unlikely to happen, within the context of general practice. The reasons for this are that within the biomedical and sociomedical models of health, the role of the GP is to treat people who are unwell and control their withdrawal out of, and integration back into society (Parsons, 1951). Therefore, this suggests that the preventative role may be better suited if it was organised and managed by other health professionals such as practice nurses.

Physical activity promotion has been shown to be a lower priority for health professionals than smoking cessation (Graham, Dugdill & Cable, 2005). Explanations given for this have included that: health professionals have been more aware of the benefits of smoking cessation than physical activity; and that physical activity behaviour change was a bigger lifestyle motivational issue for patients than smoking cessation (Graham et al., 2005). Time limitations during consultation; have also been given as explanation for health professional's not prioritising physical activity (Graham et al., 2005), a view supported by Cooper et al., (2005) and Dugdill et al., (2005). The Graham et al., (2005) study found that some health professionals believed that time restrictions made it harder to engage patients for physical activity behaviour change. This is surprising with Wen and Wu (2012) having recently estimated that global death rates from inactivity are higher than those from smoking, and that unlike smoking cessation there has been little attempt to coordinate global increases in physical activity. Barriers to referral included the lack of feedback on patient progression, and the benefits gained by the patients as a result of engaging with the exercise referral scheme (Graham et al., 2005). Some of the health professionals in the study, despite stating that they believed their role in physical activity promotion was important, believed patients should take responsibility to refer themselves (Graham et al., 2005). Graham et al., (2005) also identified inconsistent approaches

to referral, with some health professionals using a systematic prescribed approach (diabetes, hypertension, high cholesterol), and others using an unsystematic approach, based on random selection during consultation. Limitations of the Graham et al., (2005) study include: the narrow focus of the semi structured interviews; lack of clarity in the presentation of questionnaire and interview data, making it difficult to determine the data source; and no clear identification of the numbers of patients referred. This study has indicated that referral systems can be a particular barrier to referring patients into a scheme.

The lack of training for health professionals in physical activity promotion for obese patients has been identified in several studies as a barrier to referral (Cade & O'Connell, 1991; Hanson et al., 2011; McKenna et al., 1998; McKenna & Vernon, 2004; Michie, 2007; Ribera et al., 2005; World Health Organisation, 2005). A study by Michie (2007) on talking to primary care patients about weight, found that practice nurses were more likely than GPs to raise the issue of weight. Michie (2007) also found that when the issue of weight was raised only 9% of practice nurses did this in the context of presenting a solution to the problem. Over half of the GPs and 28% of practice nurses raised concerns about discussing overweight issues with patients, with the biggest concern being how the patient would react (Michie, 2007). A recommendation from Michie (2007) was that training should be provided to improve health professional's confidence in communication skills, when discussing weight, especially with GPs. Limitations of the Michie (2007) study include: that less than half of the health professionals raised the issue of weight management with their patients; and that the sample had limited generalizability to the population as a whole, as it was not representative of health professionals' views. Another explanation that has been given for GPs finding it hard to give patients advice on weight loss was that a lot of GPs either have or previously have had weight problems themselves (Cade & O'Connell, 1991). Consequently GPs often felt that they were not best placed to give patients advice on diet, and that they were less effective than the media or the family (Cade & O'Connell, 1991). Cade & O'Connell (1991) found that advice to patients on weight loss was given by most of the GPs, but it tended to be brief and in the form of encouraging patients to eat less, become more physically active and attend a slimming group. There has been further work on GPs views of treating obese patients which is discussed in the following section.

#### ***4.4 Health professionals' perceptions of managing weight with obese patients***

GPs views of treating obesity were determined from a small qualitative (n=21) study conducted in London (Epstein and Ogden, 2005). The GPs were reported as feeling that treatment options were often ineffective for obesity, and consequently were reluctant to accept responsibility for treating patients (Epstein and Ogden, 2005). Some of the GPs believed that obesity was the responsibility of the patient and should be managed by the patient (Epstein and Ogden, 2005). Other GPs believed that patients were often in denial about being obese, and attributed their obesity to either a medical cause or another external cause (Epstein and Ogden, 2005). Reluctance by health professionals to treat obese patients can produce conflict stemming from frustration with the patients for not being able to change their lifestyle (Epstein and Ogden, 2005).

Jeopardising relationships has also been identified as a concern for health professionals when dealing with obese children (Walker, Strong, Achinson, Saunders & Abbott, 2007). Concerns about the clinician / patient relationship was identified as a barrier to effective weight management with children, as drawing attention to a child's weight may cause psychological problems (Walker et al., 2007). To preserve relationships GPs have been found to offer empathy and prescribed medication even when they believed it was not the solution (Epstein and Ogden, 2005). However, being empathetic could have had a negative impact on the patients' desire to lose weight. An important finding from Epstein and Ogden (2005) is that for GPs, preserving the relationship with their patients appeared to be more of a priority than helping them with their obesity. Limitations of the Epstein and Ogden (2005) study include the small sample size (n=21), and that it was conducted within one inner London Primary Care Trust. Consequently, the Epstein and Ogden (2005) study cannot be seen as being representative of GPs views. None of the GPs in the Epstein and Ogden (2005) study advised patients to participate in any form of physical activity. One explanation for this is that if the GPs believed it was not their responsibility to treat obese patients, they were unlikely to consider a full range of treatment options. The limited evidence would suggest that health professionals themselves can become a barrier to referring obese patients into a scheme. Preserving the patient / doctor relationship, in some cases appears to be more important than tackling the difficulties associated with obesity in adults and children.

The concept of health professionals becoming a barrier to referring patients into an exercise referral scheme will now be explored further.

Eley and Eley (2009) conducted a qualitative study on general practitioners management of inactive and overweight patients in Australia. Eley and Eley (2009) found that: community gyms were the main choice of referral venue; lack of motivation was the biggest barrier for physical activity; and that there was little evidence of any formal schemes, collaborations or follow ups. Limitations of the Eley and Eley (2009) study include a lack of detail relating to the methods of data collection and analysis, a general lack of focus of the issues surrounding obesity and reasons why obese patient find it difficult to exercise. Further limitations include the lack of breadth to the survey questions, as only five questions were included in the study; one of which related to five year recall of physical activity behaviours, which could have been subject to memory degradation over such a long period of time. A study by Wiggins (2009) conducted in Scotland found that patients often resisted the notion that they were responsible for their weight gain. Wiggins (2009) found that patients would often not take ownership of their weight problems, and would lay the blame for this on external events that were out of their individual control. Epstein and Ogden (2005) also found that obese patients externalised their weight problems, often blaming medical causes for their obesity. Wiggins (2009) also found that weight management groups had the effect of concretising the patients' denial of their weight problems, the longer the group lasted. This suggests that group base schemes were more effective in the short term than long term (Wiggins, 2009). Wiggins (2009) also suggested that to be effective, social support systems need to be in place. A limitation of the Wiggins (2009) study is that the group leaders were specifically told not to offer judgement on weight lost or gained to the patients, as is the norm with NHS weight loss groups. Therefore, it is difficult to make judgements about the effectiveness of managing blame within a weight control group, as no data was available on success outcomes for the group or any interventions given. Therefore, a direct approach may be more effective at engaging patients with weight loss. Such an approach could involve confronting patients directly about the cause of their weight gain. Patient ownership of their weight problems, could then be followed by a system to help them control their weight.

Some health professionals have been identified as being reluctant to encourage obese patients to participate in physical activity (Epstein & Ogden, 2005), due to the possibility of jeopardising GP / patient relationships (Epstein & Ogden, 2005; Walker et al., 2007). Despite this reluctance to refer, a recent longitudinal prospective cohort study by McAuley et al., (2012) on obesity and cardio-respiratory fitness, found no difference between mortality rates from obese fit and non-obese fit men. McAuley et al., (2012) also found that unfit men regardless of obesity were twice as likely to die compared to fit men regardless of obesity status. These findings suggest that cardio-respiratory fitness altered the obesity paradox such that the mortality risk was lower for obese and non-obese men who were fit (McAuley et al., 2012). This has significant implications for health professionals, who are reluctant to refer obese patients into physical activity schemes, as fitness levels appear to influence mortality rates more than levels of obesity, do. However, there are limitations with the use of BMI as a tool for representing obesity is it does not measure body adiposity either at a subcutaneous or deep level. Patients with a BMI of under 30 may have had high levels of deep fat surrounding their vital organs, that could have impacted on mortality rates, and would have only been picked up through a computerised tomography scan.

#### **4.5 Summary**

It is difficult to generalise about the impact that specific health professionals can have on the referral process, as only a few studies have been conducted in this area and they are generally small scale. From the evidence base reviewed it would appear that there are numerous factors that can prevent patients being referred for exercise. Initially these relate to the influence the health professional can have on the referral process, with nurses referrals more likely to produce higher adherence rates than a GP referral. Some male GPs appear to believe that male patients are reluctant to consult with their GP until late in the course of an illness, to prevent the GP perceiving them as being unmanly. Some male health professionals have stereotypical views of why men do not attend health checks as often as women do, which may have a negative effect on the number of male patients seeking medical consultation.

The promotion of physical activity can be a lower priority than smoking cessation but a greater priority than dietetics for health professionals. Explanations for this include a lack of belief that health professionals can effect physical activity behaviour change, along with limited time available during patient consultations. Whilst health professionals recognise the importance of promoting physical activity there appears to be a reluctance to promote it and a belief that patients should take responsibility for physical activity themselves. Not recognising the need to encourage older patients to become physically active as a preventative action, may de-motivate older patients to engage with physical activity. A lack of knowledge relating to how elderly patients respond to physical activity, has been associated with health professionals not prioritising schemes for the elderly. The lack of confidence in an elderly patient's ability may demotivate them from participating.

Health professionals have also been identified as being reluctant to confront obese patients about their obesity in weight management clinics, or advise elderly patients to become physically active. A lack of inertia on behalf of health professionals to encourage obese or elderly patients to exercise may account for some of the low levels of exercise referral scheme uptake identified. A more direct approach at encouraging the elderly and obese to become physically active may produce higher rates of referral and increases in physical activity behaviour. Unwillingness from health professionals to directly confront patients about their obesity appears to reduce

patient ownership of their condition. A lack of 'condition ownership' by patients has been associated with difficulties in weight loss. Reluctance by health professionals to treat obese patients can reduce the likelihood of patients being offered a full range of treatment options including exercise referral schemes.

Patients with coronary heart disease risk factors are the largest group referred for physical activity and have the highest completion rates. Aerobic exercise can be an effective method of glycaemic control, but can be ineffective for post myocardial infarction patients. The age and gender of patients can have an impact on the completion of schemes, with patients in the 55 plus age group being the most likely to attend. Twice as many women than men take-up schemes but twice as many men than women complete them. A triad of support that consists of social support from friends and family, support from health professionals, and exercise professionals, has been identified as necessary for an effective exercise referral scheme.

The evidence base reviewed indicates that health professionals can influence up take and completion of an exercise referral scheme, with higher adherence and completion levels evident from nurse referrals. Stereotypical beliefs held by male health professionals, of male and female behaviour, can be detrimental to male patients attending a consultation. Physical activity behaviour can be a lower priority than smoking cessation for health professionals; explanations for this include a lack of knowledge from health professionals about patient responses to physical activity. There can be a reluctance to confront obese patients about their obesity, or to advise elderly patients on the need to become physically active, which can prevent patients from being offered a full range of treatment options. Having explored the evidence base for exercise referral schemes from international and national perspectives, and analysed the limited literature on the referral process. The following chapter provides a detailed analysis of the epistemology, theoretical perspective, methodology and method used in the collection and analysis of the data for this study.

## **Chapter Five**

### **Methodology**

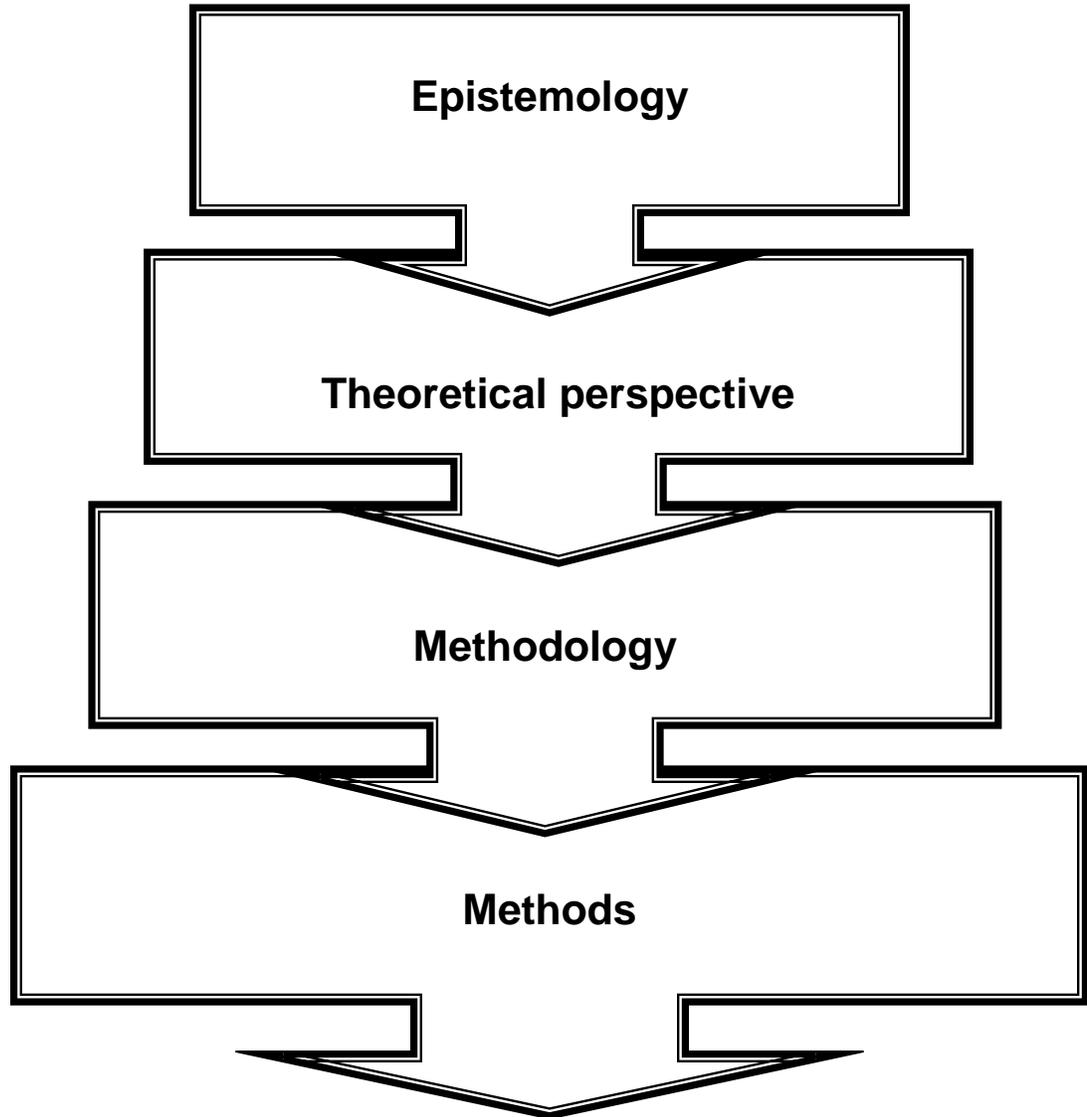
#### **5.0 Introduction**

The previous chapter examined a range of national and international perspectives on physical activity interventions and specifically the effectiveness of exercise referral schemes, and critically reviewed the evidence on health professionals' perspectives of the exercise referral process. This chapter begins with an examination of the rationale for the methodological approach used in the study. This is followed by a detailed analysis of epistemology, theoretical perspective, methodology and the method used in the collection and analysis of the data. The final part of the chapter examined the issue of trustworthiness in qualitative research and detailed how this had been achieved in this study.

#### **5.1 Rationale for the methodological approach**

Qualitative researchers are essentially philosophers who are guided by philosophical world views (Cresswell, 2009). What constitutes a world view has different interpretations. Guba (1990) purports a world view to mean a basic set of beliefs that guide action. Crotty (1998) defines world views as ontologies and epistemologies. Ontology is seen as the basic entities that make up reality, and consist of our ideas about things 'idealism' or the things themselves 'realism' (Bourgeault, Digwall & de Vries, 2010). Furthermore, Bryman (2012) states that social ontologies can be viewed as two different entities, for example objectivism and constructionism. Bryman (2012) differentiates these entities by stating that objectivism considers social realities as being external to social actors, whereas within constructionism social realities are constructed from the perceptions and actions of social actors. Denzin and Lincoln (2005) describe epistemology as the relationship between the inquirer and the known.

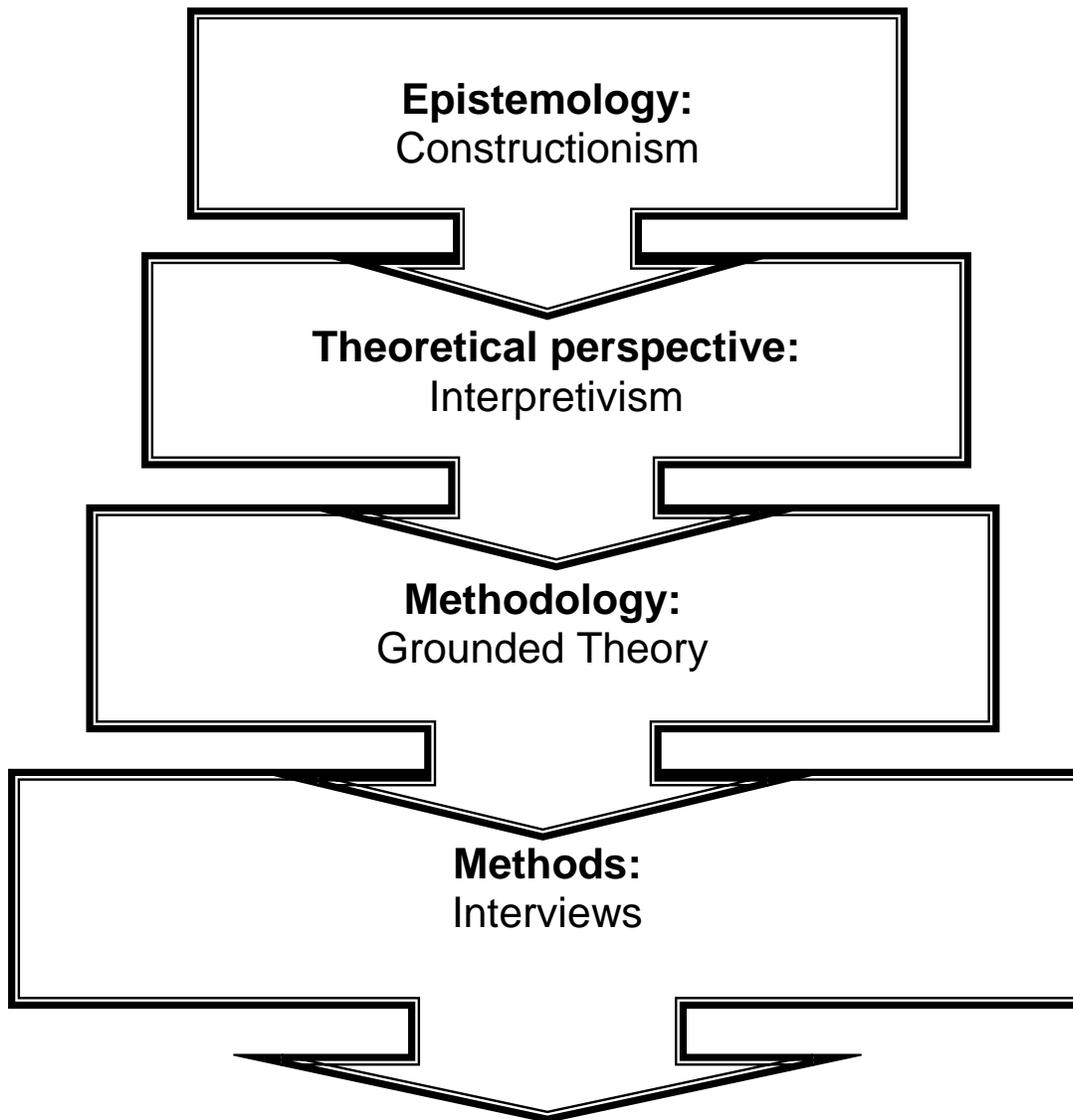
Crotty (1998) notes that, links between philosophical assumptions, methods and methodologies can be unclear and inconsistencies in terminology can be bewildering for researchers (Crotty, 1998). Crotty (1998) also emphasizes that methods and methodologies are not usually laid out in an organised fashion, often appearing to be more of a maze than a pathway, thus adding to the confusion. As a means of simplifying these complex processes Crotty (1998) puts forward the following four stage model (Figure 5).



**Figure 5: Four Elements of Research (Crotty, 1998, p. 4).**

The model (Figure 5) represents the four basic elements of any research process. Epistemology is the theory of knowledge within the theoretical perspective and methodology. Theoretical perspective is the underlying philosophical point of view that informs the methodology. Methodology relates to the strategy, plan, process or design underpinning the methods. Methods are the techniques used to gather and analyse the data (Crotty, 1998). Whilst the simplicity of the model (Figure 5) should be acknowledged, the application of it assists in demonstrating the research approach used in relation to the aims of the study. Figure 6 demonstrates the application of

Crotty's, (1998) model to this study. The epistemology is located within constructionism; the theoretical perspective is interpretivism; the methodology is grounded theory; and the method is semi-structured interviews. The following sections discuss the application of these four elements of research in more detail.



**Figure 6: Application of the four elements of research to this study, adapted from Crotty (1998, p. 6).**

## **5.2 Epistemology: Constructionism**

Epistemology has been described as a way of looking at and making sense of the world (Crotty, 1998). There are a number of epistemological positions; the three main ones are objectivist, constructionism and subjectivism (Crotty, 1998). Objectivist epistemologies are concerned with discovering the objective truth and assume that meaningful reality exists independently of any consciousness, within this view knowledge, understanding and values are objectified (Crotty, 1998). The epistemology of constructionism rejects the view that objective human knowledge is there to be discovered, and assumes that meaning comes into existence with our engagement with human realities in our world (Crotty, 1998). Furthermore, Bryman (2012) states that within constructionism meaning is constructed through the analysis of the perceptions and actions of social actors and not by the discovery of meaning, external to social actors. The constructionist position has been criticised on the basis that no criteria exists to evaluate whether certain social constructions are viable (Stahl, 2003). Blaxter (2007) identifies further limitations of constructionism. Within health, constructionism can only be applied to social aspects such as illness and sickness, as these are essentially socially constructed, and not to disease which is an objectified aspect of health and biomedically constructed (Blaxter, 2007). The third epistemology is subjectivism; within this position meaning does not evolve through interplay between the subject and the object; it is imposed on the subject (Crotty, 1998). With subjectivism, meaning is imported from somewhere other than the object, such as from dreams, religious beliefs or from archetypal beliefs located within our collective consciousness (Crotty, 1998).

### **5.2.1 Approaches taken for the Epistemology of Constructionism**

The intention of the study was to develop an understanding of the social realities of the participant's (social actors) involvement with the exercise referral scheme. To achieve this, participants' perceptions and actions were analysed, and the data was constructed from the analysis. Strauss's and Corbin's (1990) coding paradigm was used as a means of analysing the data and constructing the two conceptual frameworks for the study (see 7.1.2 & 8.1.2). Therefore, this research project was conducted through the epistemology of constructionism, as it was considered to be the most suitable epistemology to achieve the aims and objectives of the research,

address the research questions, and analyse the perceptions and actions of the patients and health professionals.

### ***5.3 Theoretical Perspective: Interpretivism***

The theoretical perspective is the philosophical stance located within the epistemological position, which informs the methodology and relates to the theory of knowledge (Crotty, 1998). Philosophical understandings about the assumptions that underlie qualitative research are important, as they allow the researcher to articulate them in a study or when presenting findings to an audience (Creswell, 2013). Two opposing paradigms have been identified within research; these are positivism and interpretivism (Gomm and Davies, 2000). Traditionally health research has followed the positivist model incorporating aspects such as: randomised control trials; cross sectional studies; before and after studies; and cohort studies (Saks and Allsop, 2007). Positivism has been the preferred route for Western scientific enquiry for the past century (Gomm and Davies, 2000). Methods within the positivist paradigm have been useful in determining aetiology, prognosis and prevalence of disease (Blaxter, 2007). The positivist paradigm sits within the biomedical model of health, and has been criticised for its objectivity; physical reductionism; and not considering the experiences of the person (Blaxter, 2007). The positivist approach was rejected for the study and an interpretative theoretical perspective was adopted. The justification for this was that the aims of the research were to conduct a qualitative study, which investigated the patients and health professionals' experiences of longitudinal involvement of an exercise referral scheme.

Interpretivism can be defined as looking for culturally derived and historically situated interpretations of the social life world (Crotty, 1998). The roots of interpretive social science can be traced back to Max Weber at the turn of the twentieth century, as a reaction against positivist philosophy (Ashley and Orenstein, 2005). The antipositivist philosophy that developed was seen to be more diversified and heterogeneous than positivist philosophy (Hammersley, 1993). One such trend in antipositivist philosophy was idealism (Hammersley, 1993). Understanding the processes and rules which make events and actions possible are fundamental to idealist research, by explaining how people interpret the world and interact with each other (May, 2001). A criticism of idealism is its subjective nature. For example, whichever field of research idealist

ontology is applied to, the data only corresponds directly to the researcher's interpretation of reality (Bourgeault et al., 2010). Interpretation of language and focused interviewing are both methods of research employed by idealists in order to interpret social life (May, 2001). Social life in the context of this study related to the lifestyle behaviours of patient respondents before and during their longitudinal engagement with an exercise referral scheme, and the actions of health professionals throughout the referral process. The idealist methods of focused interviewing and language interpretation were used in the collection and interpretation of the data obtained for this research project.

Hammersley (1993) has identified that idealism only represents some aspects of antipositivist philosophy, and that a better name is hermeneutics (Hammersley, 1993). Hermeneutics is an interpretive epistemological approach to social research that has its roots in theology, through the interpretation of biblical scripture (Bryman, 2012). Today, hermeneutics are associated more with interpreting unwritten sources such as human practices, human events and situations as a means of bringing about understanding (Crotty, 1998). The hermeneutic approach is also used today in human science health research, as a means of studying patients' real time experiences of chronic health conditions (Smith, 2007). A criticism of the hermeneutic approach in health research is that, as it is a real time snap-shot of the patient's current chronic health condition, data are likely to have a limited life expectancy (Smith, 2007). The hermeneutic approach was used in this research as a means of gaining insight into the patients and health professionals' experiences of the exercise referral scheme. This was achieved in two ways, firstly through interpreting the behaviours of the patients that led to the development of their chronic lifestyle disease, and the subsequent change of behaviour that helped them to manage their medical conditions. Secondly, the practices of the referring health professionals were interpreted as a means of identifying interactions that may enhance, and bring about a greater understanding of the referral process.

The emergence of the interpretive approaches to health research corresponded to the emergence of the social model of health during the 1960s and 1970s. Within the interpretive approach to research, the qualitative methods of observation, focus groups and in-depth interviews were developed (Saks and Allsop, 2007). Such

methods are important in research as they help the researcher to gain a detailed understanding of individual experiences, interactions, events, social processes, and allow the researcher to identify patterns in the subjective experiences of the people being studied (Saks and Allsop, 2007). Despite this, criticisms have been directed towards interpretive research, such as their narrow micro sociological approach (Cohen, Manion & Morrison, 2005). For example, the way that interpretive researchers can neglect the way that the power of external structures (GPs consulting rooms) can shape behaviour, and how this can have the effect of isolating the participants being studied, from those outside the area of inquiry (Cohen et al., 2005). Therefore, as a means of preventing participants feeling isolated, all of the patients participating in the scheme, as well as all of the health professionals working at the Health Care Centre were invited to participate in the study. Another criticism of the interpretative approach to qualitative research is determining which aspect of an account from an interview reflects what a person actually thinks, or what part is simply a reflection of the prompts given by the researcher (Saks and Allsop, 2007). In this study, careful structuring of interview schedules and the use of open questions to develop a rapport with the participants, allowed them to express their experiences of involvement with the scheme. A further criticism directed towards interpretivism is that while new theories are generated and tested in the course of conducting the research, there is no reason why theories can not be tested in relation to a previously defined theory or hypothesis (Bryman, 2012). As grounded theory methodology was used in this study it was essential to allow the theories to emerge from the data, and not use previously defined hypothesis. This was necessary to claim a robust approach to grounded theory as stated by Hutchinson, Johnston & Breckon (2011).

This study aimed to understand health professionals' and patients' experiences of an exercise referral scheme. The interpretive approach was considered to be the most appropriate way to achieve this because: it enabled the researcher to study the participants in the field whilst building relationships over time; the nature of reality was justified through interviewing eighteen participants on more than one occasion; and inductive logic was used to allow for the emergence of themes through the application of grounded theory method.

#### **5.4. Justification: Grounded Theory Methodology.**

Sparkes (1994) has shown how a narrative approach can produce detailed accounts of individuals' life experiences. A narrative approach was not considered appropriate for this research, as understanding the longitudinal experiences of the participants, was necessary for theoretical development. A phenomenological approach could have been used as a methodology for this study, as it has been used to examine individuals with shared experiences (Creswell, 2013). Understanding the essence of each of the patients' experiences was considered to be problematic, as the patients entered into the scheme at different times and had different health problems. The variety of lifestyle diseases the patients had, meant they would experience the scheme differently. Therefore, as the intention of the study was to make the data transferable to the broader context of exercise referral schemes in primary care, a phenomenological approach was considered to be inappropriate. Case study, was a different methodology considered for the study, as it has been used in medicine to study an activity or more than one individual (Creswell, 2013). Case study, was not used because it was considered unsuitable for understanding multiple perspectives of long term involvement with an exercise referral scheme. Grounded theory was selected as the methodology because the intention was to generate new theories grounded from data in the field, located in medical sociology (Creswell, 2013). The rigour obtained through the grounded theory approach, would enable transferability of the data to the broader context of exercise referral schemes in primary care. The unit of analysis was the process of the longitudinal action and interaction of the participants with the scheme (Creswell, 2013), and to understand processes, interactions, actions and consequences of all aspects of an exercise referral scheme, from the perspectives of the patients and referrers over a period of time.

##### **5.4.1 Grounded Theory**

The following section initially examines grounded theory, identifying how the concept developed historically. The two opposing protagonists' perspectives of grounded theory are then critically examined. Grounded theory as a process of qualitative data analysis was the analytical methodology used for this study. Grounded theory focuses on the process of constantly comparing coded data to identify, develop and relate concepts as part of the process of theory development (Strauss, 1987). The method of constant comparison involves four stages: comparing incidents and data that are

applicable in the same category; integrating these categories and their properties; bounding the theory; and setting out the theory (Glaser and Strauss, 1967).

Grounded theory was originally developed as a means of allowing health professionals to understand how to care for dying patients more effectively (Glaser and Strauss, 1965). Glaser and Strauss's (1965) original research was conducted on field observations from hospital staff in the management of dying patients. In contrast to quantitative methods of research where the data is derived from the theory or from the testing of a hypothesis, grounded theory is where the theory evolves from the data, through systematic gathering and analysis (Strauss and Corbin, 1998). Grounded theory developed from the two opposing protagonists' perspectives, positivism from Glaser and interpretivism from Strauss. A criticism of the original approach to grounded theory was that it lacked detail on the practical application of theory development (Strauss and Corbin, 1998). One perspective on this is that grounded theory fails to acknowledge implicit theories that guide the initial stages of the work, and that it is clearer about the generation of theories than the testing of them (Silverman, 2010). A further criticism of the theory generation stage is that whilst numerous methodological approaches have been developed, such as: concurrent involvement in data collection and analysis; construction of analytical codes and categories from the data; and memo writing, they may fail to capture the grounding principles of the theory building process (Hutchinson et al., 2011). Grounded theory has also been criticised for being too prescriptive and objective (Hutchinson et al., 2011).

Grounded theory contains two conflicting understandings of the relationship between data and theory. These are the concepts of emergence and theoretical sensitivity (Kelle, 2005). Glaser tried to clarify the concept of theoretical sensitivity with the help of the term theoretical coding (Glaser, 1978). To do this Glaser presented an extended list of terms which could be used for the purpose of theoretical coding, known as 'theoretical coding families' (Kelle, 2005). Kelle (2005) criticised Glaser's (1978) list of coding families for lacking any differentiation between formal and substantial notions. Kelle (2005) suggests that whilst theoretical coding offers an approach to overcoming the inductivism of early grounded theory, it is limited for research practice because it does not clarify how formal and substantial concepts can

be linked to each other, in order to develop empirically grounded theoretical models. Strauss on the other hand, overcame this difficulty by developing the 'coding paradigm' (Strauss, 1987).

Strauss's (1987) contribution to grounded theory was his attempt to clarify the basis for analysing data. Strauss achieved this through simplifying the process of coding data, through the use of 'in vivo' codes, and by suggesting that the researcher scrutinised data from transcripts by open coding 'the aim is to produce concepts that seem to fit the data' (Strauss 1987, p.28). 'In vivo' codes are codes derived 'directly from language of the substantive field: essentially terms used by actors in that field themselves' (Strauss, 1987, p.14). To achieve the coding, Strauss suggested the use of a coding paradigm consisting of four items: conditions; interaction among the actors; strategies and tactics; and consequences (Strauss, 1987). These aspects are then used to structure the data and to clarify relations between codes. This process was developed further through the concept of building a skeleton or 'axis' for developing grounded theories (Strauss & Corbin, 1990), later known as the axial coding paradigm (Strauss & Corbin, 1998). Strauss's style of qualitative research included a number of specific features such as: theoretical sampling; making constant comparisons; and the use of the 'coding paradigm' (Strauss, 1987). The coding paradigm has been criticised for reflecting an objectivist stance, by encouraging researchers to fit their data to the framework, by forcing concepts on to the data, rather than allowing concepts to emerge (Hutchinson et al., 2011).

Similarities have been identified between the two different coding techniques of Glaser and Strauss. It has been suggested that Strauss's (1987) coding paradigm is simply an elaborated 'coding family' that guides a theoretical process that Strauss named axial coding (Kelle, 2005). Within axial coding the categories and concepts developed during open coding are investigated whether they relate to: *conditions* by which the investigated phenomena are influenced; *actions* and interactional strategies the actors use to handle the phenomena; and the *consequences* of their actions and interactions (Strauss, 1987). Despite the limitations of the coding paradigm identified by Hutchinson et al., (2011), Strauss's and Corbin's (1998) coding paradigm allows for the construction of a theoretical framework, necessary for the development of empirically grounded categories, in a more user-friendly way (Kelle, 2005). The

controversy between Glaser and Strauss leads to the questions of whether the researcher uses a well defined 'coding paradigm' and always looks systematically for: causal conditions; contextual conditions; intervening conditions; action strategies; and consequences in the data, or whether theoretical codes are employed as they emerge in the same way as substantive codes emerge, but drawing on a range of coding families (Kelle, 2005).

Strauss and Corbin's (1998) approach to grounded theory was adopted for this study because their techniques had become more refined, compared to the numerous initial evolutions that made grounded theory difficult to follow (Hutchinson et al., 2011). The ability to be able to restrict concept and category development was another reason why Strauss and Corbin's (1998) approach to grounded theory was used instead of the Glaserian approach (Glaser, 1978). Strauss and Corbin's (1998) approach was considered to be an effective way of controlling the coding processes; in contrast to the unlimited amount of categories that could be developed through the Glaserian approach (Glaser, 1978).

A further aspect of grounded theory adopted for this study was the identification of negative cases or anomalies that do not fit the data. This has been identified as an important aspect of the analytical process in grounded theory (Corbin and Strauss, 2008). Negative cases can provide fuller explanations of the dimensions of a concept, by adding richness to the data, through highlighting that there are always exceptions to every rule (Corbin and Strauss, 2008). Negative cases were actively sought during this study and data was collected from two patients on three occasions during a 12 month period. These patients were referred into the scheme but did not attend the physical activity classes. The data from these two patients was in contrast to those who attended the scheme. For, example, their medical conditions deteriorated, medication and access to medical services increased, which enabled contrasting perspectives to be gained. Charmaz (2006) is ambiguous as to whether seeking negative cases contradicts or complements grounded theory. However, Charmaz (2006) does recognise the importance of negative cases, as they allow the researcher to provide alternative views to developing theory.

The focus of this study was to explore a group of health professionals' and patients' perceptions of health through their lived experiences of an exercise referral scheme. The process and methodological techniques inherent within grounded theory were considered suitable for this type of study, as they were likely to give an in-depth understanding of the patients' and health professionals' experiences of the scheme. Grounded theory methodology is also suitable for the use of data derived from interviews. Grounded theory in its pure form was not used in this study, as theoretical sampling did not take place. Charmaz (2006) states that to claim to have truly used grounded theory theoretical sampling needs to have taken place. Whilst a significant amount of characteristics identified by Hutchinson et al., (2011) to claim a robust approach to grounded theory were present in this study (see section 6.8.4), theoretical sampling did not take place. However, other grounded theory methodology published research does not always actively seek to theoretically sample data, yet still claims to have used grounded theory methodology (Hutchinson et al., 2011). The following section examines the technique used for data collection in the study.

## **5.5 Method: Interviewing**

The method used to collect the qualitative data in this study was the interview. Initially, various types of interview techniques are examined, followed by a justification and critique of the semi-structured interview technique. The three main types of interviews are structured and unstructured and semi-structured (Bryman, 2012). Structured interviews are used more in quantitative than qualitative research, and usually take the form of a survey, or the administration of an interview schedule by an interviewer (Bryman, 2012). Several types of interviewing techniques are used in qualitative research. For example, unstructured; focus groups; and semi structured. Unstructured interviews are essentially informal conversations that allow the interviewer to build on observations from conversations (Cohen et al., 2005). A disadvantage of this type of interview is that different information collected from different individuals can make data analysis very difficult. Focus groups are used when interaction amongst participants is required and when time is limited (Kitzinger, 1995) and have become increasingly popular due to their perceived cost effectiveness (Parker and Twitter, 2006). An advantage of focus groups is that they can encourage participation from individuals who are reluctant to be interviewed (Kitzinger, 1995). A disadvantage is that they need to be controlled carefully, in order to allow all participants' to contribute to the discussion (Cresswell, 1998). Differences between focus groups and group interviews are that in focus groups the interviewer takes a peripheral role, whereas in group interviews the researcher takes centre stage (Parker and Twitter, 2006). Semi-structured interviews can involve the use of an interview guide that allows the interviewee freedom in the way they respond to questions (Bryman, 2012). Semi-structured interview questions do not necessarily follow a specific order, and the interviewer may ask questions based on themes identified by the interviewee (Bryman, 2012). Semi-structured interviews were the preferred method of data collection for this study, as they can enhance the data analysis process through increasing data comprehensiveness and more systematic data collection (Cohen et al., 2005).

### **5.5.1 Justifications: Semi-structured Interviews**

The semi-structured interview technique was used for this study because it allowed the researcher to probe and investigate sensitive areas, along with the different dynamics experienced by the patients and health professionals participating in the

scheme. For example, exploring the relationship dynamics between obese patients and their referring health professionals; and the different effects the physical activity had on the patients' medical conditions, medication and access to medical services. A further justification for using this technique is that in addition to flexibility, order and structure were needed to ensure cross comparability of data (Bryman, 2008). Cross comparability of data is an essential aspect of grounded theory research as it allows the researcher to engage with the essential process of constant comparison for similarities and differences in the data. This process aided the initial open coding stages by enabling the researcher to place the coded responses from the participants into 'subcategories' in relation to the 'concepts' as they emerged (Corbin and Strauss, 1998). The aims of this study were to investigate, via a longitudinal approach the health professionals and patients experiences of an exercise referral scheme. Therefore, in-depth interviews were the preferred choice of method as they would prevent incomplete or interrupted data sets from being obtained.

#### ***5.5.2 Limitations: Semi-structured Interviews***

A significant limitation of conducting in-depth interviews is the amount of time it takes to conduct them and transcribe the text, and consequently the costs involved in doing so (Bell, 2010). Furthermore, using in-depth interviews to collect data can be problematic as they are generally designed to elicit conversation between the interviewer and interviewee, resulting in the interviewee responding to specific questions that have been asked (Saks and Allsop, 2007). As a result of this interaction, it is not then truly possible to establish what the interviewee really thinks, as they are being guided to respond to a specific question (Saks and Allsop, 2007). Other limitations of conducting in-depth interviews are that the researcher's presence may bias the participants' responses, and that not all interviewees may be equally articulate and perceptive, which could impact on the responses given to questions asked (Creswell, 2009). One means of addressing these limitations is to establish trustworthiness. The main criticisms directed towards the use of semi-structured interviews relates to the main criticisms that have been directed towards qualitative research from positivistic perspectives (Deifenbach, 2008). For example: the process of collecting data; internal validity and making sense of data; and the external validity of the data and findings (Deifenbach, 2008).

## 5.6 Ensuring trustworthiness in qualitative research

Traditionally in deductive research, rigour is represented by internal validity, external validity, reliability and objectivity (Lincoln & Guba, 1985). To ensure rigour in qualitative research the term trustworthiness is used. In qualitative research the following components need to be present: credibility; transferability; dependability and confirmability (Lincoln & Guba, 1985). Table 1 below demonstrates a comparison of the issues between these two opposing approaches to research.

**Table 1: Comparison of issues between deductive and inductive indicators of rigour.**

<b>Deductive (Quantitative)</b>	<b>Inductive (Qualitative)</b>
Internal validity – <i>Researchers ability to draw correct inferences from the data about the population in the experiment.</i>	Credibility – <i>Compatibility of constructed realities that exist in the minds of respondents with those that are attributed from them</i>
External validity – <i>Generalizability of the results to other circumstances or populations.</i>	Transferability – <i>Observers from other contexts can make tentative judgements about applicability to their contexts.</i>
Reliability – <i>The repeatability of the experiment.</i>	Dependability – <i>Provides evidence that if replicated there would be similar findings.</i>
Objectivity – <i>Not influenced by bias.</i>	Confirmability – <i>Ensures findings are a result of the enquiry not the biases of the researcher.</i>

The deductive positivist approach to natural science seeks internal validity through objective verifiable empirical knowledge (Hammersley, 1998), where researchers draw correct inference from their experimental data (Creswell, 2009). In contrast to the positivist approach, interpretative researchers demonstrate credibility through the compatibility of constructed realities that exist in the minds of respondents with those that are attributed from them (Lincoln & Guba, 1985).

A specific strategy to support the credibility of qualitative findings was identified by (Lincoln & Guba, 1985) and further developed by Creswell (2009). Creswell (2009) highlighted eight specific techniques, at least two of which he believed must be employed in any valid qualitative study. For example, prolonged engagement,

triangulation, peer review, negative case analysis, clarifying researcher bias, member checks, thick description and external audits (Table 2). Angen (2000) has identified limitations with the use of four of these specific criteria. Criticisms of member checking are that respondents' views may have changed, and they may disagree with the researcher's interpretation, which raises the question of whose interpretation is right. Reflexivity has been criticised on the basis that it is an attempt to obtain objectivism, on the basis that distance is being sought between the self and the work (Angen, 2000). Triangulation is problematic for qualitative researchers on the basis that it assumes some objective reality to be converged upon. Peer review is also not recommended on the basis that peers can never have the same involvement with the information as the principle investigator had (Angen, 2000). Despite these criticisms, credibility is needed particularly when using grounded theory methodology to make substantive contributions to knowledge (Denzin and Lincoln, 2005). Creswell's (2008) techniques can be seen as a method to enable qualitative researchers to apply rigour to their research.

External validity in quantitative enquiries relates to the generalizability of the research findings to a larger population or setting, other than those studied (Lucas, 2003). Generalizations are not one of the goals of interpretivist enquiry. In interpretivist health research, qualitative methods can be used to formalise the learning curve, inform hypothesis testing and enhance the transferability of clinical trials into practice (Denzin and Lincoln, 2005). Transferability has to be present in interpretative enquiries, in order to establish that the findings of a study can be applied to other contexts (Bryman, 2012). The gold standard in health research relates to a double helix design, with one strand representing qualitative methods addressing issues of meaning, power and complexity, and the other strand providing measurement and focus (Denzin and Lincoln, 2005). For the double helix to exist, overlap is needed in order to make statements about applicability and transferability. The existence of overlap has been identified between inductive and deductive theoretical perspectives by Sparkes (2001) in his discussions on parallel perspectives. Therefore, interpretive health research design needs careful consideration, if observers from other contexts are to be able to make tentative judgements about applicability to their contexts (Lincoln & Guba, 1985).

Reliability in quantitative enquiries relates to the repeatability of the experiment. In qualitative enquiries this is termed as dependability (Creswell, 2009). Sparkes (2001) sees no difference between naturalist and positivist enquiries in that they both need to be replicable, although recognises that different procedures will be necessary to achieve this (Sparkes, 2001). Sparkes (2001) highlights that despite criticisms being directed towards the use of positivist terminology when referring to the need for reliability in qualitative research (Lincoln and Guba, 1985), that a parallel perspective of trustworthiness exists. However, even though the parallel perspective suggests that the criteria for judging qualitative research should be different, the trend is that these criteria tend to closely relate to those used by quantitative researchers, which are then fitted to the qualitative research context (Sparkes, 2001).

In positivistic research, objectivity is a key goal for the researcher, as are the need to have findings free from bias (Hammersley, 1996). In interpretative research objectivity is achieved through confirmability (Bryman, 2012). Confirmability recognises that complete objectivity is not possible in social research but that social researchers need to demonstrate that they have acted in good faith, for example, not to have been influenced by personal values (Bryman, 2012). In naturalistic social research confirmability should form part of the audit process (Lincoln and Guba, 1985). Table 2 shows how the criteria established by Lincoln and Guba (1985) have been used to establish trustworthiness in this research.

**Table 2: Application of trustworthiness principles to this research (adapted from Lincoln & Guba,1985).**

Technique	Definition	Action in this research
<b>Credibility</b> Prolonged engagement	The investment of sufficient time to achieve certain purposes.	Consultation with health professionals 6 months prior to the data collection period of the study. Repeated contact with health professionals and patients over the 12 month data collection period, 18 months in total.
Triangulation	The validation of information against at least one other source (for example a second interview).	Methods employed to triangulate the data included: undertaking interviews with two participant groups (patients and health professionals) on three separate occasions for patients, and health professional on two occasions, for a period of five weeks in total.
Peer debriefing	The purpose of exposing oneself to a peer in a manor paralleling an analytical session, and for the purpose of exploring aspects of the enquiry that might otherwise remain only implicit in the inquirer's mind.	Regular monthly meetings with supervisors from February 2008 until February 2009. Discussion of findings with post graduate students and colleagues at the internal University of St Mark & St John annual conference. Presenting sections of findings to work colleagues on four occasions at annual internal research conferences for their commentary. Presenting findings to an external conference for their commentary at the University Gloucestershire and the University of St Mark & St John. Presenting emergent themes from the findings to health professionals on two occasions for their commentary.

**Table 2 continued: Application of trustworthiness principles to this research (adapted from Lincoln & Guba,1985).**

Technique	Definition	Action in this research
<b>Transferability</b> Thick description	The provision of enough information to enable someone interested, to draw conclusions about the transferability of the data to other contexts.	Descriptive observation allowed for the context of the patients' longitudinal experiences and involvement in an ERS, from referral to completion or point of drop out, to be understood.  Descriptive observation allowed for the context of the health professionals' longitudinal experiences and perceptions of the effectiveness of an ERS for patient's health and wellbeing, to be understood. The use of participant quotes provides a sense of understanding to the reader.
Theoretical sampling	The process of gaining a deeper understanding of cases, through the comparison of cases already analysed, to new cases.	Although theoretical sampling was not able to be conducted concurrently, themes that emerged from earlier data collections were explored during subsequent data collection periods. This allowed the longitudinal experience of the patient's and health professional's involvement with the scheme, to be explored.
<b>Dependability</b> Audit trail	Making the data available so that the process of data collection can be audited.	Interview transcripts and analysis of the data obtained from the five sets of interviews was stored on a password encrypted computer kept in a locked office, to allow emergent findings to be organised and for an audit trail to be followed. Interview guides, sets of open, axial and selective coded data, for all five sets of interviews, also inform the audit trial.
<b>Confirmability</b> Audit trail	Making the data available so that the end product in terms of the findings can be audited.	The use of grounded theory method and management of data and diagrammatic development of models allowed for the findings to form a clear audit trail.
<b>All of the above</b> Reflection	The process of reflecting on the self and the method.	Regular discussions with the supervisory team: through the process of data collection; data analysis and coding; and through identifying where the findings contribute to knowledge.

### ***5.7 Establishing interpretive credibility***

Credibility was established throughout the data collection phases of this study through the use of the participant's voice. Closely edited quotations were used in the text to present the lived experiences of the patients and health professionals involvement with an exercise referral scheme. This took place to demonstrate that the views put forward were not those of the author, but of the people who were being studied. However, a criticism directed towards this approach is that the author has the final word on what is interpreted and presented (Sparkes, 1995). For example, the descriptions put forward are often located within a specific theorem or interest to the researcher (Sparkes, 1995). In order to establish credibility in this study the direction of the narrative rested on what the patients and health professionals directly said or did. When interviewing the patients, care was taken not to allow the interviews to become therapeutic counselling sessions. The data collection process utilised interviewing and involved listening and asking questions. No attempt was made to give the patients feedback on their lifestyle behaviours, or to give health professionals feedback on the referral process. Sparkes (1994) has highlighted that giving emotional support can be a trading point with life story work. However, it was opted not to do this as the potential dangers of the psychological or psychoanalytical approach could push the research in one direction and the researcher and participants in another (Goodison, 1992).

## **5.8 Summary**

This chapter has provided epistemological, theoretical, methodological and method based explanations of the various approaches that have been used to underpin the research processes at each stage. The final part of this chapter critically analysed the issues of trustworthiness in qualitative research and detailed how this had been applied to this study. This chapter has therefore provided a theoretical basis for the methodology and method that has been used to collect and analyse the data for this study, which is now presented in the following method chapter.

The following chapter provides a detailed account of the qualitative method used to underpin this research. The chapter initially analyses the sampling method, and presents detailed descriptions of the protocols, used to collect the data from the patients and health professionals. The chapter then justifies the use of manual data analysis and the grounded theory methods that were adapted for the analysis of the data. Finally, ethical considerations and the process of gaining consent from the patients and health professionals are discussed.

## Chapter Six

### Method

#### **6.0: Introduction**

This chapter builds on the previous chapter that sought to provide a detailed critical analysis of the methodological approaches used to underpin this research, and provides a detailed description of the qualitative method used throughout this study. The method undertaken throughout this research is in keeping with the research questions (see section 1.6) and justifies the ecological validity of the exercise referral scheme under investigation. This chapter initially analyses the sampling method, provides a contextual backdrop to the primary care setting and operational delivery of the scheme, and describes the protocols used to collect the data from the patients and health professionals. The chapter then explains the data analysis, describes the application of the three coding techniques, and provides evidence of a robust approach to grounded theory. Finally, ethical considerations and the process of gaining consent from the patients and health professionals are discussed, along with the limitations of the methods used.

#### **6.1 Sampling methods**

There are two main types of sampling methods, one being non-probability sampling the other being probability sampling (Gilbert, 2001). Probability sampling has been generalised as a quantitative technique and non-probability sampling as a qualitative technique (Saks and Alsop, 2007). The non-probability sampling technique of convenience sampling was used for this study as it is appropriate for qualitative research. A convenience sample is 'one that is available to the researcher by the virtue of accessibility' (Bryman, 2008, p.183). A convenience sample can be justified for research when a chance presents itself to gather data, from an opportunity that is too good to miss (Bryman (2008). The opportunity that presented itself to collect data for this study came from the clinical lead of a Primary Health Care Centre. The Health Care Centre in question had recently located a fitness suite within the building, with the intention of referring patients with coronary heart disease risk factors to it. The fitness suite was staffed from a national company of exercise professionals. Another justification for the use of convenience sampling was that it was considered an appropriate method for looking at small specific samples of a given population within a community (Bryman, 2012). The sample for this study consisted of a group of patients

(n=12) going through an exercise referral scheme (Table 8) and six health professionals who had referred them (Appendix 6).

Concerns have been identified with qualitative sampling techniques such as convenience sampling. For example, their lack of generalizability, due to not knowing the representativeness of the population sampled (Bryman, 2008). Despite this, a strength of convenience sampling is that it usually produces a high response rate (Bryman, 2008). A high response rate from the sample was needed as only 17 patients were attending the scheme at the time, and 6 health professionals were working at the practice. Therefore, it was essential that as many of the participants as possible participated in the study in order to make a contribution to knowledge. Further justifications for the use of convenience sampling in this study include the lack of population groups available to draw a sample from, and the high response rates that convenience sampling can produce 'for some studies sampling decisions have to be made opportunistically, if there are few potential interviewees who are willing to agree' (Green and Thorogood, 2004, p.102). As the number of potential participants available was relatively small, this sampling technique was used as it can produce a high response rate (Bryman, 2008).

Two sets of participants agreed to take part in this study. The first potential group consisted of six health professionals the second group comprised of 12 patients. The health professionals were invited by the clinical lead to participate in the study. Prior to the first meeting with the clinical lead at the Primary Health Care Centre, an information letter was sent outlining the proposed study. This letter was then circulated to the practice partners, who agreed to a meeting to discuss the study further (Appendix 1). Following the meeting, the clinical lead requested that information letters and consent forms to be left at the practice for any health professionals wishing to take part in the study to complete (Appendix 2). Six health professionals agreed to participate in the study and signed the consent forms. Having received the consent forms the health professionals were then contacted via e-mail to arrange interview times and dates.

The second group of participants for the study consisted of 17 patients who had been referred into the scheme by the health professionals. These patients were identified

by the exercise professional that ran the fitness suite, as being potentially suitable for the study. Seventeen information letters and consent forms were given out by the exercise professional (Appendix 3). Twelve patients agreed to participate and returned completed consent forms to the exercise professional. All of the patients who consented to participate were contacted to arrange interview dates and times, on three separate occasions during the year.

### ***6.1.1 Contextual backdrop and operational delivery of the scheme***

The primary care centre was built in 2006 at a cost of £1.25 million pounds. It is located in the centre of a deprived community. The centre currently has three full time GPs, a practice nurse, a health-care assistant and a phlebotomist, the centre also has a dental surgery on site. The primary health centre is a GP training practice. The community gym located in the primary care centre is the result of a partnership between the NHS and the YMCA. The gym is open three days of the week between 9.00am and 5.00pm. The gym is open to the general public, runs an exercise on referral scheme, and has won awards for fostering new community perceptions of health and fitness. In addition to attending the gym, patients are encouraged to develop habitual physical activity patterns in the form of walking.

After the patients were referred for exercise they completed an induction programme and had individually tailored exercise programmes designed for them. Initial exercises consisted of differentiated small-group-based floor activities. Health outcome measurements, such as blood pressure and peak flow were taken before and after each exercise class as necessary. This has the effect of reassuring the patients that it was safe for them to participate in the classes. As the patients' health outcome measures improved, they were encouraged to progress onto the cardiovascular and resistance equipment in the gym. Patients were also encouraged to develop walking activities outside of the gym environment. Over the course of the 12 month data collection period the number of classes the patients attended and the amount of walking they did changed. At baseline the group of patients attended 1.8 gym classes per week and participated in an additional 1.7 sessions of physical activity (walking) a week, a total of 3.5 sessions per week. At the 8 month point, physical activity levels had increased to a group average of 2 gym classes and 2.4 walking sessions per week, total of 4.4. At the 12 month point gym classes had decreased to 1.5 sessions

a week, but walking had remained similar at 2.3 sessions per week, a total of 3.8. Therefore, over the 12 month period the number of times the patients participated in combined physical, activity (classes and walking), had increased from 3.5 – 3.8 sessions per week, with a peak of 4.4 combined sessions a week at the 8 month point.

### ***6.1.2 Development of the interview schedules over twelve months***

The interview schedules for the patients were initially developed from literature in the area, such as the studies by Crone et al., (2004); Dugdill et al., (2005); and Wormold et al., (2006). Literature from Blaxter (2007) and the Social Determinants Model of Health (Dahlgren and Whitehead, 1991), also informed the development of the initial interview schedules for the patients. The initial schedules for the health professionals were developed with literature from Epstein and Ogden (2005); Graham et al., (2005); Harrison et al., (2004); Harrison et al., (2005); McKenna and Vernon (2004); and Ribera et al., (2005). The second and third sets of interview schedules developed as a result of the responses to the questions initially asked to the patients and health professionals in January and February 2008.

**Table 3: The time-line for data collection and analysis from patients and health professionals (January 2008 – July 2009)**

January 2008 → July 2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July
Data Collection and analysis periods																			
<b>Patients 1<sup>st</sup> interviews</b>																			
Transcription																			
Open coding																			
Axial coding																			
Selective coding																			
<b>Patients 2<sup>nd</sup> interviews</b>																			
Transcription																			
Open coding																			
Axial coding																			
Selective coding																			
<b>Patients 3<sup>rd</sup> interviews</b>																			
Transcription																			
Open coding																			
Axial coding																			
Selective coding																			
<b>HPs 1<sup>st</sup> interviews</b>																			
Transcription																			
Open coding																			
Axial coding																			
Selective coding																			
<b>HPs 2<sup>nd</sup> interviews</b>																			
Transcription																			
Open coding																			
Axial coding																			
Selective coding																			

## **6.2. Health professionals' interviews**

The health professionals' interviews were carried out on two occasions between January and September 2008 (for discussion on interviews as a method, see section 5.5). All of the health professionals were in general practice at the Primary Health Care Centre, located in an area of high social deprivation within a South West Devon City with an IMD ranking of 1 (Communities and Local Government, 2007). All six of the health professionals were interviewed on two occasions (Table 3) and the interviews lasted approximately 30 minutes.

### **6.2.1 Procedures for health professionals' interviews**

Piloting of the health professionals interview schedules were initially undertaken by an academic in the area of health, exercise and physical activity, who had personal experience of being referred into such a scheme. Unfortunately, it was not possible to pilot the health professionals' interview schedules on actual health professionals, due to the additional pressures that this would place on them in their already busy schedules. Following piloting, appropriate changes were made to the interview schedules as follows.

### **6.2.2 Review of the first interview schedule for health professionals**

The confidentiality statement was reviewed to include: the right to withdraw from the study without penalty; the right not answer specific questions; and to request note taking and recording to stop at any point (see section 6.8). Prompts were included in the second revision of the schedule where responses lacked depth, and were re-written to include an alphabetical suffix, for example 'Q3a'. Questions 4 and 7 were considered to be leading and were rewritten to become more open. Question 7a was removed as it was considered to be repetitive (Appendix 4).

### **6.2.3 Review of the second interview schedule for health professionals**

Several changes were made to the format of the interview schedule following an analysis of the first set of health professionals' interviews (Appendix 4). Changes included asking the health professionals to state their name at the beginning of the interview, which helped to identify the appropriate file for transcription. The second interview schedule was also themed to enable a more focused line of enquiry and to enhance theoretical development. The themes included: referral; doctor patient

relationships; physical activity promotion; evidence of the effectiveness of the effectiveness of the scheme; and additional information (Appendix 5). Following the piloting of the second interview schedule several changes were made. Prompts were included wherever responses lacked depth. Questions 1.1, 1.6, 2.1a, 2.1b, 3.5 were considered to be leading and were rewritten to become more open. Section 2 was reviewed to include two questions on socio-economic group, and questions relating to training needs to minimise confrontation (Appendix 5).

### ***6.3 Patients' interviews***

All of the patients (n=12) were referred into an exercise referral scheme, located in a Primary Health Care Centre in an area of high social deprivation within a South West Devon City with an IMD ranking of 1 (Communities and Local Government, 2007). The interviews were conducted on three occasions between January 2008 and January 2009 (Table 3). The majority of patients (n=10) were interviewed on all three occasions and the others were interviewed twice (Appendices 8 and 9). The interviews lasted between 30 and 40 minutes.

#### ***6.3.1 Procedure for patients' interviews***

The schedule for the patients was piloted in order to refine the questions. The pilot interviews were conducted on patients who were going through an exercise referral scheme at a different practice. The following changes were made to the interview schedules as a result of piloting that had taken place.

#### ***6.3.2 Review of the first interview schedule for patients***

A first draft of the patient's interview schedule was produced before piloting (Appendix 6). The schedule was edited to include the following themes: exercise referral scheme; medical condition; general perceptions of health and lifestyle; partners and children; and general questions. Following editing a second draft of the schedule was produced for piloting (Appendix 7). After piloting the interview schedule it was decided to swap sections A and C with each other. The reason for this is that the questions contained within section C were easier for the patients to answer, which would have the effect of putting them at ease (Appendix 8). Several changes were also made to the questions. Question A4 was changed to achieve past and present perspectives. Questions A8a and A9 were removed as they were considered to be repetitive.

Question B1a was changed to make it specific to the scheme. Questions C2c, C2d, C2e were altered to make them more specific to the changes that the patients had made. Question D1g was removed as it was irrelevant.

### ***6.3.3 Review of the second interview schedule for patients***

Minor changes were made to interview schedule two, following piloting. Question 2.2 was altered to make it more specific to the intensity of exercise, and a separate section was included at the end that specifically related to medical conditions (Appendix 9).

### ***6.3.4 Review of the third interview schedule for patients***

The main change to the final set of interviews was to include a specific section of questions, which could be used with the two patients who were unable to continue with the scheme (Appendix 10). These questions were contained within sections 4, 5 and 6, and were termed 'negative cases'. They were included as a means of understanding the different perspectives of these two patients. Following the piloting of the interview schedule, sections 6 and 7 from the first draft, were combined. The intention of this was to provide a focus, to analyse the impact of the scheme on the patients' medical conditions (Appendix 11). Section 8 of the interview schedule included additional questions that needed further clarification, from responses previously given. Other minor changes included adding weight loss scales to questions 3.0a and 3.0b. Contextualising statements were added throughout section 4 to focus the line of enquiry. Further questions were also added to section 8 to ascertain whether the patients were likely to sustain the healthy lifestyles that they had developed over the previous twelve months (Appendix 12).

Following the review of each interview schedule, appointments were made with the patients and interviews took place in the health professionals' consulting rooms at the Primary Health Care Centre. The reason for this was ease of access for the patients, who mostly lived within a short walking distance of the Primary Health Care Centre. The patients were then interviewed over the course of a week on each of the three occasions, those being January 2008, September 2008 and January 2009. Interviews were arranged over the course of the day between 9.00am and 6.00pm, at times that were convenient for the patients.

During the first set of interviews 10 of the 12 patients were interviewed. Two patients were unable attend due to ill health. The second set of interviews, nine months later produced 12 sets of data. The third set of interviews 12 months later produced 11 completed sets of data, again one less due to ill health (Appendices 8 and 9).

#### ***6.4 Equipment used to collect the data***

The interviews were recorded using two Olympus Digital Voice Recorders WS-200S, with one being used as a backup. Following recording, the audio files were downloaded and saved as Windows Media Player files. Each interview was then transcribed verbatim.

#### ***6.5 Justifications for the use of manual data analysis***

Grounded theory method was used as the analytical technique for this study. The data for this study was analysed manually as it was considered that manual analysis would reduce the likelihood of the 'narrowness of approach' that can occur when using computer software to analyse qualitative data (Silverman, 2005). Other justifications for the use of manual analysis included: the increasingly deterministic and rigid processes supported by software analysis; the pressure on researchers to focus on volume and breadth rather than on depth and meaning; and the time and energy spent learning to use computer packages, all of which can distract from the real work of analysis (St John and Johnson, 2000). A study on the use of software for PhD students using a grounded theory approach to research, identified that whilst software may make the analysis easier, analysis can also be done using manual methods (Bringer et al., 2004). Furthermore a rigorous approach to grounded theory was applied to this study as indicated by Hutchinson et al., (2011) and can be seen in tables 4 and 5, in section 6.6.4.

There are a range of opinions about the use of qualitative data analysis software (QDAS) for the analysis of data obtained from a grounded theory approach to qualitative research. The strengths of the QDAS approach to research are that it can be used to convert qualitative data for statistical analysis (Beazley, 2006); it can be used to produce diagrams where visual representations of the relationships between categories can be explored (Bringer et al., 2006); QDAS can also be used as a means of providing transparency in qualitative research (Bringer et al., 2004). QDAS

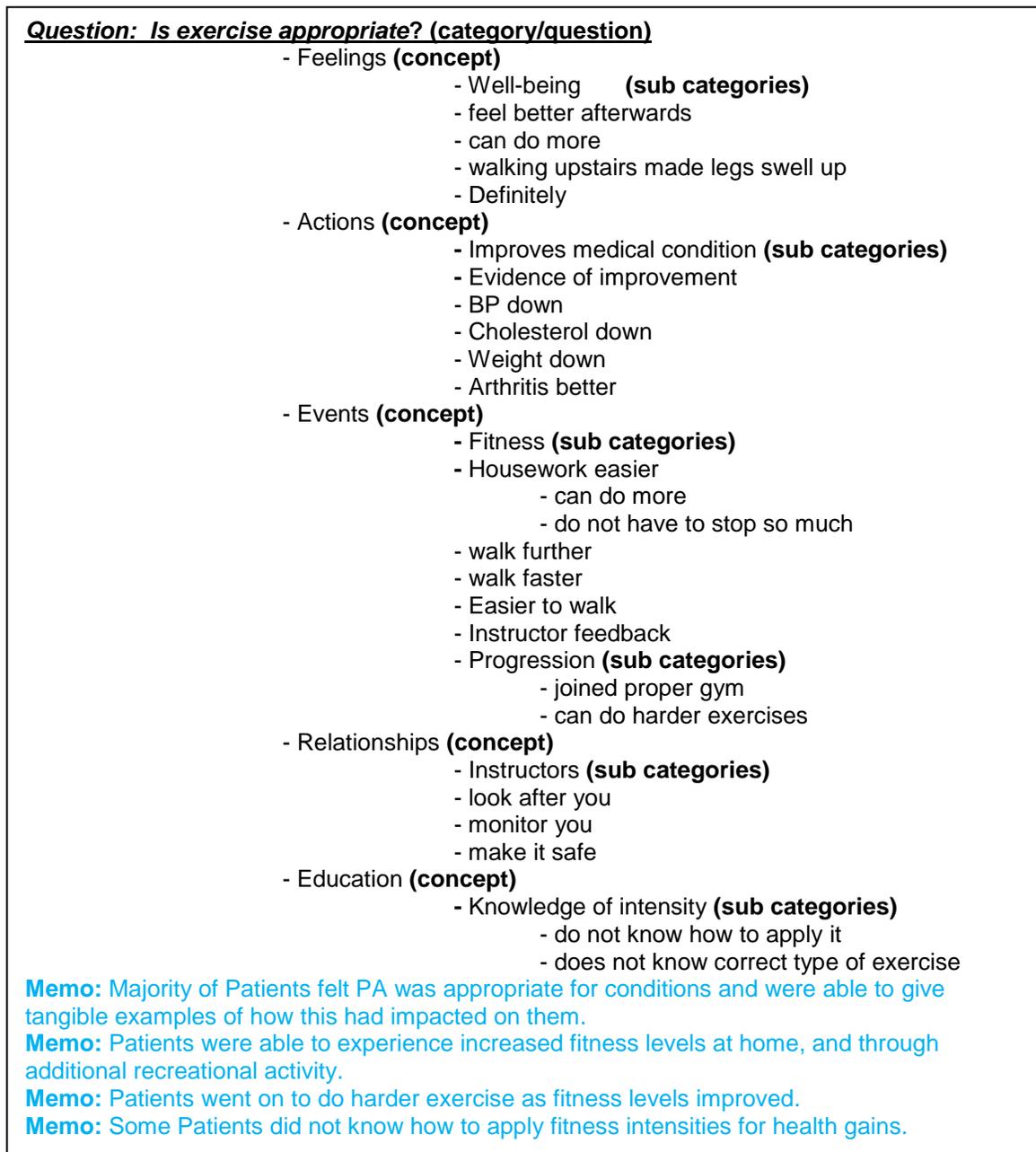
programmes such as NVivo can facilitate the development of a grounded theory approach to a research project (Hutchinson et al., 2009). However, Bringer et al., (2004) has identified that manual analysis of qualitative data is an acceptable method of data analysis in doctoral research. Furthermore, Kelle (1995) has identified that QDAS has the potential to transform the richness of qualitative data into an automated analysis devoid of human interpretation. A further limitation of QDAS is when researchers base their theoretical perspective and analysis techniques on the capability of the software, and not on an appropriate theoretical perspective for analysing their research questions (Bringer et al., 2004). Therefore, the data for this study was analysed manually as it was considered that this would reduce the likelihood of the 'narrowness of approach' that can occur when using computer software to analyse qualitative data (Silverman, 2005).

## **6.6 Data Analysis**

The following section explains the process of grounded theory that was applied to this research and follows the process set out by Strauss and Corbin (1998).

### **6.6.1 Open coding**

Following verbatim transcription of the interviews, the data was manually analysed using open coding protocols detailed in Strauss and Corbin (1998). See table 3 for times scales involved for the data analysis. The initial phase of open coding involved the identification of categories, these related to coded (shortened) versions of the questions that were asked. The next stage in the analytical process involved identifying abstract representations of the events identified within the interviewing process (concepts), and then naming them in order to group similar events under a common heading. The concepts used to group the data for this study were: feelings; events; relationships; friendships; and actions as the majority of responses fell into these concepts (Figure 7). Through the process of constant comparison for similarities and differences in the data from the transcripts, responses were placed into subcategories in relation to the above concepts, as they emerged. The subcategories related to common themes from responses to the questions that were asked. During the process of open coding, memos were made that identified any interesting points, thoughts, future directions or themes that emerged from the responses given (Strauss and Corbin, 1998)



**Figure 7: Example of open coded data**

### **6.6.2 Axial coding**

Following the process of ‘opening up’ the data, axial coding as described by Strauss (1987) was used to inform the process of putting the data back together. See table 3 for times scales involved for the data analysis. To achieve this, the axial coding paradigm as described by Strauss and Corbin (1998) was used as a process of producing concepts that fit the data. Open coded data were then categorised into three concepts those being, conditions, actions and consequences (Strauss and Corbin, 1998). Conditions related to sets of events that created a situation, issue or

phenomena. Actions related to the routine or strategic responses by individuals to certain problems, happenings or events that arise under the above conditions. Consequences related to what happened as a result of the above actions, or the failure of a person to respond to certain situations (Figure 8). Strauss and Corbin's (1998) technique for axial coding, is referred to in their text as an axial coding paradigm. The axial coding technique is used to rebuild the data and to clarify the relationships between codes. In effect, this was the process of making sense of the data through the reconstruction of paragraphs relating to each of the open coded responses to the interview questions. Following the application of the paradigm to each of the questions, memos were made at the end of each question that identified themes or emerging patterns of health behaviours.

**Question) Is exercise appropriate?**

The vast majority of patients understood that exercise would have a positive impact on their various medical conditions (**condition**). They were able to give examples of how exercise had made them feel better such as feelings of well-being and feeling better after the session. They were also able to give examples of how exercise had specifically impacted on their medical conditions such as: cholesterol down; weight down; exercise helps nerve problems in my back; joints are suppler; and breathing is better (**actions**). As the patients' health and fitness levels improved they were able to take part in harder exercises, moving from floor work using body weight to exercise machines that targeted specific muscle groups (**consequences**).

**Memo:** Patients were able to give examples of the appropriateness of exercise for their medical conditions. They did this by giving tangible examples of the positive impact on their individual conditions.

**Figure 8: Example of axial coded data**

### **6.6.3 Selective coding**

The final part of the analytical process was selective coding, see table 3 for times scales involved for the data analysis. Selective coding is the process of integrating the axial coded data into a coherent written form, thus demonstrating the evolution of the analysts' thought processes and the cumulative body of findings recorded in memos (Strauss and Corbin, 1998). This process required the development of a central or core category for each of the phenomena investigated (see figures 11 and 16). Strauss and Corbin (1998) advocated three techniques that could be used to facilitate the integration of a core category, such as: writing a story line; making use of diagrams; and the reviewing and sorting of memos. Reviewing and the sorting of memos was the technique used to develop a story line and integrate concepts and

categories into a core category. The reason for this was that they were a running account of all of the ideas and themes that had developed through the process of constant comparison of concepts and categories.

For this study selective coding related to the reconstruction of the themes from the memos obtained from the axial coded data. It was then possible to examine the links between categories and the development of a theoretical framework, where a central phenomenon and the axial coding paradigm are linked in detail (see tables 6 and 7). This was followed by the identification of a core category for each part, part 1 related predominantly to the health professionals, and part 2 related to the patients. The core categories were then integrated into the themes that had developed from the axial coding, into two conceptual models (see sections 7.1.1 and 8.1.1). These two models helped to develop and clarify the developing theories. This process involved the comprehensive development of emergent themes and their associated properties. Theoretical saturation was achieved when no new or relevant data emerged and the themes appeared to be well established (Strauss and Corbin, 1998). At this point the theme development was dense, all of the aspects of the paradigm were present, and the views of the patients and health professions were represented in detail. This allowed the development of the two conceptual frameworks; the first of which explained the processes involved in patient 'take-up' of a practice-based exercise referral scheme; the second explained how long term involvement in the exercise referral scheme impacted upon on the perceived health status of the patients (see tables 6 & 7). Supporting themes were explained via the lived experiences of participants. This was provided through the use of direct quotations from the health professionals and patients as a means of enhancing the comprehension of the conceptual frameworks.

#### ***6.6.4 Evidence of a robust approach to grounded theory***

To assure that a robust approach had been undertaken in the application of Grounded Theory, common characteristics identified by Hutchinson et al., (2011) were included throughout the data analysis (Table 4).

**Table 4: Mapping of grounded theory characteristics to this study**

<b>Component of Grounded Theory</b>	<b>Evidence from this study</b>
Concurrent involvement in the data collection and analysis phases, whereby earlier findings inform subsequent analytical procedures.	Concurrent data collection and analysis was not possible due to manpower restrictions. Therefore the data was collected and analysed consecutively on three occasions over the twelve month period. Data analysis in the form of open and axial coding followed the collection and transcription of data from each set of interviews. The analysis was then used to inform the following data collection periods and subsequent analytical procedures such as: selective coding; and development of a conceptual framework and model.
The development of initial concepts and categories from the data itself.	Evidence of this is contained within the transcripts and is presented in the right hand column. It also presented in the raw open coded data (see open coding on attached CD).
Remaining open to new possibilities emerging from the data.	This is evident through the development of questions from the first to the second sets of interview schedules for the health professionals (Appendices 6 & 7), and from the first to the third sets of interview schedules for the patients (Appendices 12, 13 & 16).
Making systematic comparisons of the data.	Evident in the concepts identified in the transcripts; and all of the open and axial coded data.

In addition to the aspects highlighted in table 4, the following aspects (Table 5) were evident in this study, and were identified in the Hutchinson et al., (2011) systematic review as necessary to claim that a quality approach to grounded theory had been undertaken (Hutchinson et al., 2011).

**Table 5: Mapping of grounded theory components necessary to claim a robust approach**

Component of Grounded Theory	Evidence from this study
<b>Sampling</b>	
Subject sample.	<b>Convenience sampling:</b> Suitable patients were initially identified by the exercise professional. Suitable health professionals were identified by the clinical lead of the Health Care Clinic.
Theoretical sampling.	Evidence of <b>theoretical sampling</b> can be seen through the identification and development of concepts in the open coded data (see raw data files for open coding, on CD). Although theoretical sampling was not able to be conducted concurrently, themes that emerged from earlier data collections were explored during subsequent data collection periods.
Development of initial concepts and categories.	<b>Initial concepts</b> for the open coding were developed through line by line comparisons of the transcribed text (see raw data files for transcripts, on CD). Concepts were identified and then written in the right hand column of the transcripts. Concepts were abstract representations of events identified within the interviewing process. A concept frame was developed during the initial stages of analysis and then applied to all of the questions that were asked, were appropriate to do so (see raw data files for open coding, on CD). <b>Categories</b> for the open coding related to the questions being asked and the phenomena under investigation. <b>Sub-categories</b> were used in the form of responses from the questions as they emerged from the transcripts (see raw data files for open coding, on CD).
Continuation of theoretical development	<b>Memos</b> were identified for each aspect of open coded data and related to the responses given to each specific question asked during the interviews. Throughout this process, thoughts, interpretations, future directions, interesting points or themes were identified. Memos were then used to help formulate the questions for the next set of interviews. Theory development advanced through the <b>axial coding</b> (see raw data files for axial coding, on CD). The application of the <b>axial coding paradigm</b> assisted with this process. <b>Memos</b> were used again to explore the different dimensions of the emergent themes from the axial coded data.
Construction of the end product of the research.	The final stage of the analysis involved <b>selective coding</b> (see raw data files for selective coding, on CD) and the development of a core story from the axial coded memos, from which a <b>core category</b> developed. This in turn led to the development of a conceptual framework and model. This was followed by a descriptive account of the findings and was supported by evidence from the lived experiences of the participants in the study.

## **6.7 Explanation of codes used in data chapters 7 and 8**

An explanation of the component parts of citations used to support the quotes from health professionals and patients are as follows:

### **6.7.1 Explanation of codes used for the health professionals**

Figure 9 below represents an explanation of the component parts of the citations used for the health professionals in chapter 7.

**(Dr Emmanuel M1: 14)**

**Occupational prefix**  
**Pseudonym used to protect the identity of the health professional**  
**Gender prefix**  
**Relates to the interview the data was extracted from**  
**Relates to the line number of the corresponding transcript**

**Figure 9: Component parts of the health professionals' citations**

### **6.7.2 Explanation of codes used for the patients**

Figure 10 below represents an explanation of the component parts of the citations used for the patients in chapters 7 and 8.

**(Joan 2:62)**

**Pseudonym used to protect the identity of the patient**  
**Relates to the interview the data was extracted from**  
**Relates to the line number of the corresponding transcript**

**Figure 10: Component parts of the patients' citations**

## **6.8 Ethical considerations**

In the first instance ethical approval for the project was sought from the Faculty of Education at the University of Plymouth. An ethics protocol was submitted (Appendix 13), along with the appropriate informed consent letters and consent forms (Appendices 4 and 5). Three key ethical issues had to be resolved before the study was approved. The first one related to disclosures of suicidal thoughts when assessing patients' levels of depression, when using a proposed depression level questionnaire. The second related to disclosures of any aspects that could be considered to be a child protection issue. The third ethical aspect consisted of two issues, one related to confidentiality for all of the participants, the other related to discussing patients' medical and health problems.

These issues were resolved in the following ways. It was decided not to use the depression level questionnaire and avoid asking questions specifically relating to depression. However, it was considered acceptable to discuss issues relating to mental wellbeing and psychological health. Child protection issues were addressed by reading the following statement at the start of every patient interview that stated:

“If in the course of the interview a child protection issue emerges, I cannot guarantee confidentiality and may have to take further steps, like contacting social services. If this should be the case I will inform you about the actions I take”

Issues relating to patient and health professional confidentiality were initially addressed by reading out the following confidentiality statement prior to commencing each of the interviews:

“You can be reassured that any information disclosed to me the researcher, will be kept confidential and that it will not be possible to be identified by any of the doctors or any other individuals participating in the study, unless you tell me otherwise. Your participation in this project is voluntary and therefore you may withdraw from it at any time without penalty. You have the right not to answer specific questions and to ask for the tape recording or note taking to stop at any point”

The final confidentiality issue was addressed by asking the patients to consent to consent in writing that they would be happy to discuss their medical conditions and

health problems with the researcher. In addition the researcher had to sign up to the health practices code of conduct. Following these amendments ethical approval was received.

### **6.8.1 Consent**

An ethics protocol (Appendix 13) along with a consent form and information sheet inviting them to participate in the study was sent to all prospective interviewees (Appendices 4 & 5). Written consent was sought and gained in the following areas: for participation in the study whilst understanding that identity would be protected; to audio-record the interview; for the disclosure of any relevant medical information to the researcher (patients); to being contacted again for the follow up interview; and to withdraw altogether or in parts from the project.

### **6.8.2 Consent from patients**

For patients, issues of confidentiality were dealt with in the following ways. Firstly, through the informed consent letter (Appendix 3). This gave assurances of privacy and confidentiality through: the anonymising of interview transcripts; the researcher signing up to the surgery's confidentiality policy; informing the patients that the data will be stored under lock and key; that they could interrupt the interview or leave the study at any time without giving reasons and without any disadvantages; and stating that only the researcher and his supervisors would have access to the raw data.

### **6.8.3 Consent from health professionals**

For the health professionals, issues of confidentiality and privacy were dealt with in the following ways. Initially by highlighting the following information in their consent letter (Appendix 2): by anonymising data; storing data under lock and key; stating that only the researcher and his supervisors would have access to the raw data; and that the researcher would sign up to the practices confidentiality policy. In addition the following statement was read out to all health professionals at the start of every interview:

“You can be reassured that any information disclosed to me the researcher, will be kept confidential and that it will not be possible to be identified by other members of the clinical practices or patients, unless you tell me otherwise. Your participation in this project is voluntary and therefore you may withdraw from it at any time without penalty. You have the right not to

answer specific questions and to ask for the tape recording or note taking to stop at any point”

#### ***6.8.4 Ethical integrity***

As an additional insurance to the ethical integrity of this research project, the methodology was checked against the ESRC (2005) Research Ethics Framework – Research Checklist. The check list consists of 11 questions that required a ‘no’ response for receiving ethical approval without any additional explanation. A no response was given to ten of the questions, with the exception of question 4. Question 4 related to the discussion of sensitive topics. Although the health professionals in the study were not required to discuss any specific patients’ conditions or sensitive subjects, the patients were. The patients were required to discuss issues relating to their physical activity and health behaviours. Therefore, appendix 3 stated what the aims of the study were, and that privacy and confidentiality would be achieved by anonymising interview transcripts. In addition appendix 3 required the patients to consent to have the interview recorded and to disclose medical information to the researcher.

#### ***6.8.5 Ethical approval***

Ethical approval as detailed in section 6.8 was received for this study from the University of Plymouth Research Ethics Committee on the 17/12/2007 (Appendix 14), prior to data collection taking place. For clarification, confidentiality and anonymity has been assured to participants through the use of pseudonyms (names and places were changed at the time of transcription), and personal identifiable data kept secretly on a password protected computer in the researcher’s office at the University of St Mark & St John.

Clinical approval was initially sought from the clinical lead of the practice. However, clinical approval was not needed as the study was an evaluation of an on-going service. What was considered appropriate at the time was ethical approval from the University and signed confirmation that the researcher would adhere to the Plymouth Teaching Primary Care Trust – Confidentiality Policy Version No 1:5 (Appendix 15).

## **6.9 Limitations of method**

Whilst this research project has produced evidence with regard to the long term impact of a practice-based exercise referral scheme, that took place in an area of high social deprivation, several limitations have been identified, and the results should be viewed in light of these strengths and weaknesses. These include the following:

- the study was qualitative in nature and therefore the findings are only transferable to settings similar to the study and not to the population as a whole.
- the interviews for both participant groups took place in the health professional's consulting rooms at the Primary Health Care Centre. This could have given the patients the impression that the study was being conducted by a general practitioner, and may partly explain the high adherence rates to all three sets of interviews that were conducted over the year.
- the health professionals may have been more likely to respond to the questions positively, as that had recently had several areas within the practice converted into a small scale fitness suite and an area for group based physical activity classes.
- the patients were selected for the study based on a convenience sample, selected by the exercise professional that ran the scheme. This may have resulted in only those patients being more likely to adhere to the scheme and attend the interviews being selected for the study.
- the health professionals may have been subject to the Hawthorn effect (Cohen et al.,2005), by giving the researcher answers that they though would reflect more positively on them and the scheme that was run in their Primary Health Care Centre. The patients may have also been subject to the Hawthorn effect (Cohen et al., 2005), by providing the researcher with answers that they believed would reflect their lifestyles more positively.

### **6.9.1 Consideration of the sample size**

Whilst the sample size for this study was relatively small, it was considered appropriate for a qualitative study, as other studies have been conducted in this area with similar sample sizes (Cooper et al., 2005 (n=15); Crone et al., 2005 (n=18); Little & Lewis, 2006 (n=5); Morten et al., 2008 (n=30); Sharma et al., 2012 (n=9); Wiggins, 2009 (n=27); Wormald et al., 2006 (n=16)). In addition similar sample sizes have been used for qualitative aspects of doctoral studies in the area of exercise referral (Baker, 2011 (n=23); Graham et al., 2005 (n=13); Mills 2008 (n=24)). An additional factor for limiting the sample size for this study was its longitudinal design. The data was collected from the patients on three occasions over the course of a twelve month period, and from health professionals twice over an eight month period. This produced 45 sets of data from individual face to face interviews, 33 from the patients and 12 from the health professionals

Research has demonstrated that male patients are less likely to take-up an exercise referral scheme than female patients, with typical take-up rates for males being approximately 33% compared to 66 % for females (Butterly et al., 2009; Crone et al., 2008; Dugdill et al., 2005; Gidlow et al., 2007; James et al., 2010). The ratio of male to female patients in this study was 33% and 66% respectively, which is in keeping with the ratios of male and female patients who participate in exercise referral schemes (Appendices 8 & 9). There is a paucity of data relating to the gender ratios of male and female health professionals referring patients into exercise referral schemes. The limited data that is available shows similarities (50% approximately) between the number of referrals that male and female health professionals make (Graham et al., 2005; Epstein and Ogden, 2005). Although, a recent doctoral study in a related area used a sample of 7 health professionals with a gender ratio of approximately 15% male and 85% female (Mills, 2008). Therefore, the gender ratio of male to female health professionals in this study at 33% for male and 66% for female, could be seen as appropriate as it rests between the ratios found in the published data and those from a related doctoral study.

### **6.9.2 Consideration of the sample of health professionals**

The sample of health professionals used in the study came from those who were in regular practice at the Primary Health Care Centre (PHCC). This did not include any

of the transient GPs who worked at the PHCC, as the centre was also used for training GPs. The clinical lead of the practice informed the GPs about the research project and invited those who were willing to participate to complete a consent form. Consent was received by five GPs and one practice nurse. Therefore, the findings of this study are presented in the context of the health professionals who had between three months and eight years' experience of working with exercise referral. Consequently, the findings from this study need to be considered within this context.

### **6.9.3 Consideration for the site selection**

It has been shown that there are fewer practice managed schemes (32%) compared to leisure centred managed schemes (68%) (Fox et al., 1997), and within the practice managed schemes, very few run their own schemes on site (Fox et al., 1997). The site selected to collect the data for this study was a Primary Health Care Centre that ran an on-site practice managed scheme, although the interventions were delivered by qualified and experienced exercise professionals. The reason for selecting a practice-based scheme was that Primary Health Care Centres have been seen as appropriate venues, due to the numbers of people who visit their GP on a yearly basis; and that health professionals are considered to be reliable sources of advice (Gidlow & Murphy, 2009).

However, there are limitations of practice-based schemes such as the time restrictions that are placed on GPs during the consultation process. This has created doubt as to whether a GP is the most suitable health professional to refer patients into a scheme (Gidlow & Murphy, 2009). Inadequate training of health professionals has also been identified as a barrier to referral (McKenna et al., 1998). Despite the identified limitations of a practice-based scheme, this type of scheme was selected as the opportunity to undertake a study in a primary care setting, that had a fitness centre located within the practice became available. In addition to this it was considered that a scheme that was run in the centre of a deprived local community, was more likely to be effective, as the patients would have easy access to the scheme as most of them lived within walking distance of it. This would also help to answer research question 2, which related to the perceived health benefits and behaviours of patients in an area of high social deprivation.

#### **6.9.4 Methodological limitations**

Within this study the grounded theory method approach was used, instead of a narrative or phenomenological approach. The reasons for its adoption are detailed in chapter 5 (see section 5.4). Whilst the fundamental principles of grounded theory were included in this study (see sections 5.4.2), adaption was required to deal with the challenges of researching within the constraints of the lived experiences of the participants. For example, pure grounded theory involves theoretical sampling that includes concurrent data collection and analysis (Strauss & Corbin, 1998). Although theoretical sampling was not able to be conducted concurrently in this study, themes that emerged from earlier data collections were explored during subsequent data collection periods. This allowed the researcher to understand how the health professionals' and patients' perceptions of the scheme changed over time, and presented the opportunity to analyse evolving themes in more detail than would have been available otherwise. Further research in this area would be beneficial to establish whether any very long term patterns of physical activity behaviour had been established by the patients, and to what extent this had continued to impact on the medical conditions, medication, and access to medical services.

In conclusion, this study represents the development of an investigation and longitudinal analysis of the lived experiences of a group of patients attending an exercise referral scheme, and their referring health professionals. However, this study is open to criticism due to the methodological limitations that have been identified, and the choice of the site used to conduct the study. However, a constructive outcome of this study is that it has identified opportunities to build on the findings. Future research, policy and practice may now be refined, based on the insights gained from this thesis.

#### **6.9.5 Summary**

This chapter has described and justified the method used to collect and analyse the data as a means of answering research questions 1,2 and 3 (see section 1.6), and justifying the aims (see section 1.3) and objectives (see section 1.4) of the study. This chapter has identified how the sample was selected and described the interview procedures for both of the participant groups. Furthermore, this chapter has justified

the use of manual data analysis. Grounded theory techniques have been applied to analyse the data, which is now presented in the following two chapters.

The following chapter is the first of two findings chapters, and presents the qualitative findings through the presentation of a conceptual framework for the phenomena under investigation, patient 'take-up' of a practice-based exercise referral scheme. It provides a response to research question 3 which sought to investigate the processes involved in referring patients into an exercise referral scheme, from health professionals' and patients' perspectives; and research question 4 that sought to investigate the health professionals' perspectives of the impact of their patient's involvement in a scheme. The final part of the chapter discusses the model within the context of existing research.

## Chapter Seven

### Findings: From the health professionals

#### **7.0 Introduction**

This chapter presents the first of two findings chapters relating to the experiences of a group health professionals, and the factors associated with patient take-up of a practice-based exercise referral scheme, located in a South West Devon City with an Index of Multiple Deprivation of 1. The following chapter, chapter eight, presents the findings of the impact of long term involvement with the scheme, on the patients perceived health status.

The use of grounded theory methodology (see sections 5.4 - 5.4.1) enabled the development of the conceptual framework (Table 7), through a range of techniques (see chapter 6). The framework is presented as a model (Figure 11) with supporting themes explained via the lived experiences of participants. This is provided through the use of quotations from the health professionals and patients as a means of enhancing the comprehension of the conceptual framework. In the final section of this chapter, the model is discussed within the context of existing research.

This chapter presents the qualitative findings through the presentation of a conceptual framework, patient ‘take-up’ of a practice-based exercise referral scheme, and provides a response to research question 3. Research question 3 sought to investigate the processes involved in referring patients into an exercise referral scheme, from health professionals’ and patients’ perspectives. Table 6 provides the characteristics of the health professionals who participated in the study.

**Table 6: Health professionals’ characteristics**

<b>Pseudonym</b>	<b>Gender</b>	<b>Ethnicity</b>	<b>Health professional type</b>	<b>Time spent working with ERS (years)</b>
Dr. Allyson	Female	White British	Doctor	2
Dr. Andrews	Female	White British	Doctor	2
Dr. Charles	Female	White British	Doctor	7.5
Dr. Emmanuel	Male	White British	Doctor	1.5
Dr. Preston	Male	White British	Doctor	4
Nurse Cannon	Female	White British	Practice Nurse	8

## **7.1 Components of the core category**

The concept of patient 'take-up' of a practice-based exercise referral scheme was the phenomena investigated, and 'easier referral' emerged as the core category. This category was selected as it best represented how the referral process affected the number of patients being referred into the scheme. The need for an easier referral was the main theme that emerged from the data obtained from the health professionals:

*The paperwork probably is a barrier. It would be nice to have a slightly easier referral system. There can be barriers from the patients as you can suggest it sometimes and they will say I'd be too embarrassed to go to the gym, maybe if they are overweight or that kind of thing (Dr Emmanuel M1: 14)*

The core category 'easier referral' was central to all the other categories, it emerged from the data, and the concept was able to explain variation as well as the main point made by the data, requirements of a core category, as depicted by Strauss and Corbin (1998).

Sensitivity and administrative systems emerged as key properties of the core category as they were central to the two main aspects of the research and had both positive and negative associations with referral uptake. Sensitivity when referring patients for physical activity was identified by the majority of the health professionals as an important property, as an insensitive approach could affect whether the patient took up the referral and jeopardise the doctor patient relationship: '*for people who we stereotypically say are obese, we need to think very carefully about because it is insensitive to say that to some people*' (Dr Preston M1:13). Administrative systems emerged as the second property of the core category. Aspects of this property included access to and use of referral forms, along with the effectiveness of the feedback systems in place as a means of monitoring patient progress. Dr Andrews identified the need for better administrative systems within the South West Devon Primary Health Care Centre, and how this could be a barrier to the referral process. For example, Dr Andrews expressed concern about the referral process saying that there were a number of referral schemes within the Primary Care Trust that all had

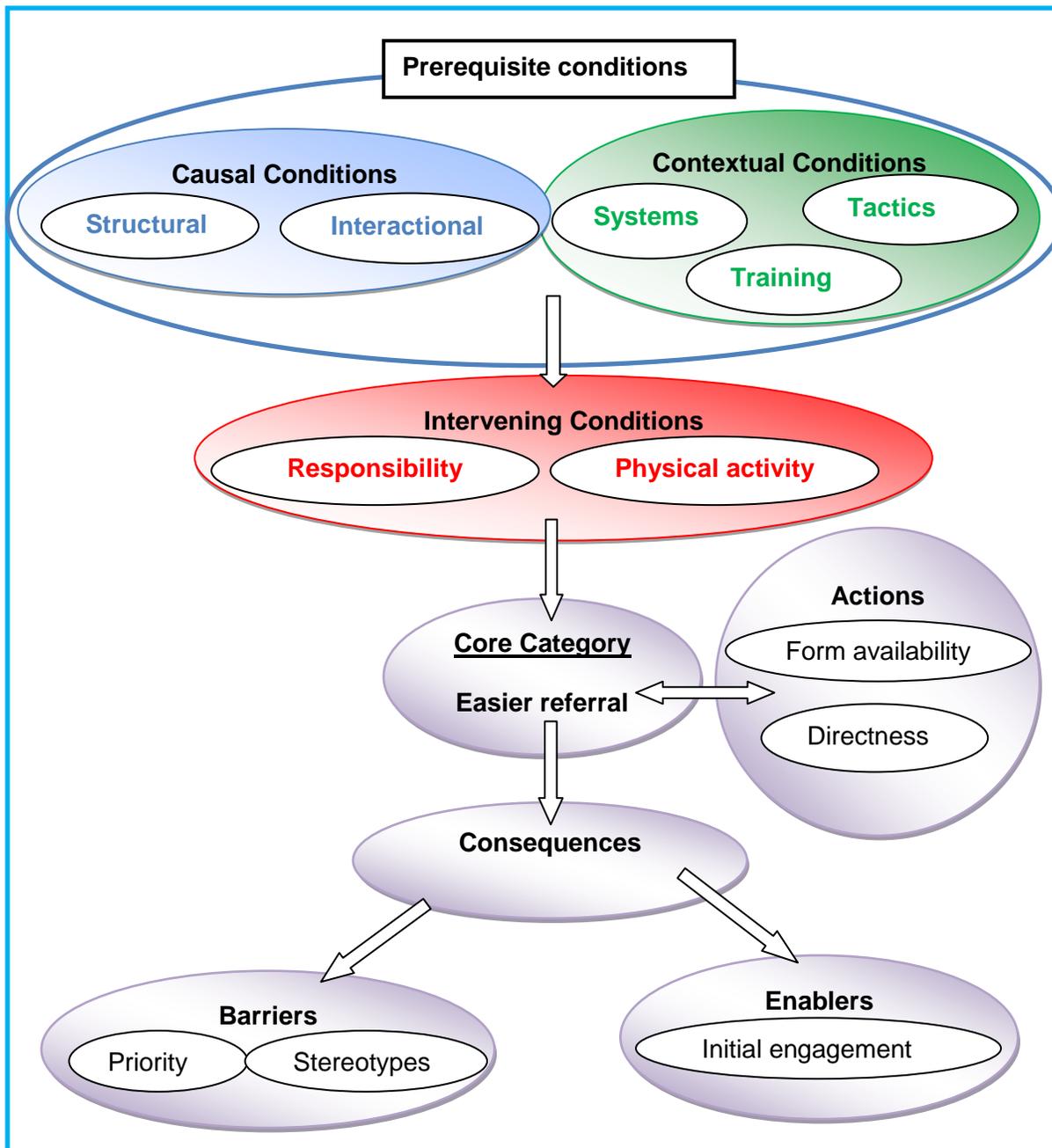
different referral processes, and the information within general practice was continually changing:

*I think there's probably so much information in general practice, it's changing all the time the referral systems and trying to keep up with it. But I certainly think in different areas there are various options, there's the YMCA, Cannons are doing something down at St Pauls. To have a nice, simple, unified referral would make life a lot easier (Dr Andrews F1:4)*

However, the practice nurse who was familiar with the referral process, due to the high levels of referrals that she made into the scheme, believed that an effective system was in place: *'it is as easy as it can get as all they have to do is make a phone call. I think that the system works fine'* (Nurse Preston F2:21).

**7.1.1 Model of the conceptual framework: patient ‘take-up’ and adherence of a practice-based exercise referral**

Figure 11 presents the conceptual framework in diagrammatic form for the phenomena investigated, patient ‘take-up’ of a practice-based exercise referral scheme. The characteristics and links between the themes are explained in table 8 and throughout this chapter.



**Figure 11: Conceptual framework demonstrating patient ‘take-up’ of a practice-based exercise referral scheme**

### 7.1.2 Conceptual framework: patient 'take-up' of a practice-based exercise referral

Table 7: Types and explanations of themes from referring health professionals

Types of themes /categories	Explanation	Emergent Theme	Properties
Core Category	Represents what is central to the research	'Easier referral'	<ul style="list-style-type: none"> <li>• Sensitivity</li> <li>• Administrative systems</li> </ul>
1) Causal Conditions	Sets of events /happenings that influence the phenomena	Structural	<ul style="list-style-type: none"> <li>• Time restrictions</li> <li>• Professional judgment</li> </ul>
		Interactional	<ul style="list-style-type: none"> <li>• Patient characteristics</li> </ul>
2) Contextual Conditions	Sets of conditions that intersect at a time and place which create a set of problems which people respond to through actions/interactions	Systems	<ul style="list-style-type: none"> <li>• Access to forms</li> <li>• Informal feedback</li> </ul>
		Tactics	<ul style="list-style-type: none"> <li>• Wake-up call</li> <li>• Role model</li> </ul>
		Training	<ul style="list-style-type: none"> <li>• Lack of training</li> <li>• Need for training</li> </ul>
3) Intervening Conditions	Conditions that alter the impact of the causal conditions on the phenomena	Responsibility for referral	<ul style="list-style-type: none"> <li>• Health Professional referral</li> <li>• Self-referral</li> </ul>
		Physical activity promotion	<ul style="list-style-type: none"> <li>• Opposing views</li> </ul>
Actions/ interactions	Purposeful acts that are undertaken to solve a problem and in doing so shape the phenomena	Form availability	<ul style="list-style-type: none"> <li>• Regular usage</li> </ul>
		Directness	<ul style="list-style-type: none"> <li>• Initial feelings</li> <li>• Joined the ERS</li> </ul>
Consequences	Range of outcomes	Barriers	<ul style="list-style-type: none"> <li>• Priority</li> <li>• Stereotypes</li> </ul>
		Enablers	<ul style="list-style-type: none"> <li>• Initial engagement</li> </ul>

## 7.2 Prerequisite conditions leading to the core category

The prerequisite conditions that led to the core category combined to demonstrate the context in which the patients were referred into the practice-based exercise referral scheme (Figure 12). The remaining themes were related through 'easier referral' which acted as a focus for both the patients participating in the practiced based exercise referral scheme and the referring health professionals. An understanding of the conditions that led to the development of the core category 'easier referral' provided insight into the health professionals' and patients' experiences of the referral process.

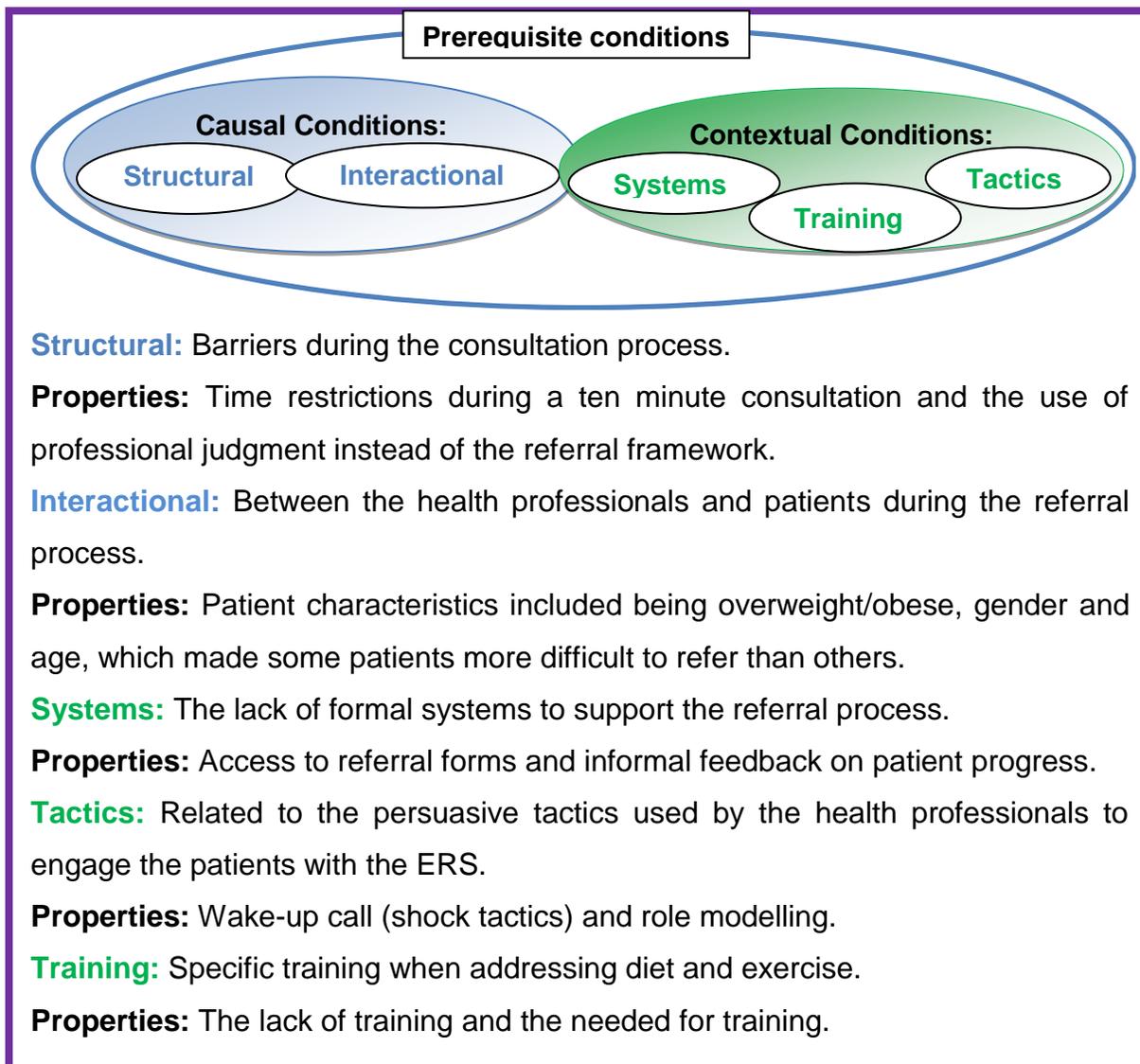


Figure 12: Prerequisite conditions leading to core category development

### **7.2.1 Causal conditions**

Causal conditions were sets of events that influenced the phenomena under investigation, 'patient 'take-up' of a practice-based exercise referral scheme'. Two themes emerged from the causal conditions category; these were structural and interactional themes. Both of these causal conditions had an influence on the referral processes. The properties of the structural condition considered the dimensions of time during the consultation period and administrative systems during the referral process. The property of the interactional condition considered how certain groups of patients were harder to refer than others (Figure 12).

#### **7.2.1.1 Causal condition – structural**

The property of time had both a positive and negative impact on the capacity of health professionals to refer patients into the scheme. Most of the general practitioners found the lack of time available during a ten minute consultation a barrier to referral due to other demands: *'we haven't got time in ten minutes to council everybody about it'* (Dr Andrews F1:48). Time did seem to be a factor for these health professionals whilst for the practice nurse, an extension of the consultation time to 15 minutes was considered an enabler for referring patients into the scheme. Nurse Cannon identified that her Health Visitor background in disease prevention enabled her to encourage patients to take-up the referral:

*The one luxury I have is 15 minute appointments. I am not a GP I'm a Nurse Practitioner so my role is slightly different, and of course I'm coming to it from a Health Visitor background rather than a practice nurse background. So I come very much with a preventive head on* (Nurse Cannon F1:14)

The use of professional judgment was another property of the causal condition, structural. Some of the health professionals preferred to use professional judgment as opposed to the agreed referral criteria, as they believed the referral criteria to be a structural barrier to the referral process. Dr Allyson emphasised that she did not use the referral guidelines: *'I use my own professional judgment. I believe when I first started doing it the format specified you had to tick a box as to which criteria you were referring them under and those were the major ones'* (Dr Allyson F1:6). Health professionals were aware of the referral guidelines and check lists for referring patients, although some of them had different views on the suitability of the

guidelines. Dr Preston thought that the referral guidelines were unsuitable due to their clinical definition of appropriateness and the simplicity of this when considering the impact of conditions on the holistic health of patients. Referral guidelines were particularly inappropriate when referring patients in an area of high social deprivation, as complex psycho-social considerations had to be taken into account:

*You could draw up your tick list in five seconds, but the psycho-social implications present a complexity that makes it much more complicated than it would first appear (Dr Preston M1:15)*

For some such as Dr Emmanuel, professional judgment was considered an important aspect of maintaining good doctor patient relations: *'in reality every time an obese patient came in for anything and you kept banging on about the gym...they would probably go and see another GP. Eventually they would get sick of it; you can push things too much'* (Dr Emmanuel M1:8).

There appeared to be a degree of confusion regarding the referral criteria, and certainly a lack of evidence regarding adherence or an understanding of it. Dr Allyson indicated that she would refer as many patients as possible as long as they met the referral criteria: *'I would refer anybody who I felt would benefit and who meets the criteria, so if they have any cardio vascular risk or obesity'* (Dr Allyson F1:6). A conflicting statement was made by another health professional, Nurse Cannon suggested that minimum criteria were used, and then gave examples of the types of patients she would refer:

*Minimal criteria really... if their mood is low...or have those kind of mental health problems... If they are overweight...If they have got specific high blood pressure, diabetes, clinical conditions (Nurse Cannon F1:6)*

Therefore, there appeared to be a lack of agreement over the appropriateness of the criteria being used and a lack of understanding as to why it existed. Some of the health professionals chose to follow the given criteria, whilst others chose not to, preferring to rely on their professional judgment. This inconsistency in approach was summed up by Dr Andrews who stated that: *'I am not sticking to any specific criteria, whether I should be or not I don't know, but I think it would be a wide benefit for so many patients'* (Dr Andrews F1:8).

### **7.2.1.2 Causal condition – Interactional**

A second group of themes emerged from the causal conditions relating to interactions between the health professionals and patients during the referral process. Patient characteristics were identified as a property of this theme and included two aspects. The first aspect related to obesity and gender, the second to age. Both of these aspects impacted the health professional's ability to refer a patient into the exercise referral scheme. The first aspect of this property related to specific difficulties associated with discussing weight related issues with patients, in particular the perceived difficulties associated with referring obese women: *'It's a harder thing to say to a woman as most females are more sensitive about their weight than a male'* (Dr Allyson F2:52). The second aspect of this property related to age specific barriers. Dr Andrews believed that different age groups presented different problems when discussing the need for diet and physical activity, with young patients needing to be approached with more caution than older patients: *'younger patients are more sensitive about weight problems, older patients are more resigned to the fact'* (Dr Andrews F2:47).

The overweight and obese aspect of the patient characteristics property was perceived by some health professionals as a potential problem, when referring overweight or obese women for physical activity. The health professionals had mixed views regarding gender issues and whether patients preferred to discuss physical activity and weight issues with a same sex health professional. Dr Andrews assumed that patients preferred same sex GPs: *'female GPs tend to see more female patients, who tend to be more sensitive about their weight and image'* (Dr Andrews F2:43). Whereas Dr Charles' view was that health professionals did not think that gender would make a difference to who the patients wanted to see: *'I would say it is fairly close to 50-50 maybe slightly more women, certainly on the diet side of it. The exercise I guess comes in more with the men who have high blood pressure'* (Dr Charles F2:53).

Some of the health professionals identified that there were a lot of overweight men and women living in the area surrounding the South West Devon Primary Health Care Centre, which was located in an area of high social deprivation. These health professionals considered women to present a bigger challenge than men when

discussing the need for diet and physical activity. Dr Allyson believed that women often externalised their weight problems by not taking responsibility for them and blaming other things for their weight gain: *'overweight women are very happy to blame all sorts of things like pregnancy, babies, contraception. They are a tough group to deal with'* (Dr Allyson F2:57). Dr Preston's perspective was that it was harder to discuss weight issues with women, as they were socialised to be more aware of their appearance than men: *'as a male GP I would say it is harder to tell women, it feels harder to tell women. I think women are socialised to be far more aware of what they should appear like'* (Dr Preston M2:48). Dr Emmanuel believed that it was much easier to inform a male patient about the need to diet and exercise: *'you tread a bit more carefully if you have a woman patient, whereas with a bloke you tend to be a bit more direct'* (Dr Emmanuel M2:44).

Health professionals' perspectives on their patient's ability to receive advice on diet and exercise appeared in contrast to that of the patients. The majority of male and female patients found it hard to receive criticism about the need to diet. Yvette highlighted how she disliked the way in which the health professional which she had seen had communicated the need for her to diet: *'I felt like I was a child being told off for something, something I knew. I suppose over the years I have got a bit blasé and not bothered really'* (Yvette 2:59). Len also found it hard to except criticism about the need for him to diet: *'I was amazed, because I didn't think I was overweight'* (Len 2:57). However, Kate did not appear to mind being told that she was overweight, and was resigned to the fact that she had a weight problem: *'well I know I am overweight so it didn't worry me, it wasn't a problem. Some people get upset but I'm overweight and that's it'* (Kate 2:62). Whereas others thought that being overweight would not be a problem as long as they had been active during their careers. Paul believed that because he had always been involved with manual work, he did not need to be concerned with being overweight, despite having arthritis and having to have a knee replacement as a result of being overweight for 20 years: *'it never bothered me as such because I was always active, all the work I'd done was labouring type of work, using up a lot of energy'* (Paul 2:6). Therefore, it appeared that despite health professionals' and patients' differences in gender perspectives when discussing the need for weight control, patients generally found this subject difficult to discuss

irrespective of gender. These feelings were in contrast to being consulted over the need to exercise.

In contrast to being consulted regarding the need for diet, most of the patients did not mind being told that they needed to exercise. For example, Paul stated that: *'I realised that it is something I need to keep my lungs working, also the muscles, so I don't mind being told I need to exercise'* (Paul 2:66). Most patients embraced the advice that they were given. Joan thought that it was a good idea:

*I thought it was a good idea. I had already been to a COPD class before which the hospital recommended so when the doctor said about this one I thought yes, ideal, I think it's a good idea* (Joan 2:62)

Mary however, did not like being told that she had to exercise because it reminded her of PE lessons at school which she had not enjoyed, stating that: *'it was something I always hated when I was at school and if I could get out of doing PE lessons I would'* (Mary 2:61). Therefore, the evidence would suggest that the men and women in this study had mixed opinions about accepting advice on diet and exercise. Furthermore patients found advice on exercise easier to accept than advice on weight management, irrespective of gender.

The second aspect of the patient characteristics property related to how specific age groups affected the referral process. The health professionals identified most age groups as having specific problems associated with taking up the referral. Some of the health professionals considered older children and teenagers to be the hardest group to engage with exercise: *'I would be more careful about telling a teenager they might want to lose weight'* (Dr Emmanuel M2:48); and for Dr Andrews, this was related to sensitivity regarding being told about their body composition: *'younger patients are more sensitive about weight problems'* (Dr Andrews F2:47). Another perspective from Dr Allyson was that some people in the middle age group were reluctant to engage with exercise due to the lifestyle pressures associated with that age group:

*The middle age group, probably between 40 – 60.... come up with all sorts of excuses.... because of how busy they are. They will say I am on my feet all day, I never sit down, I'm always running around* (Dr Allyson F2:47)

The 60 plus age group were considered by some of the health professionals as the largest group participating in the exercise referral scheme. Dr Allyson considered that the difficulties associated with this age group related to the physical problems associated with aging: *'you generally get an excuse as to physically why they cannot: 'It may well be their knees, their hips, their back or whatever'* (Dr Allyson F2:58). Nurse Cannon believed that some patients naturally expected their health to deteriorate as they aged: *'there is a kind of acceptance that their levels of fitness do not need to be so good'* (Nurse Cannon F2:52).

Despite the difficulties associated with the referral of different age groups health professionals believed that advice to patients needed to be individually targeted. Dr Charles was of the opinion that the best way to engage a patient was to establish a relationship, then tailor advice accordingly: *'it's finding something that's personal or specific to them to help to motivate them'* (Dr Charles F2:57). Nurse Cannon thought that referral was a complex process but that individualised specific advice was a key facilitator for engaging patients with the exercise referral scheme: *'it's that complex assessment about where they are now, how motivated they are, how much they perceive it as a problem and how enjoyable it is, if we can finally get them here'* (Nurse Cannon F2:53).

### **7.3 Contextual conditions**

Contextual conditions are sets of conditions that intersect at a time and place creating a set of problems to which people respond to through actions and interactions. Systems, tactics and training were three themes that emerged from the contextual conditions category. The properties of the systems theme related to access to referral forms and the feedback mechanism system at the Primary Health Care Centre located in an area of high deprivation in a South West Devon City. The properties of the tactics theme related to the use of the wake-up call and role modelling, to engage the patients with the exercise referral scheme. The properties of the training theme related to the lack of training given to professionals in order to encourage patients to diet and exercise and whether this was needed.

### **7.3.1 Contextual condition – Systems**

Systems related to the initial difficulties associated with the paperwork process identified by the majority health professionals. The systems theme had three properties which comprised access to forms, informal and feedback. The first of these three properties related to the difficulties associated with the accessing of referral forms. Dr Charles identified that the process of locating the referral forms was problematic, and that it was difficult to locate them in the Health Care Centre when they were needed: *'sometimes it's as simple as that, that we have run out of forms and nobody knows where any of them are'* (Dr Charles F1:17). During the follow up interviews, access to forms appeared to have improved. Dr Allyson stated the referral mechanism had become easier over the previous eight months as an electronic version of the form had been placed on the health centre's intranet:

*Since I last saw you the secretary put the forms on the 'W' drive and suddenly it's much easier, it's not such a time consuming thing to refer somebody. So that has made a big difference for us* (Dr Allyson F2:30)

However, when health professionals were asked if anything had taken place to clarify or streamline the referral process, the majority said that it had not. Conversely Dr Preston indicated that the communication between the exercise and health professionals had improved, through the use of notes being left on the doctors' desks:

*Yes I think it's better. There's a better understanding between the people who run the gym and us definitely. For instance if I refer somebody they don't think is suitable they will leave a little note at the desk* (Dr Preston M2:32)

Furthermore, when asked whether anything had been done to streamline the referral process Dr Preston stated that nothing had changed: *'no I don't think the process has actually changed as far as I am aware'* (Dr Preston M2:32). Despite this contradiction in perspectives it appeared that those health professionals, who referred the most patients on a regular basis, did not perceive there to be a problem. For example, Dr Allyson's view was:

*My feeling is that it's easier, we certainly don't seem to have as many annoying things that come through when you refer somebody. For example, the patient has turned up and whoever has been assessing them*

*at the gym has sent you a thing back saying “will you guarantee that their blood pressure is OK for them to go to the gym”. You sort of feel, for goodness sake you have got the patient there do something positive. I found that really frustrating, now there seems to be much less of that going on (Dr Allyson F2:37)*

This would suggest that regularity of referral was associated with a familiarity with the referral process. Therefore, familiarity of process can be seen as an enabler to referral, with unfamiliarity being seen as a potential barrier.

The second property of the systems theme related to the informal feedback systems between health professionals and patients, in relation to knowledge of whether the exercise referral scheme was working. All of the health professionals believed that the scheme was working, and were able to give examples of success that they had had with their patients. For example, Nurse Cannon stated that: *‘I have patients who have wanted to lose weight who have benefitted from it, also patients with hypertension’* (Nurse Cannon F2:103). Yet the only evidence that the health professionals had for this was through informal discussions with patients, often when the patient was attending a consultation in an unrelated area:

*We do not have a formal feedback system here, it is opportunistic, they will come in and tell you how they have been progressing, as a by-product of coming in to see you for something else (Dr Preston M1:29)*

Dr Emmanuel identified that a more formal system of feedback was needed, and that feedback on patient progress may help the health professionals to refer more patients in the future: *‘feedback would be useful actually, we may be encouraged to refer more people if we got some sort of positive feedback’* (Dr Emmanuel M1:33). When discussing whether the feedback system had improved, eight months later, Dr Allyson indicated that it had not: *‘not formally, obviously you hear about it from a patient but, no I haven’t seen anything else’* (Dr Allyson F2:97).

The lack of formal feedback on patient progress within the exercise referral scheme, was reflected by the patients’ perceptions of their health professionals knowledge of their progress. For example, Pauline stated that:

*I haven't seen my own doctor since Christmas (eight months ago) so she has no idea I am doing this..... I don't know if my own doctor would be interested as she has a lot more things to think about but, I suppose she would be when I tell her (Pauline 2:69).*

Further analysis found a range of explanations for health professionals being unaware of patient progress. These included not seeing the same GP regularly; seeing the practice or specialist nurse more often than the GP; and improvements in health status, leading to a reduce need to access medical services. For example, Joan declared that:

*I did tell the COPD nurse last time I saw her but I haven't seen her for six months. So I haven't really had a discussion with anybody about the classes at the hospital they said I seem a lot better so whatever it is you are doing is good (Joan 2:68)*

In addition to the lack of feedback systems between health professionals and patients, there were no formal feedback systems between health professionals and exercise professionals. Dr Andrews stressed that more effective communication could lead to a better understanding of how the ERS had benefitted the patient: *'it would be nice to know they have actually attended and to basically see how many sessions they have done. It would be nice to have some feedback'* (Dr Andrews F1:33). Further discussion with Dr Andrews eight months later acknowledged that there had not been any improvement in communication systems between exercise and health professionals: *'nothing has changed in relation to making the process easier or more streamlined'* (Dr Andrews F2:27). Despite this, a contradictory perspective put forward by Dr Preston suggested that there had been improved communication between health professionals and exercise professionals: *'there's a better understanding between the people who run the gym and us definitely. For instance if I refer somebody they don't think is suitable they will leave a little note at the desk'* (Dr Preston M2:28). Yet the majority of health professionals believed that communication systems between the health and exercise professionals had not improved over the eight month period. In this sense, there appeared to have been an inconsistent approach to communication between health and exercise professionals, which highlighted the need for a formal feedback system.

### **7.3.2 Contextual condition – Tactics**

The emergent theme of tactics had two properties, 'wake-up call' and 'role model'. The former was as a shock tactic effectively used by some health professionals to get patients to take-up the exercise referral, who had been reluctant to do so. Dr Preston emphasised the need to communicate the message for diet and exercise to his patients, but that this could be difficult as some patients did not recognise that they needed to do it: *'you have got to sell the message in a positive way. You know, if you do this, this and this will change. But it is difficult with some who do not want to recognise it'* (Dr Preston M1:13). The use of shock tactics appeared to be borne out of frustration on the part of the health professional that had a dichotomy between selling the exercise message, whilst knowing that some patients would not exercise. Dr Preston indicated that:

*Sometimes we do bully people into doing it and we know that some will not do it, but we feel that we need to as GP's sell the message of exercise and get them to do it. But that can sometimes upset our relationship with the patients, as sometimes there is that tension there you know* (Dr Preston: M1:38)

Dr Preston felt that the reason why these patients found it difficult to engage with the exercise was because it was not a priority in their lives. Dr Preston was of the opinion that the patients had a range of problems relating to living in an area of deprivation that needed to be addressed first: *'what more can I do for this patient, I know I will refer them for exercise. Knowing that they have a whole host of problems that they need to address first'* (Dr Preston: M1:38). Patients were asked about the way they felt health professionals had tried to encourage them to join the scheme. Some patients were very upset, Mary said: *'I felt absolutely gutted, I think I went home and I cried and cried and cried. I thought, I have got to do something now'* (Mary 1:41). Anne drew attention to the way her health professional had raised the possibility of a reduced life expectancy if she failed to engage with the scheme: *'I was told I would have a good 20 or so weeks to live if I didn't shift myself and do something different'* (Anne 1:8). Despite feeling initially shocked and occasionally traumatized, the patients identified that this was often the wakeup call they needed to engage with the scheme. The shock reaction from the patients initially prevented them from engaging with the scheme. Nevertheless, once the message from the health professionals had

registered with the patients, shock tactics were considered to be a successful method for engaging the patients with the scheme: *'in a way I was grateful the way they did it because it was the wakeup call I needed'* (Yvette 1:8). This could also be a further explanation for the high patient adherence rates over the twelve month duration of this scheme.

Some health professionals indicated how difficult it could be to engage overweight or obese patients into the exercise referral scheme, and how this had the potential to jeopardize the doctor patient relationship. These individuals thought that it was their responsibility to inform patients of the consequences of their actions, even when they were reluctant to accept that they were obese. Dr Charles believed that this was a difficult thing to do and that a careful and sensitive approach was needed: *'if you say, you are obese, you have to phrase it very carefully and sensitively'* (Dr Charles F1:28). Dr Preston identified that an insensitive approach towards obese patients could promote an angry reaction:

*To blandly say that: 'You are overweight and need to exercise' is a difficult thing to bring into a conversation because some of them take that extremely badly, it is like you have just sworn at them* (Dr Preston M1:13)

Therefore, a key finding from this study is that despite the difficulties associated with trying to encourage obese patients to take-up the referral, the use of shock tactics was an effective tool used to encourage take-up of the scheme.

The second property that emerged from the tactics theme was the use of role modelling by one of the GPs. Dr Allyson believed that by putting herself in the position of a role model, she could create a level platform to discuss diet and exercise. Dr Allyson did this through cycling to work and having visual prompts such as a cycle helmet, pushbike and pictures of people exercising in her consulting room. This tactic was also used to help patients take-up the referral, and had the effect of reducing the potential for conflict, previously identified when trying to refer obese patients for exercise. Dr Allyson found that having visual prompts in the consulting room was a good way to: *'break the ice'* when discussing the need for exercise with patients:

*Quite often they will come in to my consulting room and they will see the helmet and say "is that a helmet from your motorbike". So the fact they*

*have asked that question is an opportunity for me to say well no it's for a push bike (Dr Allyson F1:14)*

The use of physical activity-related visual prompts helped patients to initiate discussions on physical activity-related behaviours. By discussing the types of physical activity that she personally undertook, enabled Dr Allyson to engage the patients from a position of a middle aged women who had incorporated physical activity into her lifestyle: *'I cycle everywhere and I share that information with patients then I can say to them I am a fairly ordinary, middle aged woman but, I'm able to take lots of exercise'* (Dr Allyson F1:14). Having discussed with the patients how she had managed to incorporate physical activity into her lifestyle, Dr Allyson was then able to discuss how her patients could do the same thing: *'it's a case of if you really want to do it you have to find something that will work for you. I do think it has quite a positive effect on the patients'* (Dr Allyson F1:14). Dr Allyson was one of the highest referrers into the ERS at approximately two patients a month, and was able to give examples of referred patients that were still exercising eight months after the initial referral, one with depression and the other with obesity.

### **7.3.3 Contextual condition – Training**

The emergent theme of training had three properties. The first related to the lack of specific training for health professionals when discussing weight and physical activity with their patients. The other two properties related to establishing the need for training in this area. Most of the health professionals stated that they had not undertaken any training for dealing with the specific difficulties associated with discussing diet and physical activity, but had had the opportunity to attend conflict resolution training from the Primary Care Trust:

*Not specifically exercise and diet during our training, generally in the consultation was more training. For the PCT we all have to do some mandatory training, conflict resolution and all of that but, not specifically to exercise, weight (Dr Allyson F2:65)*

Dr Emmanuel believed that addressing issues of weight and exercise with patients could be quite difficult and GPs would benefit from group workshops in this area that involved role play scenarios:

*It would be nice to have a group workshop to discuss what would and wouldn't work. I think it would be really useful to get together with other GP's for discussion and a bit of role play, that sort of thing (Dr Emmanuel M2:60)*

Dr Allyson also believed that discussing lifestyle issues such as weight and exercise could be difficult, particularly with patients living in an area of high social deprivation, when they had very little opportunity to change their lifestyle behaviours: '*those sort of lifestyle discussions you have with patients are sometimes the toughest you have, especially if you suspect there's probably not a lot they can do to change their lifestyle*' (Dr Allyson F2:69).

Despite most of the health professionals having stated that conflict resolution training specifically in the area of weight management was a good idea, Nurse Cannon thought that the general conflict resolution training provided by the Primary Care Trust was enough:

*Personally I do not think that I need it, as I am not a confrontational person anyway. I think that conflict resolution training is good training to have, full stop. There is opportunity to do this within the NHS trust (Nurse Cannon F2:61)*

However, Dr Charles believed that the conflict resolution training provided by the Primary Care Trust, whilst suitable for helping receptionists to deal with aggressive patients, would not be suitable for dealing with the nuances, if tensions arose during consultation:

*It's all about patients who come in and have been aggressive with the receptionist and any kind of conflict you can imagine, but putting it in to a context, I don't think would help in this sort of management of this kind of tension (Dr Charles F2:70)*

Furthermore, Dr Charles believed that tensions during consultation were more to do with the difficulties associates with patients making lifestyle changes, than tensions between the GP and the patient:

*I think the tension is within them rather than my relationship with them. So I can be aware of the tension and if I am I have to be really sensitive to that and make it clear I really want to support them through it (Dr Charles F2:66)*

Dr Charles also stated that tension was an essential part of change which was to be expected when challenging a patient to change behaviour, but as long as the GP was

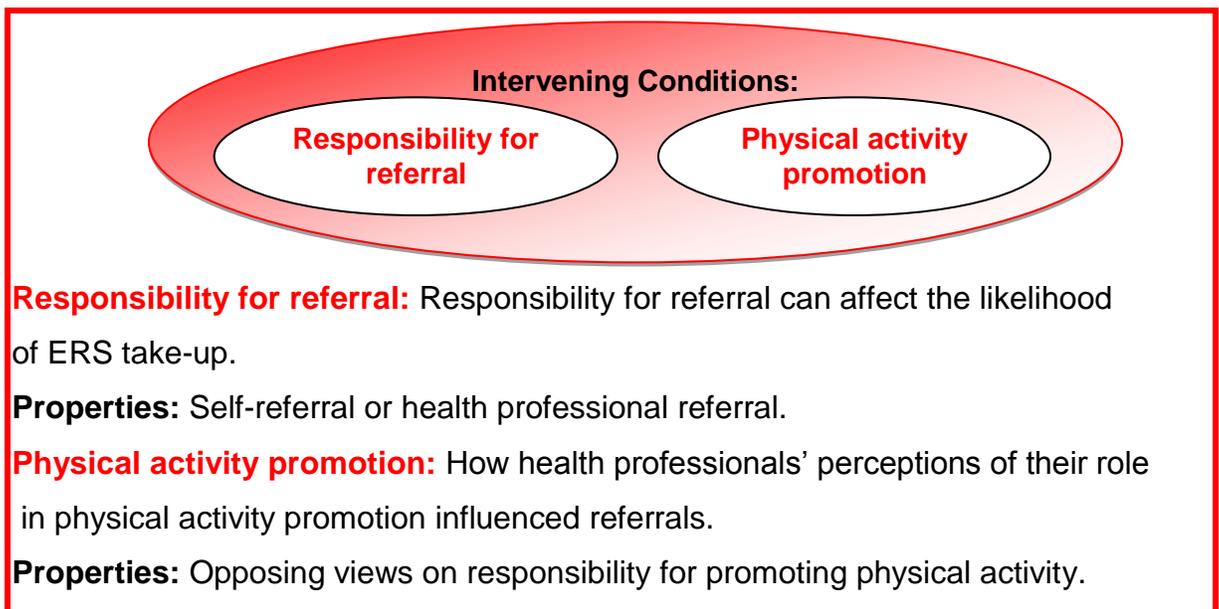
aware of the tension and sensitive towards the patient they were in a position to support them:

*Maybe I should say occasionally there is tension but, tension is almost an essential part of change. Because the important thing is you're challenging them in a way that makes them feel valued or respected and liked and all those things, and that you're there to support them through something that is possibly going to be quite scary for them. Because most people don't want to change their behaviour (Dr Charles F2:66)*

All of the health professionals identified that tensions could arise when discussing the need for diet and exercise with their patients, and that this was to a certain extent, part of the process of behaviour change. The consensus of opinion from the health professionals was that no training had been given to help them, specifically in dealing with the difficulties associated with exercise and weight management. Although conflict resolution training had been offered by the Primary Care Trust, some of the health professionals stated that this was too generic and of little use for them during consultation. The need for specific training to help health professionals deal with issues relating to exercise and weight management were identified.

#### **7.4. Intervening conditions**

Intervening conditions are conditions that alter the impact of the causal conditions on the phenomena. Two emergent themes developed, those being responsible for referral and physical activity promotion (Figure 13). The property of the first intervening condition responsibility for referral, established whether it was the patient's or health professional's responsibility to refer into the exercise referral scheme. The second property of the intervening condition related to the opposing views held by health professionals, in relation to whose responsibility it was to promote physical activity.



**Figure 13: Explanation of intervening conditions that can determine the likelihood of patients taking up the scheme.**

##### **7.4.1 Intervening condition - Responsibility for referral**

There was initial confusion at the start of the data collection process over whose responsibility it was to get the patients involved with the exercise referral scheme. The confusion related to whether the health professionals should refer the patients, or whether the patients should refer themselves. Dr Preston believed that the onus for referral should be with the patients, as taking ownership would encourage patients to adopt a healthier lifestyle: *'there should be more self-referral and detach it a bit from GPs or there is a danger that the patients will not get ownership'* (Dr Preston M1:38). Dr Andrews was unsure of the referral process: *'I think the patients are referring themselves and then they come back with a questionnaire we have to complete, is*

*that right'* (Dr Andrews F1:6). Through further questioning it became clear that most of the health professionals believed that their referral was the key to getting the patients to take-up the scheme:

*I think that it is very important. I think that it is a bit like smoking really, I think that it needs to come with a clear message from all health professionals (Dr Charles F1:38)*

Most of the health professionals believed that after they had referred a patient, the patient then needed to take-up the referral themselves and attend the scheme, at which point the exercise professionals would engage the patients further. An example of this from Dr Andrews was: *'GPs should suggest exercise then the patients have to register themselves and attend'* (Dr Andrews F2:11).

#### **7.4.2 Intervening condition - Physical activity promotion**

On the whole the health professionals believed that they had an important role in the promotion of physical activity. Dr Allyson's view was that:

*I provide people with the evidence about the benefits of exercise in a form that's acceptable to them, and describing the benefits for their heart, lungs, general fitness, emotional fitness as well (Dr Allyson F1:14)*

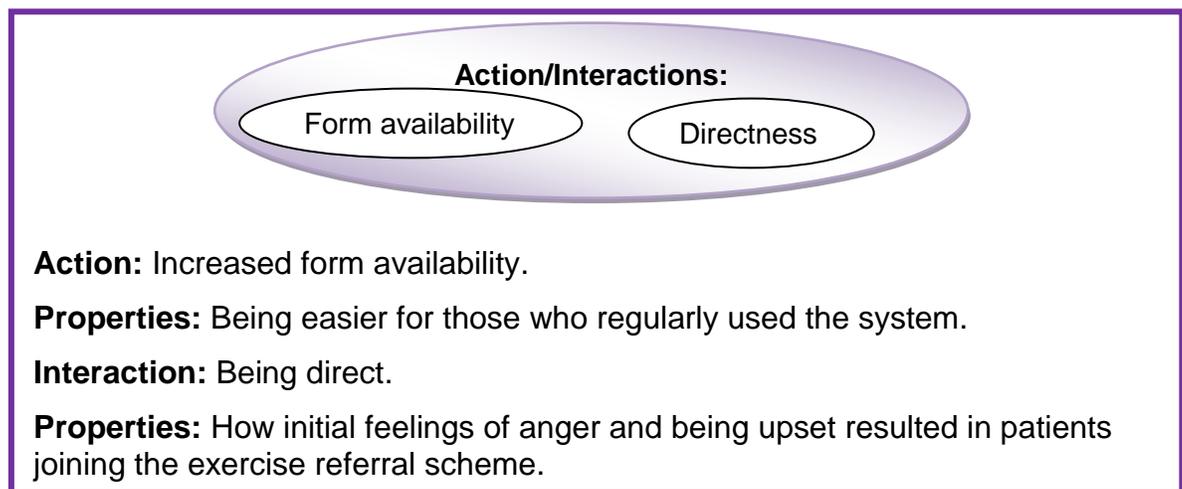
Dr Preston felt that this should come from patients and be centred around empowerment and decision-making for them to change their lifestyle: *'it is about ownership, we can pick up the pieces do what we can but that is all that we are doing, we are not preventing it'* (Dr Preston M1:19). Dr Andrews had mixed views on whether physical activity promotion should be part of the GPs role, initially stating that: *'it's part of what it's all about isn't it? It's about primary prevention'* (Dr Andrews F1:20). However, through further discussion Dr Andrews questioned whether physical activity promotion should be part of a GPs role:

*I think it should be self-referral really it's pointless us doing it I think they need to do it themselves really. We have got to give the information and try to encourage them but, at the end of the day they need to have that initial assessment, they have got to take that initiative really (Dr Andrews F1:23)*

A different perspective on physical activity promotion from Dr Preston, related to self-promotion of the exercise referral scheme, through making it visible to the local community. This was achieved by having an onsite gym at the Primary Health Care Centre, which was visible to other patients entering the building: *'here we are very lucky because we can at least provide the facility, it's here in front of us, they can see it. So in lots of ways it is self-promotion. If lots of practices had a gym on site you might see some differences* (Dr Preston M1:19). Although different perspectives on physical activity promotion were evident, the key message appeared to be that this was central to the health professional's role in primary care health services.

### **7.5 Action and interaction strategies**

Action strategies related to purposeful acts that are undertaken to solve a problem and in doing so shape the phenomena. Two themes emerged as a means of facilitating the core category 'easier referral' (Figure 14); form availability and directness. Further details relating to directness (shock tactics) can be seen in section 7.3.2. The property of the first action strategy form availability, related to how regular use of the referral system made the process easier for the health professional. The property of the second action strategy directness, related to the nature of the interactions between the health professionals and their patients.



**Figure 14: Explanation of the actions and interactions undertaken to solve the problem and shape the phenomena.**

The action strategy 'form availability' was used to make the referral process easier. However, as most of the health professionals referred relatively few patients into the scheme, increased form availability had a limited impact on the core category. Dr

Allyson, who regularly referred patients, noticed how increased form availability had made the referral process easier: *'it's much easier, it's not such a time consuming thing to refer somebody'* (Dr Allyson F2:30).

The second action strategy directness, related to the nature of the interactions between the health professionals and their patients, as a means of getting them to take-up the scheme. The health professionals identified that trying to engage obese patients to participate in the exercise referral scheme could be difficult. The main reason for this was that some patients were in denial about their obesity, and therefore the need to exercise. Directness with the patients, whilst often difficult for the health professionals, was a tactic that was used. For example, Dr Charles stated that:

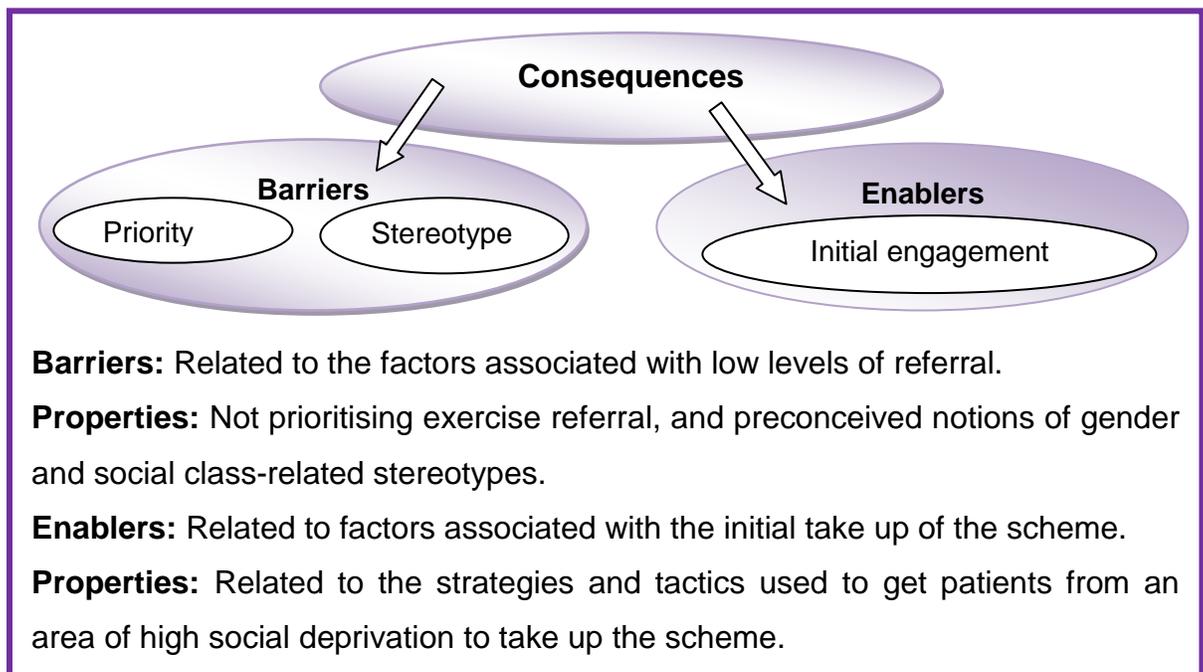
*The commonest reaction is that I do not eat anything. My reaction to this is that that you obviously need to exercise more because what you are eating is obviously too much, you are not burning it off* (Dr Charles F1:28)

Dr Preston emphasised that a consequence of the direct approach was that patients could initially feel upset or angry: *'I have people actually leave the room, stormed out because I have called them obese, but they are'* (Dr Preston M1:13). However, when internalisation and self-acceptance of the message had taken place, it was this direct approach that appeared to give the patients the wakeup call that motivated them to take-up the scheme, For example, Mary said: *'that sort of gave me an eye opener and then of course I developed angina and then I had stents put in and I thought this is a real wakeup call'* (Mary 1:8).

### **7.6 Consequences of the purposeful actions and interactions**

Consequences related a range of outcomes that resulted from the actions and interactions identified above (Figure 14). The two consequences that emerged from the findings were barriers and enablers (Figure 15). The barriers theme had two properties, priority and stereotypes. The property of priority related to whether the health professionals prioritised the exercise referral. The property of stereotypes related to the preconceived views that the health professionals had in relation to the gender and social background of their patients. The enablers theme had one property

that related to the nature of the health professional initial engagement with their patients, during the referral process.



**Figure 15: Consequences of the purposeful acts undertaken to shape the phenomena**

The barriers theme related to the low rates of referrals from the health professionals. The first property of the barriers theme related to some of the health professionals not prioritising the exercise referral scheme, during the course of a busy consultation. Dr Charles believed that more could be done in relation to encouraging patients to take-up the scheme: *‘I would say that probably overall we are not doing as much as perhaps we should do (Dr Charles F1:48)*. The following explanations were identified by general practitioners for not prioritising exercise referral schemes: the lack of formal feedback systems; time restrictions during the consultation; poor access to exercise referral forms; and the complexity involved in determining suitability for referral for patients in an area of high social deprivation. Dr Preston indicated that sometimes it was not appropriate to discuss exercise and diet with patients:

*They would say “why was that important as I do not even know where my next pay check is coming from, my wife has divorced me and my son is doing drugs”. There are hugely complex social issues behind every story (Dr Preston M1:19)*

The second property of the barriers theme related to preconceived gender and social status-related stereotypical beliefs, about the likelihood of certain groups to engage with the scheme. In relation to gender, the belief was that men would find it easier to take advice on obesity, than women. This was in contrast to the patients views that indicated, both men and women found discussing weight issues difficult. Len, a male patient, expressed being shocked when he was confronted with his obesity: *'I was shocked as the only thing I had noticed was my trouser size had gone up two inches'* (Len 2:57). This indicated the need for a more sensitive approach when discussing obesity with men, as well as women. Interestingly, most patients in this study irrespective of gender did not mind being advised on the need for exercise, but found discussing obesity difficult.

The interactional approach of being direct when referring patients in to the exercise referral scheme, presented challenges when referring patients in an area with high levels of social deprivation. Dr Allyson questioned whether GPs should be referring patients for exercise in an area of deprivation, as she believed exercise would come a long way down the patients list of priorities: *'I think diet and exercise would come in, but not until something like five or six down the list'* (Dr Allyson F2:61). Dr Preston believed the reason why some patients would not be able to prioritise the exercise referral scheme was because of bigger psycho-social concerns that needed to be addressed first:

*We do not really understand what it is like to worry about where the next rent cheque is coming from; or where am I going to get the drugs for my diazepam addiction; or what are my job prospect. So a conversation about being overweight and going to the gym is kind of not relevant* (Dr Preston M2:57)

The health professionals in this study believed that social status had an effect on their patient's health. Dr Charles thought that a range of social factors associated with deprivation including: environment; housing; and food and exercise opportunities, all impacted on the health status of the patients: *'it's going to affect things like the quality of the food they eat, the obesity, not taking regular exercise, the stresses of a poorer environment including poor housing'* (Dr Charles F2:75). Another perspective put

forward by Nurse Cannon was linked to how unhealthy attitudes and behaviours can be established in childhood:

*It goes back to diet in childhood and attitudes to exercise but mainly diet really. If you are from a lower socioeconomic background you are less likely to have cooking skills and your parents are less likely to have cooking skills* (Nurse Cannon F2:69)

Some of the views expressed by the health professionals in this study could be considered as barriers to referral, and be an explanation for the low levels of patients referred into the scheme.

The enablers theme related to the interactional strategies and tactics used to encourage patients to take-up the referral, in particular the use of a direct approach to shock the patients into behaviour change. Despite some of the limitations of the direct approach previously discussed, shock tactics appeared to be the main factor associated with successfully engaging the patients with the exercise referral scheme. Dr Charles identified the importance of the health professional's role in the initial engagement of patients: *'I think that it is very important. I think that it is a bit like smoking really, I think that it needs to come with a clear message from all health professionals'* (Dr Charles F1:38). Many of the patients expressed a dislike in the way that some of the health professionals had used shock tactics to shock them into a behaviour change. For example, Kate explained that: *'he could have used a better manner but he was a health fanatic and felt people should all be slim and couldn't care less about anybody being big'* (Kate 2:71). However, after a period of reflection, many of the patients believed that the shock tactic used by their GP was the motivation that they needed to engage with the exercise referral scheme. For example, Yvette stated that: *'in a way I was grateful the way they did it because it was the, call I needed'* (Yvette 1:8).

## **7.7 Discussion: Introduction**

Some of these findings are congruent with previous published research in exercise referral literature. For example, in the areas of gender and age specific participation for exercise referral schemes; referral patterns for general practitioners and nurses; barriers to referral in relation to inadequate feedback and referral systems; and the referral criteria for patients. However, interestingly, by interviewing both patients and health professionals involved in a practice-based referral scheme, new findings have also emerged to compliment this previous research. New knowledge from this research contributes to findings regarding the following: 1) the use of professional judgment instead of clinical referral criteria when referring patients for exercise; 2) gender relationships between health professionals and patients; 3) interactions and tactics used by health professionals during the referral process; and 4) roles and responsibilities of health professionals, when referring patients for exercise. The following discussion examines the findings from this study in relation to existing literature, followed by an analysis of what is new and thus a contribution to knowledge in comparison to published literature to date.

### **7.7.1 Discussion of main findings**

The core category of 'easier referral' for a practice-based exercise referral scheme has resonance with the social determinants model of health (Dahlgren and Whitehead, 1991). Exercise referral schemes can be used to tackle threats to health; encourage health promotion; and enhance health protection (Dahlgren and Whitehead, 1991). The exercise referral scheme was located in an area of high social deprivation, and was used as a means of helping the patients deal with threats to their health, through management of their chronic health problems that had developed due to poor lifestyle behaviours. The scheme was also health promoting which was achieved through increasing the patient's knowledge of the affect that regular physical activity and healthy eating had on their medical conditions and general wellbeing. This was attained by providing patients with an intervention to change their lifestyle behaviour, in essence through health promotion and health education. The scheme had a health protecting effect on the patients in the form of perceived improvements or stabilisation of their medical conditions.

A range of barriers for health professionals referring patients into the exercise referral scheme were identified. One of the barriers related to the time constraints that GPs had during their consultation with patients. The GPs in this study had a ten minute consultation period with their patients, and often felt that this was not long enough to discuss the complexities of exercise and diet with their patients. The Nurse Practitioner, who had a fifteen minute consultation period, referred most of the patients. Similar enablers and restraints have been identified in comparable exercise referral research elsewhere. For example, Dugdill et al., (2005) concluded that although GPs referred more patients into schemes than nurses, adherence rates were higher from nurses due to better interpersonal communication skills and more time to communicate health promotion messages. McKenna et al, (1998) reported that GPs were less likely to promote physical activity than nurses due to time constraints during consultation. McKenna et al., (2005) also identified that in addition to time restraints, a lack of training in counseling skills for physical activity promotion was a barrier to physicians and nurses referring patients into schemes.

Barriers to referral were related to contextual conditions such as the systems used during the referral process. Systems related to the lack of, and need for better communication between key stakeholders in relation to formal evaluation and feedback. Similar weaknesses with communication systems for exercise referral schemes have been reported elsewhere (Gidlow et al., 2005; Graham et al., 2005; Horne et al., 2010, James et al., 2010). One explanation for this is the lack of systematic guidelines for evaluation in the *National Service Framework for Exercise Referral* (Department of Health, 2001) as stated by (Sowden and Raine, 2008). The publication of newer guidelines by the British Heart Foundation (2010) have done little to support health professionals, as they merely suggest that the most suitable patients are those that are inactive and lack motivation. The British Heart Foundation (2010) guidelines state that health professionals could use a combination of tools such as the General Practice Physical Activity Questionnaire (Department of Health, 2006), and cardiovascular disease risk screening tool (Irwin and Morgan, 2003) to help to assess the suitability of patients for referral. However, these are basic tools and unlikely to assist a health professional referring patients into a scheme in an area of high social deprivation.

James et al., (2010) demonstrated high levels of attrition for patients attending schemes in an area with an Index of Multiple Deprivation (IMD) ranking of 2 (Communities and Local Government, 2007). The patients in this study were from an area of higher social deprivation, with an IMD ranking of 1 (Communities and Local Government, 2007). A higher level of deprivation index associated with the patients in this study did not prevent them from effectively engaging with the scheme. Therefore, the severity of the chronic lifestyle diseases of the patients may have been a stronger factor for engaging them with the scheme, than the level of deprivation was at preventing them engaging with it.

The health professionals identified the need for specific training in the area of exercise and weight management, due to the amount of obese patients living in the surrounding community. The health professionals believed that weight management could be a difficult area to discuss with patients. Some of the health professionals had identified that patients could react 'extremely badly' to being told that they were obese. They stated that obese patients often externalised the problem by not taking ownership of it. A contributory factor associated with the high numbers of obese patients in their clinics at the Health Care Centre, was that it was situated in an area of high social deprivation. High levels of obesity have been associated with deprivation (Kinra et al., 2000). Jolley et al., (2011) has highlighted that a lack of experience and limited training provided by the NHS for weight management groups has contributed towards their lack of success. The need for improvements in the training of GPs and nurses in the United Kingdom with obese patients has been identified elsewhere (Cade and O'Connell, 1991; Hanson, et al., 2011; Michie, 2007); as has the global need to improve the training of healthcare professionals to meet the increasing demands and numbers of patients' with chronic lifestyle diseases (World Health Organisation, 2005). Despite the established need for training, the health professionals in this study reported that they had not received any training in this area, since qualifying as medical practitioners. Furthermore, the health professionals reported that what was available through the Primary Care Trust, was not appropriate to meet the needs of patients with weight-related medical conditions. Therefore, there appears to be a discrepancy between the health professionals' needs for training in lifestyle disease management and the training provided by the Primary Care Trust in this area, despite the national and global need for training having been identified.

An interactional barrier that emerged in this study, related to the interactions between the health professional and patient during a consultation. Some of the health professionals identified that the age of the patient could be a barrier when referring them into a scheme. In contrast to the available literature (Dugdill et al., 2005; Gidlow et al., 2007; Horne et al., 2010), some of the health professionals in this study believed that patients in the 60 plus age group could be reluctant to engage with physical activity, due to the physical problems associated with aging. Despite this the average age of the patients in this study was 65 years of age. Although age in isolation is unlikely to be the main explanation for take-up and adherence as numerous factors also come into play such as flexibility with programme timing; types of physical activity; support from exercise professionals; and noticing tangible improvements in health status (James et al., 2009).

### ***7.7.2 What has been learnt longitudinally***

The data collected from the health professionals took place over an eight month period. Interestingly, many of the issues raised during the first set of interviews were once again raised by health professionals as issues or concerns during the subsequent data collection phase. This was interesting as it was considered that over an eight month period some changes to practice and protocol might have been implemented by practice staff. However, it was apparent that little in the way of changes to the exercise referral protocols had taken place. This finding is worthy of note because it demonstrates that changes to working practice in a Primary Care Health Centre can take time to implement.

Concerns and issues raised in both interviews where no changes had taken place and included the following aspects of the referral process: feedback systems; access to referral forms; communication between exercise professionals and health professionals; and training to minimise conflict when referring obese patients for exercise.

Despite the lack of changes to the referral process highlighted by most of the health professionals, two GPs identified that small changes had been made to the referral process. The first change related to an electronic version of the referral form being made available for all health professionals. Although an electronic version of the form

had been made available, most health professionals were unaware of this stating that the forms were still difficult to access. What emerged was that most of the GPs did not refer many patients, although this was in-keeping with referral rates identified elsewhere (Harrison et al., 2005). For the health professional's that referred more patients, the process became easier as familiarity with the system made it simpler to use. The second change related to feedback systems, although still generally opportunistic, one health professional identified that the exercise professional would occasionally leave a note on his desk if they had a query.

Little or no change is deemed an interesting finding as it indicates that changes to protocols take time to implement in a working practice. An explanation for this could be twofold, firstly that referral for physical activity is only one aspect of the many protocols for referral that health professionals have to implement such as for smoking cessation, heart disease, diabetes, etcetera, and secondly each of these referral processes may each be different. This study has shown that from the aspects identified above, very little in the way of changes had been made over the longitudinal data collection period. However, insights had been made into various factors that could enhance the referral of patients into a scheme, along with those that could be considered to be barriers to the referral process. These factors are discussed in the following section.

### ***7.7.3 Main contribution to knowledge***

Four areas were identified in this study that make a unique contribution to knowledge in the area of exercise referral. These areas are: the use of professional judgment instead of referral criteria when referring patients for exercise; health professionals' perceived gender views of obese patient's ability to accept advice on diet and exercise; interactions between health professionals and patients in relation to tactics used to encourage patients to take-up the exercise referral; and health professionals perceptions of their role in referring patients into an exercise referral scheme and responsibility for physical activity promotion.

The first area is that the majority of health professionals stated that they used professional judgment when referring patients for exercise, ignoring clinical guidelines. The health professionals considered that the referral criteria as stipulated

in the *National Service Framework for Exercise Referral* (Department of Health, 2001) were not suitable or appropriate to them. This was due to their clinical definition of appropriateness and the simplicity of this when considering the impact of conditions, on the holistic health of patients living in an area of high social deprivation. An explanation for this is that the health professionals practice had developed over the period of time, between the publication of the *National Service Framework for Exercise Referral* (Department of Health, 2001) and when the data collection took place. This is a unique finding from this study and is in contrast to other studies that have shown a variety of referral criteria for exercise referral schemes including: coronary heart disease risk factors (Fox et al., 1997; Harrison et al., 2004; Harrison et al., 2005; Jones et al., 2005; James et al., 2008; James et al., 2010; Leijon et al., 2010; Pavey et al., 2011); lifestyle-related hypokinetic diseases (Cooper et al., 2005; Cortes and Arthur, 2006; Crone et al., 2008; Dugdill et al., 2005; James et al., 2009; Van Heuvelena et al., 2006; Williams et al., 2009); and the elderly (Ackerman et al., 2005; Buttery and Martin, 2009; Dinan et al., 2006). Despite the need for clearer referral guidelines and evaluation criteria being highlighted in recent years (Sowden and Raine, 2008), and the publication of the British Heart Foundation guidelines (British Heart Foundation, 2010), the health professionals have challenged their effectiveness by indicating that they are not appropriate. This was due to the complex psycho-social factors that needed to be considered, when referring patients in areas of high social deprivation. This is a particularly important finding when considering that patients from areas of social deprivation tend to be referred more often than patients from advantaged areas (Sowden et al., 2008). The implications from this are that more input into training at the local level is required, taking into consideration the socio-economic backgrounds of the patients referred into the scheme.

The majority of health professionals in this study indicated that female patients were difficult to engage with during consultation related to diet and exercise. Most of the health professionals had stereotypical views of gender-related health behaviours, such as how women externalise their weight problems, and can be in denial of how the weight problems had developed. These findings are similar to those from weight management programmes, such as Epstein and Ogden (2005) and Wiggins (2009). Epstein and Ogden (2005) found that some GPs believed their patients were in denial about being obese, and attributed their obesity to either a medical cause or another

external cause. Wiggins (2009) found that practitioners believed obese patients would resist the notion that they were responsible for their weight gain, and blame external events outside of their individual control (Wiggins, 2009). Furthermore, stereotypical views about patients' gender-related behaviours have also been identified as a potential barrier to male patients seeking help from their GPs for chronic conditions. For example, Hale et al., (2010) found that male patients were often reluctant to consult with their GP until late in the course of an illness, to prevent GPs perceiving them as being unmanly. Lack of contact with male patients would explain why fewer males were referred in to the scheme than females in this study. A study on GPs' and district nurses' conceptions of the encounter with obese patients in primary health care, also found health professionals to have stereotypical views about their patients (Hanson et al., (2011). For example, Hanson et al., (2011) found that male health professionals had external explanations for their patient's lack of success with weight management, such as a of lack evidence of the success of schemes and poor organization structures, that inhibited the referral. Hanson et al., (2011) found that female health professionals attributed a lack of success of weight management schemes to internal factors such as personal competences, and a lack of patient self-esteem. Both male and female health professionals in this study identified problems with the structure of the referral system. However, these views were more common with the male health professionals than female. Similarities were also found between this study and that of Hanson et al., (2011) in the way that female health professionals attributed a lack of success to internal factors. The health professionals also exhibited stereotypical gender views of men such as stoical behaviour that prevented men accessing health care services. These views of male behaviour, as a barrier to accessing services have been challenged by Coles et al., (2010), in her qualitative investigation of men's health needs. Coles et al., (2010) found that men generally wanted to access health care services but felt inhibited to do so, because of their lack of experience with accessing the services.

The second unique finding from this study is that the health professionals' preconceived stereotypical views of the gender of their patients, had an effect on the different methods used to encourage the patients to take-up the exercise referral. This study found that the health professionals typically used a direct approach when discussing diet and exercise with men and a cautious approach for women. This

direct approach to weight management by the health professionals is in contrast to that reported by Michie (2007), where it was not perceived to be good practice. The direct approach could also be seen to reinforce the findings of Coles et al., (2010), who highlighted that feelings of stress, embarrassment and fear, during consultation had resulted in low male attendance at health clinics. Both of the approaches (direct and cautious) used by the health professionals in this study were based on their gender-related stereotypical views of their patients. Furthermore, the gender views held by the patients were in contrast to those held by the health professionals. Most of the patients, irrespective of gender, did not mind being informed of the need to exercise. However, male and female patients alike, found taking advice on diet and obesity difficult to accept. The interesting point and contribution to knowledge here, relates to the male patients who found advice on diet and obesity difficult to accept. This could explain why fewer men, who do not access medical services as much as women (Office of National Statistics, 2003), have higher morbidity (Office of National Statistics, 2011) and mortality rates (Office of National Statistics, 2007), are referred into exercise referral schemes, as lifestyle advice is often a subject of the consultation. This would suggest that there is a need for a more cautious approach when referring male obese patients, and less reliance on health professionals' stereotypical perceptions of gender-related behaviours. A more cautious approach could lead to increased numbers of men being referred and taking up exercise referral schemes in the future. This is particularly important when considering the positive influence that physicians can have on motivating patients to attend such schemes (Horne et al., 2010, James et al., 2008), and that twice as many men complete exercise referral schemes than women (Dugdill et al., 2005; Gidlow et al., 2007; James et al., 2008; Lee et al., 2009).

The third unique aspect of this study and contribution to knowledge is related to the use of persuasive techniques, used by the health professionals to encourage patients to take-up the exercise referral scheme. These are in contrast to other findings that have shown health professionals to be reluctant to adopt the role of physical activity promotion with obese patients, over concerns of the adverse effects that this could have on the clinician patient relationship (Epstein and Ogden 2005; Walker et al., 2007). Two specific tactics were used in this study one being the wake-up call the other being role modelling. The wake-up call consisted of being very direct (shocking)

with the patients who were often nearing the end of a diseased process, having received all of the medical interventions available to them. Shock tactics have been used in public health promotion campaigns. For example: smoking cessation (Leshner et al., 2010); alcohol cessation (Lee & Shin, 2011); and sexually transmitted infection prevention (Gangon et al., 2010), albeit with questionable effectiveness. However, there is no literature to date that discusses their use by health professionals within the area of exercise referral in the United Kingdom. However, one study conducted in Sweden has identified that scare tactics have been used to motivate obese patients in primary care, with limited effect (Hansson et al., 2011). Two other studies conducted in the USA have also mentioned the use of shock tactics. One study mentioned that 'provider warnings' for type two diabetes patients had little effect in helping them manage their condition (Matthews et al., 2008), the other study identified that scare tactics could be effective at helping patients to lose weight, but this was dependant on the reaction of the patient (Ward et al., 2009). Shock tactics in this study related to explicitly telling the patients what their life expectancy outcomes would be if they did not take-up the exercise referral. In many cases exercise was seen as a last chance option by the health professionals. The use of shock tactics were initially seen as a barrier to referral and disliked by the patients, who sometimes reacted badly towards the GP by swearing at them and walking out of the consultation. One patient in particular went home and cried following the GP consultation, when shock tactics were used. Several of the patients identified that despite disliking the way that their health professional had broached the subject of obesity with them, they later identified that the consultation were shock tactics were used, was the motivation necessary to engage them with the scheme. Therefore, this tactic identified within the interactions between health professionals and their patients, contributes to knowledge by finding that it can be an effective means of encouraging patients, who are towards the end of a diseased process, to take-up an exercise referral and adhere to it.

Role modelling was another tactic used by a health professional to encourage patients to take-up the referral. By placing visual prompts related to exercise in the consulting room, it was possible to break down the initial barriers when talking to patients about exercise, weight and obesity. To date there is little literature available for comparison, except that of McKenna et al., (1998) and Ribera et al., (2005) who

found that health professionals were more likely to refer patients for exercise if they had a greater understanding of the benefits, through participating in exercise themselves. Using visual prompts during consultation was identified by one of the health professionals in this study, as another way to engage patients on the subject of exercise and obesity, although more research is needed to understand the effect of this from the patient's perspective.

The final contribution that these findings make, relates to the roles and responsibilities of health professionals for exercise referral and physical activity promotion. Health professionals had mixed views over who should be responsible for referring patients into the exercise referral scheme, has not been presented in the literature to date. Some health professionals believed that patients should take some responsibility and ownership for the management of their medical conditions. They believed that ownership would make the patients more likely to attend and adhere to the exercise referral scheme. This was in contradiction to the findings of Hale et al., (2010) who, in their qualitative study on male GPs' views on men seeking medical help, indicated that men were reluctant to self-refer into the health care system. Although some of the health professionals in this study supported the view of Hale et al., (2010) and believed that if the referral was left entirely to the patient the numbers attending the exercise referral scheme would decrease. Other health professionals believed that their initial consultation was an important aspect of the referral process, with evidence that supports high levels of attendance at the first session of an exercise referral scheme from GP referrals (Crone et al., 2008; Dugdill et al., 2005; James et al., 2008). Therefore, this study contributes to knowledge in this field by identifying that health professionals can be biased when referring patients. This however depended on whether the health professional believed that it was their responsibility to refer the patient, or whether this responsibility should lie with the patient.

The final perspective on physical activity promotion related to the self-promotion of the scheme through the on-site gym at the Health Care Centre. The health professionals believed that having patients exercising in the courtyard located in the middle of the Health Care Centre, was a means of self-promotion through increased visibility to all those who attended the centre. The general enthusiasm for physical activity promotion by health professionals could also explain the high levels of

adherence to the scheme over the twelve month period. However, this would not explain the generally low levels of referral that have been identified in this study and elsewhere (Harrison et al., 2005).

#### ***7.7.4 What has been learnt in terms of practice and delivery***

This study has identified how communication between health and exercise professionals, health professionals and patients, along with training for health professionals, could improve the practice and delivery of a primary care based exercise referral scheme.

Communication systems could be improved between the exercise and health professionals. This could be achieved by bi-monthly updates, where basic biometric and cardiovascular data is presented to health professionals from exercise professionals. This would enable health professionals to understand the impact that physical activity is having on their patients. This could be followed by a six monthly review of the patients' medical conditions, medication and access to medical services in the context of the physical activity pathway the patients are engaged with. If health professionals were more informed, through monitoring the impact of physical activity, more patients are likely to be referred into schemes.

Communication in the form of using a direct approach (shock tactics), was shown to be an effective way to encourage some previously hard to reach obese patients, to take-up an exercise referral. Such an approach could be considered to be controversial; as some of the health professional's considered that it may undermine the GP- patient relationship. However, despite this several patients believed that this approach was what made them think carefully about their unhealthy lifestyle behaviours, and identified this as the motivational factor that made them take up the scheme. However, identifying which type of patient would be motivated by this type of approach should be considered carefully.

The health professional's highlighted that conflict resolution training provided by the Primary Care Trust was not appropriate for dealing with obese patients, as patients could react adversely to being told they were obese and needed to exercise. The health professional's identified the need for specific training in this area. Therefore,

training health professionals in the use of brief interventions, specifically to manage inactive and obese patients, could minimise the risk of harm to them. If health professionals were more confident with advising obese patients, it is likely that they would refer more of them into schemes.

A potential training need for health professionals emerged, through the identification of gender stereotypical views of patients and their ability to accept advice on obesity. The health professional's believed that a more sensitive approach was needed with women, and a direct approach was needed with men. However, if such beliefs are held nationally, this could account for the lower numbers of men taking up schemes compared to women. The findings from this study suggest that both men and women find it equally difficult to accept advice on obesity and consequently should both be treated sensitively. Knowledge that both men and women should be treated sensitively and differently could be integrated into communication training for health professionals. In the last few years much more training to Primary Care staff has become available, therefore it is likely that practice in terms of communication and motivating patients is improving.

### ***7.8 Conclusions***

The contribution to knowledge that the findings in this chapter make relate to the following areas:

- the use of professional judgment instead of clinical referral criteria when referring patients for exercise;
- health professionals' perceived gender views of patient's ability to accept advice on diet and exercise;
- interactions between health professionals and patients in relation to tactics used to encourage patients to take-up an exercise referral;
- health professionals' perceptions of their role in referring patients and promoting physical activity.

The following conclusions can be drawn from this study. Health professionals can have a positive effect on patient take-up of an exercise referral scheme, but they can also be a barrier to the referral process. This study has shown that the majority of the

health professionals preferred not to use the recommended referral criteria. They believed that it was too restrictive, when referring patients in an area of high social deprivation. Using professional judgement instead of the referral criteria allowed the health professionals to consider the wider psycho-social issues of their patients, when determining patient suitability for referral, which contributed to the success of the scheme. The use of shock tactics by some health professionals during the referral consultation had the effect of making some patients, that had exhausted the medical and surgical options available to them, take-up the referral and develop a long term physically active lifestyle.

Despite, the effectiveness of the techniques discussed to enhance take-up and adherence to the scheme, the views held by some health professionals were considered to be a barrier to referral take-up. The health professionals understood the need for a cautious approach when attempting to refer obese patients into the scheme. However, the cautious approach was generally used with obese female patients and a direct approach with obese male patients. The basis of the different approaches used was the preconceived views held by the health professionals about male and female behaviour, for example women being more sensitive about weight than men. This may explain the higher number of women and lower number of men who take-up an exercise referral, and that a more cautious approach to male referrals may increase the numbers of men who take-up referrals.

The second aspect considered to be a barrier to referral was the views held by some health professionals in relation to their role in physical activity promotion. The health professionals had different views of whose role it was to promote physical activity. Some believed that their referral was an important aspect of a patient taking up the scheme. Other health professionals believed that if a patient referred themselves, they would be more likely to take responsibility and ownership for the management of their medical conditions. The differences in views may account for the low number of referrals made by the health professionals. This may indicate a gap in the health professional's knowledge of the effectiveness of physical activity interventions, that if addressed may see an increase in the number of patients referred. The following chapter presents the findings from the patient group of participants. The chapter is the second of two findings chapters and presents the qualitative findings through the

presentation of a conceptual framework for the phenomena under investigation, 'feeling better' which was derived from long term patient involvement in the exercise referral scheme.

## **Findings: From the patients**

### **8.0 Introduction**

This chapter presents the second of two findings chapters, and presents data relating to the long term impact of the exercise referral scheme on the patient's perceived health status. Chapter nine brings chapters seven and eight together through an analysis of the implications of the research, draws conclusions and makes recommendations.

The use of grounded theory methodology (see sections 5.4 - 5.4.1) enabled the development of a conceptual framework (Table 9), through a range of techniques (see chapter 6). The framework is presented as a model (Figure 16) with supporting narrative which also presents quotations from participants presenting their views as they experienced and understood the phenomena. The use of quotations from the patients enhances the comprehension of the conceptual framework and provides a richness and depth to the findings. In the final section of this chapter, the model is discussed within the context of existing research.

This chapter provides a response to research question 1 which sought to investigate: the affect that long term participation (12 months) in an exercise referral scheme conducted in a clinical setting, had on high risk patients' perspectives of their medical condition and its management; and research question 2 that sought to understand the perceived health benefits and behaviours of patients from long term (12 month) participation in an exercise referral scheme. This chapter links to the previous chapter that investigated the processes involved in referring patients into a scheme and the health professionals' perspectives of the impact of the scheme on their patients. Table 8 provides the socio-demographic and morbidity details of the patients who participated in the study.

**Table 8: Patients' socio-demographic and morbidity characteristics**

<b>Pseudonym</b>	<b>Gender</b>	<b>Age</b>	<b>Ethnicity</b>	<b>Work status</b>	<b>Morbidity status</b>
Billy	Male	74	White British	Retired	Angina, Diabetes, Arthritis, Hypercholesterolemia.
Carl	Male	68	White British	Retired	Emphysema, Asbestosis, Bradycardia, CHD.
Len	Male	65	White British	Part time	Morbid Obesity, Arthritis, Sedentary.
Paul	Male	65	White British	Retired	COPD, Emphysema, Bronchial, Asthma, Arthritis.
Andrea	Female	60	White British	N/A	Obesity, Sedentary
Anne	Female	67	White British	Retired	Diabetes, Angina, Hypertension, Thyroid, Gallstones, Morbid Obesity.
Joan	Female	68	White British	Retired	COPD, Obesity, Hypercholesterolemia, Emphysema, Bronchial Asthma.
Kate	Female	65	White British	Retired	Glaucoma in both eyes, Arthritis all over, High Blood Pressure, Thyroid, Angina, Deep Vein Thrombosis, Diabetes, Anemia.
Mary	Female	55	White British	Part time	Diabetes, Angina, CHD, Obesity, Hypercholesterolemia.
Pauline	Female	62	White British	Retired	Obesity, Hypercholesterolemia, Hypertension, Sedentary.
Wendy	Female	66	White British	Retired	COPD, Asthma, Emphysema.
Yvette	Female	52	White British	Employed Full time	Hypertension, Hypercholesterolemia, Obesity.

### **8.1 The core category: *Feeling better***

The core category in the conceptual framework was: 'feeling better' which was derived from long term involvement in the exercise referral scheme. This core category was selected as it was central to all other categories, it emerged from the data, and the concept was able to explain variation as well as the main point made by the data, requirements of a core category as describe by Strauss and Corbin (1998). The core category 'feeling better' represented how patient's perceived their health status to have been affected over the twelve month period of engagement. Most of the patients were able to give tangible examples of how they believed that the exercise referral scheme had helped them to manage their medical conditions, which resulted in them feeling better. For example, Mary stated that:

*I feel better in myself. My diabetes is a lot lower than it used to be and my cholesterol is low. Also my heart doesn't pump as hard as it used to when I was walking uphill. So I know it has all had an impact (Mary 2: 91)*

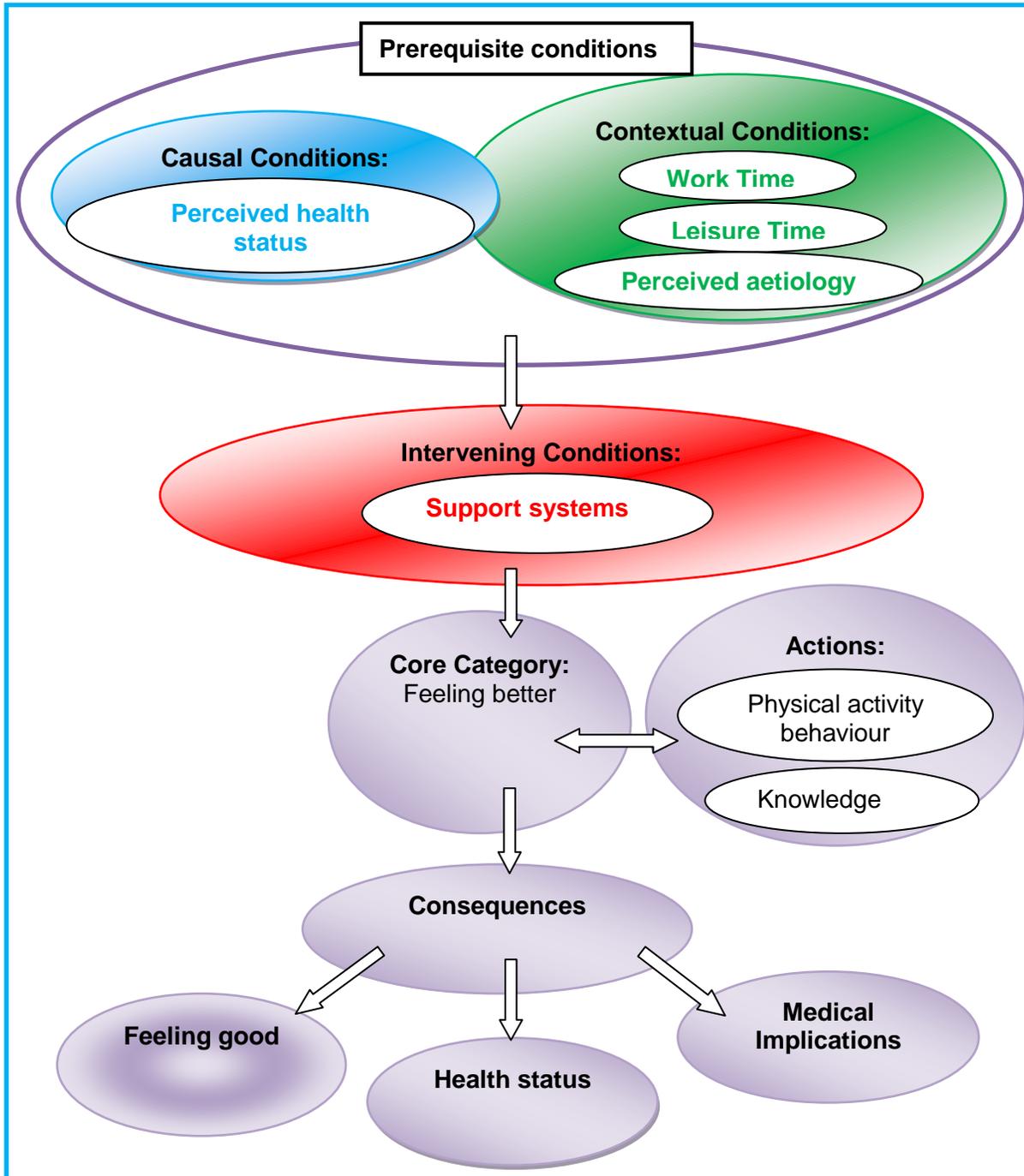
Exercise classes and combined weight loss and exercise, emerged as key properties of the core category as they were central to the two main aspects of the research, and had both positive and negative associations with the patients perceived health status (Table 7). The application of knowledge gained through attending the exercise classes, was considered by some of the patients as having the biggest impact on their perceived health status. Billy believed that it was the exercise that made him feel better, as he was able to apply what he had learnt during the classes to his lifestyle: *'going to the gym and the walking I do, being active. I think the extra exercise has helped'* (Billy 3:23).

Combined weight loss and exercise emerged as the second property of the core category, and was considered by the other half of the patients as having the biggest impact on their perceived health status. Yvette believed that the reason she was feeling better was due to the combination of exercise classes and diet, as this had reduced her blood pressure and enabled her to lose weight: *'basically because I have lost two stone in weight over twelve months. Also it's the change in diet and the exercise'* (Yvette 3: 25).

The patients who were unable to attend the scheme due to an exacerbation of their medical conditions, but still participated in the interviews, described how they had found it difficult to prevent weight gain. For example, Paul commented on how his medication had caused him to gain weight, but he also recognised that his unhealthy eating habits and lack of exercise had a part to play:

*Some of it is down to the fact I am a very fussy eater but I think it is the medication as I am on so many steroids. I think I have stayed within 16½ stone so I have put on just over half a stone in the past 12 months. I put the weight gain down to the medication and lack of exercise. Because of the breathing, as soon as I move I get out of breath (Paul 3:34)*

**8.1.1 Conceptual Model: The impact of long term involvement of an exercise referral scheme on patient's perceived health status.**



**Figure 16: Model of conceptual framework demonstrating how long term involvement in the ERS impacted upon on the perceived health status of the patients.**

**8.1.2 Conceptual framework: The impact of long term involvement of an exercise referral scheme on patient's perceived health status**

**Table 9: Types and explanations of themes from patients**

<b>Types of themes /categories</b>	<b>Explanation</b>	<b>Theme in this research</b>	<b>Properties</b>
Core Category	Represents what is central to the research	Feeling better	Exercise classes. Combined weight loss & exercise.
<b>1) Causal Conditions</b>	Sets of events / happenings that influence the phenomena	<b>Perceived health status</b>	A lot healthier. Deterioration.
<b>2) Contextual Conditions</b>	Sets of conditions that intersect at a time and place which create a set of problems which people respond to through actions/interactions	<b>Work time</b>	Standing up.
		<b>Leisure time</b>	Walking.
		<b>Perceived aetiology</b>	Internal. External.
<b>3) Intervening Conditions</b>	Conditions that alter the impact of the causal conditions on the phenomena	<b>Support systems</b>	The instructors. Family. Other people. Taking part in the research.
<b>Actions/ interactions</b>	Purposeful acts that are undertaken to solve a problem and in doing so shape the phenomena	<b>Physical activity behaviour</b>	Intensity of Exercise. Physiological Responses.
		<b>Knowledge</b>	Exercise. Diet.
<b>Consequences</b>	Range of outcomes	<b>Feeling good</b>	Wellbeing. Change of Environment.
		<b>Health status</b>	Healthier. Fitter.
		<b>Medical implications</b>	Condition. Medication. Medical services.

## 8.2 Prerequisite conditions leading to the core category

An understanding of the prerequisite conditions that led to the core category 'feeling better' provides insight into how long term involvement in the exercise referral scheme impacted upon the perceived health status of the patients. The prerequisite conditions below (Figure 17) combine to demonstrate the context in which the patients experienced the effect of the exercise referral scheme on their perceived health status, and the types of lifetime physical activity that contributed to their medical conditions.

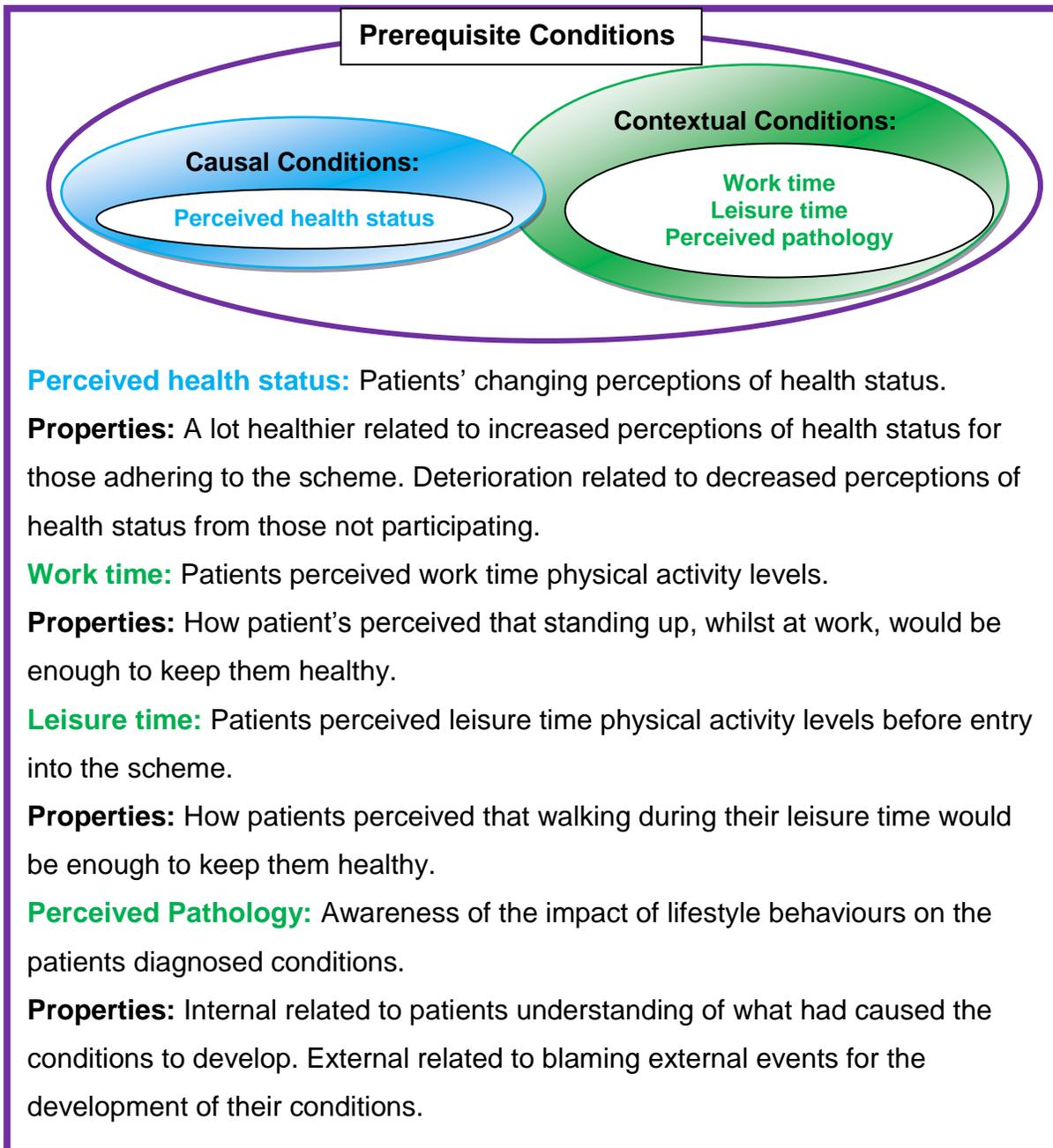


Figure 17: Prerequisites for core category development

### **8.2.1 Explanation of prerequisite conditions leading to the development of the core category**

The prerequisite condition 'perceived health status' is a causal characteristic of the core category 'feeling better'. This characteristic had an influence on adherence to the scheme, as perceived improvements in health status were a key motivational factor for adherence. The properties of the 'perceived health status' prerequisite condition considered the dimensions of feeling 'a lot healthier', for those patients who engaged with the scheme, to 'deterioration' in their medical conditions, for those patients who were unable to continue with the scheme (Figure 17).

### **8.3 Causal condition - Perceived health status**

The property of 'a lot healthier' had both positive and negative associations with the extent to which patients adhered to the exercise referral scheme. Prior to take-up of the scheme all patient's perceived their health status as being relatively poor. Anne considered herself to be very 'poorly' with her medical conditions being life threatening:

*The very first time I went and was sent for exercise I was poorly. I was overweight and had very bad angina at the time. I was told I would have a good twenty or so weeks to live if I didn't shift myself and do something different. So I went straight down and joined the gym and changed my diet (Anne 1:8)*

Within a period of a few months of taking up the scheme the majority of the patients reported increases in self-assessed health status. For example, Marry reported that she now felt 'really good' as a result of the scheme.

*On a scale of 1 – 10 I would say about seven I think. That is how I feel inside anyway. I feel really good. I was first diagnosed with angina and everything about three and a half years ago. But I have been thinking about exercise for about six months and I have been going to slimming world for about three years (Mary 1:43)*

Eight months into the data collection period some of the patients who had taken up the referral, reported maintaining their self-assessed health status, but the majority reported increases in perceived health status. Interestingly, some of the patients, despite having not reported an increase in the numerical value (1 being low and 10

being high) of their perceived health status, reported feeling healthier over this duration of time. For example, Mary felt better because she had lost weight:

*I have lost nearly three stones since 2005 and I am more-or-less keeping it off. In the past 12 months I have lost about a stone in weight so, since I started the exercises I am a good 50 percent fitter than I was (Mary 2: 29)*

Yvette's improvement in health status related to the tangible improvements in fitness status that she was experiencing, both at the gym and when she was walking:

*A lot healthier because I feel a lot fitter with the walking and the gym. I have been moved up to level two which is harder and I do it for longer periods of time. I do a 10 minute warm-up on the bike then I do 12 minutes on the cross trainer, 20 minutes on the treadmill and then back on the bike for a further 12 minutes (Yvette 2: 29)*

Improvements in self-assessed health status were also reported by most of the patients who adhered to the scheme over the twelve month data collection period. For example, Yvette indicated how she now felt twice as healthy as she had twelve months ago, at the start of the scheme: *'I would say about seven to eight now. 12 months ago I would say about four'* (Yvette 3:23). The explanations given by the patients for their perceived increase in health status related to the benefits of the exercise undertaken and weight loss. For example, Joan believed that the 'exercise classes' were the main reason why she felt better but also recognised the impact of her new medication: *'I would say it's the exercise classes that have had the biggest impact. I have also been put on a new inhaler'* (Joan 3:27). Andrea identified how increased levels of knowledge were responsible for her increased perceptions of health status:

*It's been an accumulation of talking with the instructor and thinking about what you are eating as opposed to saying I'll have this and I'll have that. I don't think it's any one thing it's everything. The group used to talk about what they had to eat and when I joined Slimming World, lots of these ideas were incorporated in to that (Andrea 3:29)*

The two patients who were unable to continue with the scheme had lower levels of perceived self-assessed health status at the start of the study, than those who had taken up the scheme. Both of these patients (husband and wife) had previous

experience of the scheme but had to stop just before the start of the data collection period due to an exacerbation of their medical conditions. For example, Paul reported feeling as healthy as somebody could be with emphysema and bronchial asthma, but also being frustrated at not being able to exercise:

*As healthy as possible for the illnesses I have got and hopefully I can improve with the exercises. I get very frustrated. I can't do a lot of simple things that other people take for granted. Not being able to put a pair of socks on, I get out of breath (Paul 1:30)*

Despite the deterioration in their medical conditions, eight months into the data collection period, Paul and Kate were still attempting to go for short walks as a means of achieving some form of exercise. For example, Kate stated that:

*We still do our walks down at the Pier or on the Moors when the weather is fine. We walk as far as we can, of course if the weather is bad we still try to do it. We were down there the other day and it was blowing a gale but we still managed to walk halfway along but, if it's too windy your breath goes. We take our time so it takes us about 20 minutes to half-an-hour. We try to walk the full length of the Pier which is about 200 meters there and back. Depending on my husband we try to do this three or four times a week (Kate 2:11)*

These two patients were still not able to attend the scheme, and continued to report low levels of self-assessed health status. Indeed both Kate and Paul reported deteriorations in their medical conditions. For Paul it was a slight deterioration with his breathing: *'I walk for about 20 -30 yards and have to stop then I carry on again. I can't breathe, my chest gets tight. We go out for about an hour or so perhaps but it is getting harder over time'* (Paul 2:9). Whereas Kate, who had multiple lifestyle-related diseases, found that her numerous hospital appointments prevented her from taking part in the scheme: *'I have been having on-going blood tests and have been on antibiotics. I have also been under the doctor and hospital having different tests'* (Kate 2:9).

In contrast to the way that the patients who were adhering to the scheme reported feeling healthier, these two patients reported feeling less healthy than they were eight months previously. Paul reported a slight deterioration in his Chronic Obstructive Pulmonary Disease (COPD): *'I'm very very slightly worse than when I met and spoke*

*to you last. It's only very slightly. I go to see the chest nurse on a regular basis, perhaps every two months. I went there two weeks ago and I have deteriorated very slightly in the last 12 months'* (Paul 2: 31). Perceptions of health status continued to remain low with these two patients up until the end of the data collection period, at the 12 month point. Kate felt that her health had not improved over the 12 month period, and believed that the reasons for this were due to her arthritis and shortness of breath:

*It's the arthritis and I get very short of breath. It's my body, there is so much going on with it. It's the arthritis and I get very short of breath. It's my body, there is so much going on with it* (Kate 3:27)

Paul's explanations for his perceived deterioration in health status related to his diseases and the lack of treatment options that were now available to him: *'It's the disease I've got, it's never going to improve unless some new medicine comes along then it's just going to get worse year-by-year'* (Paul 3:28). Paul, who was considered to be towards the end of the diseased process for COPD, acknowledged that he was taking all the medication that was available to him, but that this was often not enough to prevent the recurrent chest infections:

*I am on the maximum that's available at the moment so, over the past 12 months it has remained consistent. The only difference is the steroids where I can take more or less depending on my condition. In the past 12 months I have been taking more steroids because if I have an infection I would take 30mgs a day for 7 days to try and help my breathing, but now I am taking 40mgs a day to try and increase my breathing* (Paul 3:77)

There appeared to be a link between the reported self-assessed health statuses of these patients and adherence to the scheme. Those who attended the scheme reported improvements in perceived health status, whilst those who could not attend reported a decline in perceived health status. Whilst it must be acknowledged that the data from this study is not transferable to a larger population, it is transferable to similar schemes within a primary care context. However, further research in the area could substantiate the perceived health benefits of this type of exercise referral scheme.

## **8.4 Contextual conditions**

Contextual conditions are sets of conditions that intersect at a time and place creating a set of problems to which people respond through actions and interactions. 'Work time' and 'leisure time' activities, along with 'perceived pathology' were three themes that emerged from the contextual conditions category. The properties of the work time theme related to the patients' perceived work time physical activity levels. The properties of the leisure time theme related to patients' perceived leisure time physical activity levels. The properties of perceived pathology theme related to the patients' awareness of the medical conditions that they had been diagnosed with, and an understanding of how lifestyle behaviours may have impacted on the development of their diagnosed medical conditions.

### **8.4.1 Contextual condition - Work Time**

The emergent theme 'work time' had one property 'standing up'. This related to how some of the patients had identified work-related physical activity undertaken during their manual employment as their main lifetime exercise behaviour, before take-up of the scheme. Common patient occupations included store man, cook, baker and waitress, all of which involved 'standing up' or being on their feet for long periods during the day, and often heavy manual lifting. Paul gave the example of the manual lifting that he done on a daily basis as a store man:

*I was a very manual worker, everything was what we called hard board. There were no forklifts like there are now and there was no limit on what you were allowed to pick up as there is now. Most of the stuff was 1cwt bags and it was carry it on your back and lift it with your arms from the floor, so it was all very physical (Paul 1: 21)*

Anne identified how being on her feet all day as cook had prevented her from wanting to participate with physical activity outside of her working environment: *'when you are a cook you walk miles around a kitchen all day so you don't want to do exercises when you get home'* (Anne1: 17). Billy highlighted how as a foreman in the dockyard he was used to being physically active: *'walking around all the different areas and the dockyard which is a big place, going up and down steps so there was quite a bit of activity going on. I did a lot of walking'* (Billy 1:48). However, Billy also identified how his chronic smoking habit had led to his angina, and how the angina had prevented

him from continuing his physically active lifestyle: *'before I had the angina I did quite a bit of walking. I think it was smoking that caused the problems as I used to smoke 15 – 20 a day for 25 years or so'* (Billy 1:21). Furthermore, Billy also highlighted how fear associated with managing his angina had led to the development of a sedentary work based lifestyle:

*I think it was fear with the angina which I have had for about 20 years. I went in to the Hospital and the way they spoke down there was they told me I need to pack up smoking, which I did over 15 years ago now. I used to drive so I wasn't really doing a lot of walking either* (Billy 1:19)

There appeared to be a general lack of understanding by the patients, in relation to the types and intensities of physical activity necessary for health gains. Some of the patients believed that being on their feet for long periods of time whilst at work, would be enough to keep them healthy, and therefore negate the need for additional physical activity in their leisure time. However, other patients were aware of how unhealthy lifestyle behaviours had prevented them from becoming physically active.

#### **8.4.2 Contextual condition - Leisure Time**

The emergent theme of leisure time had one property 'walking'. This related to the most common type of physical activity behaviour given as an example from the patients, prior to referral into the scheme. Leisure time activities included housework, shopping, weight lifting, dog walking and swimming. However, the examples that the patients gave tended to be either sedentary, very low intensity, or infrequent in nature, all of which involved very little physical exertion. For example, Paul identified fishing as a physical activity: *'I also used to like a drink because of the dust and such. I also went fishing'* (Paul 1: 21); whereas Mary considered a stroll to the local shops as a leisure time activity: *'I used to walk down to the local shops and that was about it. It took about ten minutes and I did it once a day. It was a leisurely stroll'* (Mary 1:51). Anne gave the example of swimming in the sea as a child as her leisure time activity:

*I have always been a swimmer as when I was little I lived by the beach so started to swim when I was three and have continued to swim since. We have always gone to the beach and the cold water in the sea didn't bother me, now I just swim mostly in the summer. I used to swim, on average, once or twice a week (Anne 1:19)*

Walking often involved walking to the shops, along a short coastal path or walking the dog, although the intensity of walking appeared to be very low or of a short duration. Paul and Kate would take approximately 30 – 45 minutes to cover a distance of 300 meters. For example, Paul stated that: *'I go for a walk along the pier or along the sea shore at the beach. I walk for between 30 and 45 minutes and try to do this most days depending on the weather.'* (Paul 1: 24). Kate, who was Paul's wife, considered that the 30 - 45 minute walk was enough to keep them fit, despite only covering such a short distance during this time period: *'we do go out for a walk down to the pier, so I generally consider myself to be fairly fit'* (Kate 1: 6). Going for short walks was also a theme identified by Carl, as was going out for a stroll with his grandchildren: *'I also go walking around the block which is about one mile and I take my grandson up on the moors usually about once a week'* (Carl 1:26).

One patient had been regularly attending gyms for a number of years prior to joining the scheme. Carl was introduced to gyms several years previously, as his wife had won a joint three year gym membership from a Sports Council competition. Despite Carl's regular participation in exercise his health status had deteriorated. Carl who was a Chronic Obstructive Pulmonary Disease (COPD) sufferer had previously believed that using resistance training techniques (weight lifting) would improve his health status. Carl stated that *'after I retired I went to the gym five times per week on average. I like doing exercises, I like weightlifting, I don't like the cardio side but I do it. I used to like lifting the heavy weights'* (Carl 1:7)

Interestingly, the dog walkers' physical activity levels appeared to be directly related to the health of their dog. As the patients' dogs aged, their dogs became less active. This behaviour was mirrored by the patients. For example, Yvette stated that:

*There's certain exercises I can't do because I have arthritis but, we used to have dogs and I was always out twice a day with them. Since we have not had the dogs I thought well what's the point, I don't need to go out for walks so I didn't (Yvette 1:18)*

Whereas for Pauline, the synchronisation of dog and owner physical activity patterns were linked to the development her dogs heart disease:

*I think it was because of Freckles (our dog); she was ten and a half and didn't want to go anywhere because she had a heart problem, so we never really went anywhere as she either came in the car with us or we stayed in. She never wanted to go out, she never wanted to be exercised and she couldn't because she has this heart failure. I do like walking, I love walking but when Freckles was still alive she never wanted to go and would just look at the lead and hide under the table. Then we just didn't want to leave her for a long time so we just didn't go anywhere unless it was in the car (Pauline 1:23)*

The patients in this study had a misconception of the types of physical activity both during their work and leisure time that needed to be carried out, in order to accumulate health benefits over the course of their lifetime. This misconception, along with the lack of engagement with the correct type, frequency, intensity and duration of exercise, can be seen as one of the causes of the chronic lifestyle diseases that they had developed over time.

#### **8.4.3 Contextual condition - Perceived Pathology**

The emergent theme of 'perceived pathology' had two properties these being 'internal' and 'external'. Internal related to the patients understanding what had caused their conditions to develop. External related to the patients who blamed external events for the development of their conditions. Most of the patients' medical conditions were in two specific areas. These two areas related to conditions that had developed due to smoking and obesity. Only a few patients were able to internalise the reasons for the development of their medical conditions. For example, Carl was fully aware of the impact that smoking had had on the development of his COPD: *'emphysema was definitely due to smoking as being conservative I smoked 60 a day. When I was trucking in Germany it could go to 100. I smoked for about 28 – 30 years'* (Carl 1:31). Mary, who had obesity-related medical conditions that included heart disease and diabetes, understood how they had developed:

*The diabetes is my own fault because I have always eaten loads and loads of sweets and chocolate and things like that when I was growing up. You know you go to the sweet shop as you do; the more I could get for my money the better I liked it. I put that down to my own doing (Mary 1:22)*

More patients externalised the reasons for their medical conditions than those who internalised them. Some of the patients, who had developed smoking-related health problems over a long period of time, blamed external events for the cause of their COPD. For example, Wendy blamed her COPD on a flu epidemic:

*I think I had asthma and emphysema because there was a flu epidemic going around when I was about 42 or 43. I was still quite fit in those days and I had this flu and I seemed to go downhill after that. Within a couple of years I was having x-rays on the chest and that was when it was diagnosed I had asthma. They told me I had asthma because I was smoking. Personally I think it was more related to the flu problem rather than the smoking (Wendy 1:22)*

Whereas Kate thought that her obesity-related medical conditions were hereditary:

*A lot of it runs in the family, one of my brothers who is dead now had three or four heart bypass operations, a couple of my other brothers have had strokes, my sister has had all her joints done. My mother died from a stroke and my father died from a stroke. It's all in the family even the high blood pressure it's all hereditary (Kate 1:22)*

In summary, the majority of patients in this study had a lifetime misconception about the types, frequency, intensity and duration of physical activity needed to accumulate health benefits. This was both during work and leisure time. In addition most of the patients externalised the reasons for their health problems, not taking responsibility for how they had developed over time. Therefore, the lack of understanding of the correct physical activity behaviours along with a lack of understanding of how their health problems had developed, combined to compound the multiple medical conditions that they had been diagnosed with.

## 8.5 Intervening conditions

Intervening conditions are conditions that alter the impact of the causal conditions on the phenomena. The emergent theme that developed related to how a number of support mechanisms enabled long term patient adherence to the scheme (Figure 18). The properties of the intervening condition ‘support systems’, established how the patients had been supported during the course of the exercise referral scheme, along with who had provided the support. The support for the patients came from four different sources those being the instructors; other people; unhealthy people; and taking part in the research.

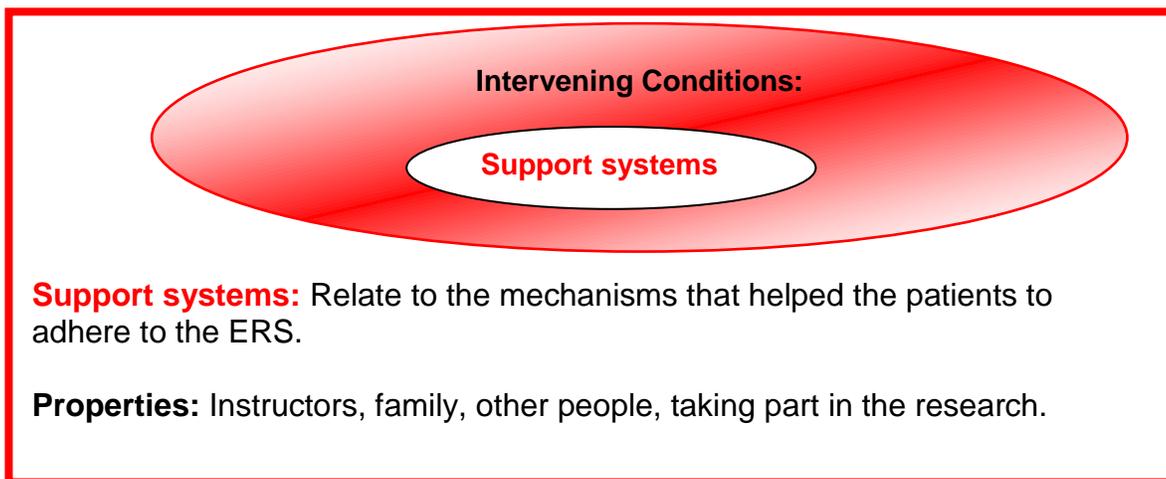


Figure 18: Explanation of intervening conditions that influenced patient adherence to the scheme

### 8.5.1 Property of intervening condition – Instructors (exercise professionals)

The patients generally believed that the exercise professionals had created a safe and fun environment for them to exercise. For example, Billy stated that by creating safe environment for him the instructors had given him the confidence to engage with the exercise referral scheme: *it is the support and encouragement of the staff and self-perseverance that keeps me going. I also feel safe and secure as they will not let me over do things* (Billy 2:7). The majority of patients believed that the exercise professionals were a key motivation factor for adhering to the scheme. Wendy highlighted how the instructors had motivated her, by helping her to work out the sequence of the exercises: *the instructors here are all very good. They tell us which exercises to do and their support motivates us* (Wendy 3:16). Whereas Yvette felt that it was the friendliness of the exercise professionals and the way that they let her

develop at her own pace, that had motivated her adhere to the scheme: *'it's the friendliness of the staff. They encourage you, they didn't push you to do things you couldn't or didn't want to do'* (Yvette 3:17).

### **8.5.2 Property of intervening condition - Family**

Most of the patients identified 'family' support as an important support system. 'Family' support mostly came from the patient's spouse and was provided in a variety of ways. The first form of support related to how the patient's spouse joined them on their walks and helped them to manage a healthy diet. For example, Anita mentioned how her husband would walk with her and discouraged her from eating unhealthy foods: *'he walks with me and will discourage me from eating say a cream cake. He is a lot better with the diet than I am'* (Anita 3:71). Carl said that his wife was his main form of support which came in the form of helping him to manage his diet: *'my wife, she threatens me, she keeps an eye on me and tells me if I have put on weight then puts me back on a diet'* (Carl 3:65). Whereas Wendy said that it was her sister that supported her by encouraging her to do her exercises: *my sister, she encourages me to do my exercises* (Wendy 3:63).

### **8.5.3 Property of intervening condition - Other people**

'Other people' related to the support that the patients gave each other as friendships developed over the duration of the scheme. Meeting new people and developing friendships were key aspects of this property. Pauline identified how meeting new friends had encouraged her to attend: *'I have met quite a few people since I have been coming to the gym. I have made some friends and it's a nice place to be'* (Pauline 3:18). Mary said how developing new friendships with people within the local community had motivated her to attend the scheme: *it's the camaraderie. There's a good crowd who come, we all know each other and we all live on the estate which is brilliant'* (Mary 2:7). Anita highlighted how working in small groups made the sessions fun which had encouraged her to attend: *'I think it was working in a group. There were seven of us and it was fun as well as it helping us'* (Anita 3:17).

In contrast to making friends and supporting each other, seeing patients who were further along the disease process was a motivational factor for some patients. Pauline

said that seeing other patients whose condition was worse than hers, made her want to continue with the scheme:

*There are quite a few people who come to the gym who are very very poorly. Some of them can't breathe properly, some are diabetic and perhaps if they had done something earlier they wouldn't be the way they are now. So seeing those other people with very bad breathing conditions and diabetes makes me want to carry on (Pauline 2:94)*

Carl identified that seeing his friend's (outside of the scheme) health deteriorate over the years had motivated him to continue with the scheme: *'when I see some of my mates I think, we went to school together and look at the state of you'* (Carl 2: 6). Therefore, seeing people who were unhealthier than they were, was a motivation factor for attendance for some of the patients.

#### **8.5.4 Property of intervening condition - Taking part in the research.**

The property of 'taking part in the research.' related to the patients' perceptions of the effect that 'taking part in the research' had had on their adherence of the scheme. Mary had expressed how it was good to be able to talk to somebody about things that they would not normally be able to discuss: *'it's good to be able to talk about stuff I wouldn't normally talk about* (Mary 3:87). Whereas Billy identified that the interview process had encouraged him to carry on with his exercising: *'coming down here and talking to you gives me the encouragement to carry on with exercising'* (Billy 3:78).

## 8.6 Action/interaction strategies

Action strategies related to purposeful acts that were undertaken to solve the problem and in doing so shape the phenomena. Two themes emerged as a means of facilitating the core category 'feeling better' (Figure 19); 'physical activity behaviour' and 'knowledge'. The properties of the first action strategy 'physical activity behaviour', related to the patient's understanding of the application of the exercise intensity necessary for health gains, and the short term 'physiological responses' experienced by the patients during exercise. The properties of the second action strategy 'knowledge', related to the patients understanding of the impact that the scheme had on their medical conditions.

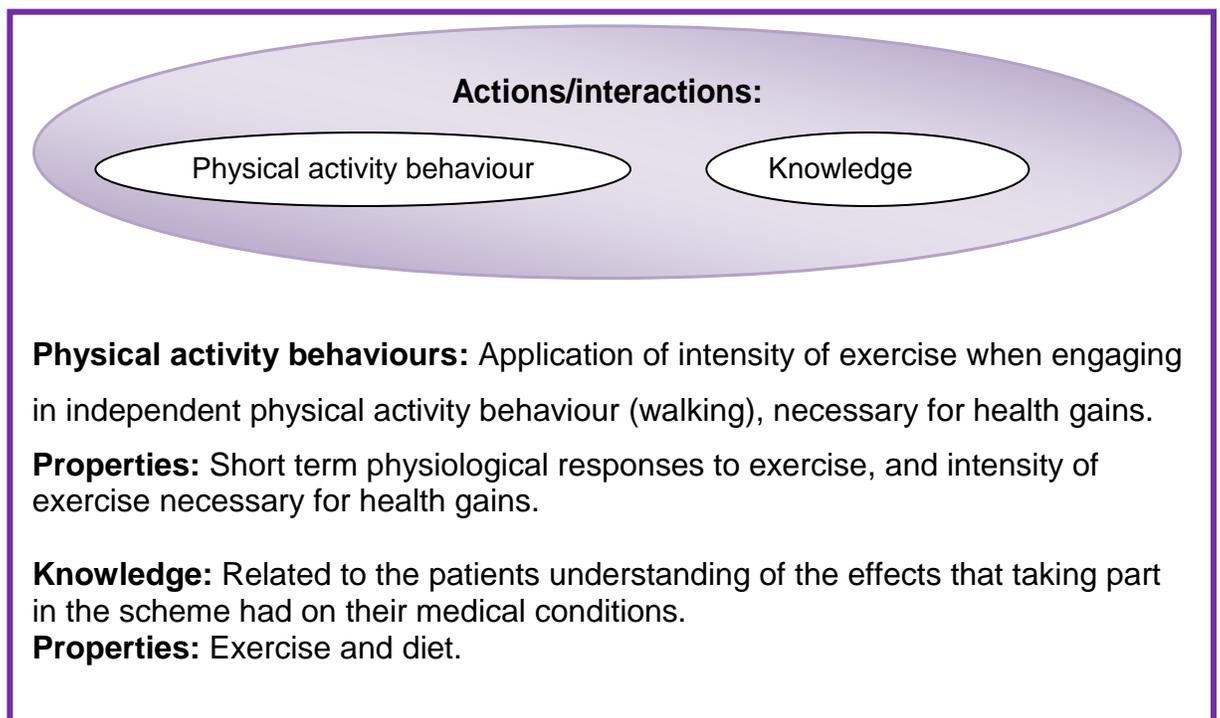


Figure 19: Explanation of the actions and interactions undertaken to solve the problem and shape the phenomena.

### 8.6.1 Action/interaction strategy - Physical activity behaviour

The action strategy, 'physical activity behaviour' related to how the patients learnt exercise behaviours had enabled them to apply the correct types and the correct 'intensity of exercise' for health gains. During the group based exercise classes, some of the patients were able to give examples relating to 'physiological responses' to exercise, which demonstrated they were exercising at an appropriate intensity. For example, Mary who was an angina sufferer explained how she knew that she was

exercising at the correct intensity, because her heart rate had increased, her breathing was under control and she was not in any pain: *I can feel my heart beating faster but I am not in any pain so I think that is fine and I can hold a conversation while I am walking and I'm fine* (Mary 2:21). Paul knew if he had been working at the correct intensity because he would have a higher peak flow score on the days that he participated compared to those when he was unable to: *I can get a higher score if I used a little bit more effort, then my peak-flow will go up at the end of the day*' (Paul 2: 23).

Half way through the data collection period, the majority of patients were also able to give examples of how they were able to apply the exercise intensities they had experienced in the gym, to their independent physical activity behaviours (walking). The majority of these examples related to short term physiological changes. For example, Andrea knew that when she was slightly out of breath she was walking at the correct intensity: *I've never thought about it, although I am not a slow walker. I did get out of breath when I went to Drakes Passage* (Andrea 2:32). Several patients knew that to work at the correct intensity for health gains, they had to keep up the intensity. Pauline knew when she was walking at the correct pace because she felt good at that point: *I try to keep a good pace up as I really do love walking. I can feel the energy when I'm walking briskly, it's a feeling of wellbeing*' (Pauline 2: 22). In contrast to Pauline, Billy used hill walking as a means of keeping up the correct intensity: *I don't walk very fast but we live on a hill so I will walk up that*' (Billy 2: 22). However, Wendy appeared to misunderstand the concept of intensity and gave an example relating to duration of exercise:

*I've got one of those step monitors that I put on when I go out and when I go to the gym. I was advised to do 5000 a day but I have never reached that target* (Wendy 2:22)

Yvette's method of keeping up the intensity was to rely on her husband to set the pace for her, thereby allowing him to determine the exercise intensity. Yvette believed that this was an effective method of exercising at the correct intensity:

*When I do go out walking it's for about an hour and my husband is an ex-marine so he knows the level at which I am exercising. I can now walk further before I have to stop (Yvette 2:21)*

Two patients had been going to other gyms for a number of years, prior to engagement with this practice-based exercise referral scheme. Despite their participation in regular exercise they had experienced deteriorations in health status. Both of these patients had previously believed that using resistance training techniques (weight lifting) would improve their health status. It was not until they had engaged with the exercise referral scheme that they realised that cardiovascular exercise is more appropriate for health gains. For example, Billy recognised that cardiovascular exercise could also build endurance muscle strength:

*I am only doing the bike and the walker at the moment. That's the only two I can do because I can't get down on the rowing machine. So I am doing that for about an hour and I'm finding that it's strengthening and building up the muscles (Billy 1:15)*

Carl who had Chronic Obstructive Pulmonary Disease (COPD) and Coronary Heart Disease (CHD) had cut down on the weight he had been lifting and incorporated cardiovascular exercise into his regime. Through doing this he had noticed an improvement with his breathing:

*Before I did weight lifting whereas now I do cardio exercises. The cardio is better for me as it makes my breathing better, I am still doing the weight lifting but I have cut down on the amount of weight I lift (Carl 3:25)*

After switching to cardiovascular exercise and incorporating walking into their lifestyles both Carl and Billy had experienced improvements in health status. These two patients' were then able to understanding the type and intensity of exercise that was appropriate for helping them to manage their medical conditions.

### **8.6.2 Action/interaction strategy - Knowledge**

The second interaction strategy 'knowledge', related to the patients understanding of the longitudinal effects of the scheme on their medical conditions. Most of the patients that had continued to exercise over the 12 month data collection period, were able to

demonstrate that their knowledge had increased. Wendy was able to identify that the scheme had enabled her to understand more about her COPD:

*I think I am a lot more knowledgeable so I would say about 7 or 8 out of ten. When I started I would say around about 2 out of ten. I feel more comfortable now when I am talking about my illness and knowing what's wrong with me (Wendy 3:26)*

As with exercise, the patients had developed an understanding of the importance of diet in the management of their conditions, and how their knowledge of this had also increased over the twelve month period. Andrea felt that she now knew more about diet than she had done twelve months ago. She attributed this to talking to the exercise professionals at the Health Care Centre, and applying what they had told her, to her lifestyle:

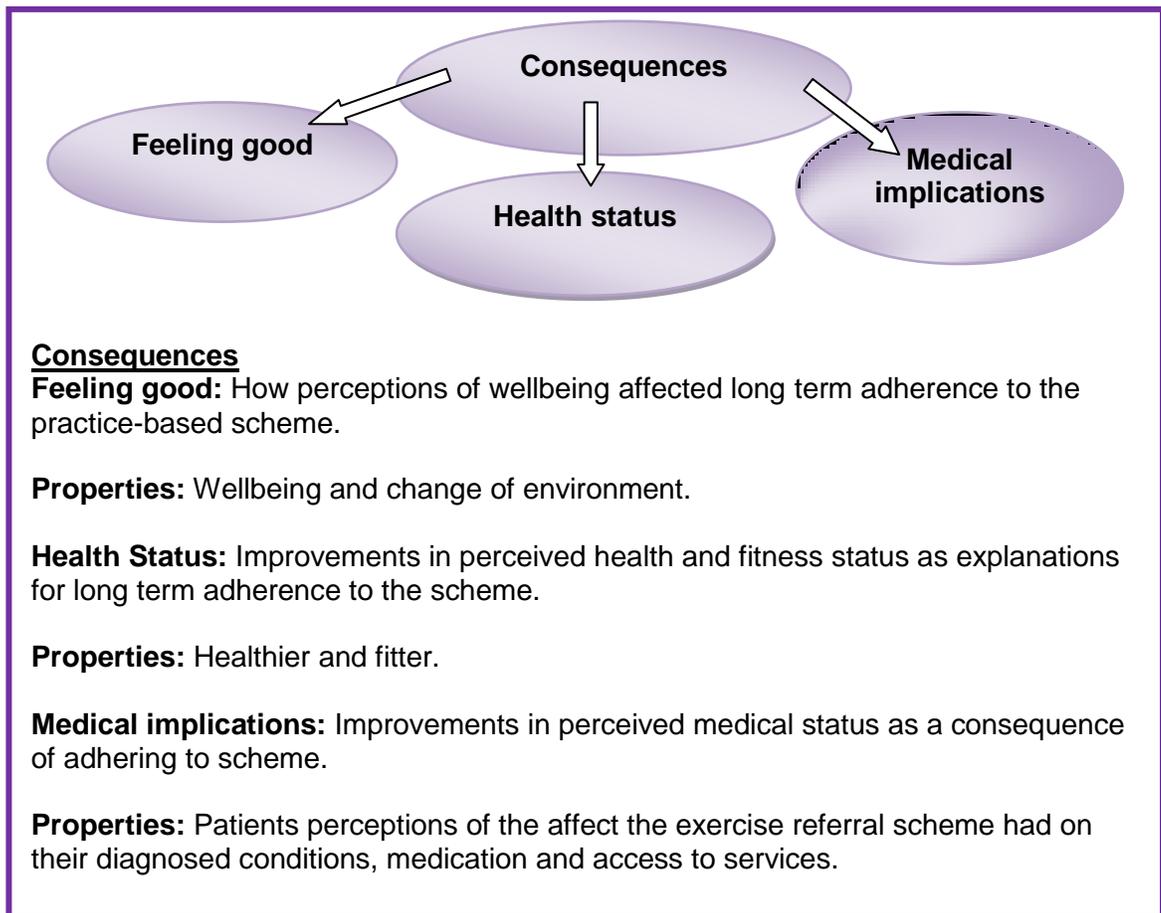
*I would say a lot more, about eight out of ten. Twelve months ago I would say about five out of ten. It's been an accumulation of talking with Sophia (instructor) and thinking about what you are eating (Andrea 3:27)*

Mary was able to demonstrate that her knowledge of exercise had increased to the extent that she could incorporate exercise into her lifestyle, by making it part of her daily routine: *'I have worked it in to my daily routine and it is working'* (Mary 2:19).

### **8.7 Consequences of the purposeful actions and interactions**

Consequences related to a range of outcomes that resulted from the actions and interactions identified above (Figure 20). The three consequences that emerged from the findings were 'feeling good'; 'health status'; and 'medical implications' (Figure 8.5). The 'feeling good' theme comprised two properties 'wellbeing' and 'change of environment'. The property of 'wellbeing' related to when the feelings of well-being occurred. The property of 'change of environment' related to what the patients did as a means of elevating their mood state, when they were feeling low. The 'health status' theme also had two properties, 'healthier' and 'fitter'. The properties of this theme related to the patients perceived improvements in health and fitness status that had developed over the duration of data collection period. The 'medical implications' theme comprised three properties, 'conditions'; 'medication'; and 'access to medical services'. The properties of this theme related to the patients perceptions of how the

scheme had affected their medical conditions, the amounts of medication they had been taking, and their access to medical services.



**Figure 20: Consequences of the purposeful acts undertaken to shape the phenomena.**

Some patients identified that they had started to feel good between two and four weeks after starting the scheme. For Wendy this occurred almost straight away: *'I was told exercise would help with my problem so this is why I went. I enjoyed the classes and wanted to know where I went from there, so I enjoyed it right from day one'* (Wendy 3:30). Mary had noticed that her feelings of wellbeing coincided with when she had started to do more walking, independent from the exercise classes: *'after about three or four weeks, about the same time as I started doing a bit more walking'* (Mary 3:47). For others, feelings of well-being did not manifest themselves until they had been engaged with the scheme for between two and three months. Joan found it difficult to recall when the feelings of wellbeing had started to occur, although Joan was able to identify that she felt better after she had been for a walk: *'it's very hard to remember, I would say possibly about three months. Yes, because I*

*find if I don't go for a walk I have missed out, as I do feel better afterwards'* (Joan 3:44). Joan was a COPD sufferer, which may explain why it took longer for her to feel the benefits of the exercise, as her condition would have made it particularly difficult to attempt aerobic exercise.

Having attempted to establish the onset of the feelings of well-being with the patients, they were asked if they could identify the duration of these feelings. The majority of patients indicated that they experienced feelings of well-being when exercising. The feelings of well-being tended to be on the day of exercising and for the following 48 hours. Pauline was able to give the following example: *'all that day and a few days after. Because you are feeling that, you never really lose it so you are feeling good all of the time'* (Pauline 3:46). However, for Wendy, her feelings of wellbeing manifested 48 hours after the day of exercising: *'I have felt it a few times on the day but mostly it has been the day after. It generally lasts for a couple of days after I have been to the class'* (Wendy 3:38). The effects of these enhanced mood states, brought about through the exercise classes, increased the patients exercise self-confidence. Increased exercise self confidence enabled some of the patients to take-up additional physical activities. For example, Yvette who had also been taking ball room dancing lessons and had developed enough confidence to attend her first ball:

*I have been doing ballroom dancing for 18 months now and it is really good exercise. I actually went to my first proper ball at Christmas and had the confidence to go on to the dance floor all dressed up in a ball gown with my hair and make-up done which was fabulous* (Yvette 3:39)

As the patient's self-confidence increased, they started to enjoy the exercise more. Enjoyment of the exercise classes then became a motivational factor for adherence to the scheme. For example, Pauline identified how the enjoyment of the exercise was a greater motivational factor than meeting new friends:

*I enjoy going and I've met quite a few friends since I've been coming. The same people come every class. I enjoy the exercise which is important and the socialising comes second* (Pauline 2:7)

Having identified that the exercise had led to enhanced feelings of well-being, some of patients explained how they often went out for a walk if they were feeling low, as a

means of enhancing their mood state. For example, for Pauline this had involved taking her dog out for a walk: *'if I feel a bit low I put the dogs on their leads and we go out for a walk (Pauline 3:79)*. For Yvette, her walking involved walking around the shops: *'I go for a walk, a drive, a bit of retail therapy. I go with my mum and walk around the shops just to get out' (Yvette 3:75)*. The majority of these patients had subconsciously engaged with various forms of physical activity as a means of lifting themselves when they were feeling low, which mainly involved walking.

The second consequences theme that emerged related to perceived health status. Perceived health status related to tangible improvements in health and fitness as a result of long term adherence to the scheme. Most of the patients had reported that they perceived themselves to have become healthier over the twelve month duration of the data collection period. At the start of the data collection the patients' general perceptions of their health status, on a scale of 'one to ten' (one being very unhealthy and ten being very healthy) was around six out of ten. Joan put this down to her age, she was 68 at the time: *'on a scale of one to ten, I would say about four and a half, not very healthy but I think it's your age as well' (Joan 1:10)*. Whereas Yvette, who had started the scheme three months before the data collection period, felt that she was not as healthy as she would have liked to have been: *'not as healthy as I could be but, healthier than I have been. On a scale of one to ten I would say about six. I have been doing the exercise scheme since about September' (Yvette 1:6)*.

Eight months into the scheme the patients' perceptions of their health status had increased to an average of seven out of ten. By the end of the data collection period at twelve months, perceptions of health had continued to increase to an average of eight out of ten. The two patients, who had not been able to engage with the scheme due to exacerbations of their medical conditions, demonstrated either no improvement or a decline in perception health status. Paul put his decline down to an exacerbation of his COPD and the lack of any new medication available to help him manage his condition:

*Twelve months ago I would say about seven now I would say about five. My health has deteriorated. It's the disease I've got, it's never going to improve unless some new medicine comes along then it's just going to get worse year-by-year (Paul 3:26)*

Many of the patients were able to give examples of how they had become healthier over the twelve month period. Most of the examples that were given related to tangible improvements in health status that the patients had been able to recognise. Pauline knew that she had become healthier because her high cholesterol and blood pressure levels had fallen:

*I am definitely a lot healthier now. My blood pressure is perfect when before it was quite high, my cholesterol is fine. Everything really, I just feel so much better in myself (Pauline 2:29)*

Wendy, who was a COPD patient, knew that she had become healthier because her chest felt better, a view supported by the asthma clinic that she attended: *'I think I am definitely better even though I have had a couple of setbacks. My chest feels better, I have it checked regularly at the asthma clinic'* (Wendy 2:31). Patients were also able to give examples of why they felt fitter. For example, Yvette knew that she had become fitter because she was able to do more advanced exercises:

*I feel a lot fitter with the walking and the gym. I have been moved up to level two which is harder and I do it for longer periods of time. I do a 10 minute warm-up on the bike then I do 12 minutes on the cross trainer, 20 minutes on the treadmill and then back on the bike for a further 12 minutes (Yvette 2:29)*

The final consequences theme 'medical implications' related to the patients' perceived improvements in their medical status as a consequence of adhering to the scheme. All of the patients, who engaged with the scheme over the twelve month period, were able to give examples of how it had positively affected their diagnosed medical conditions. For example, Mary knew that the exercise referral scheme had improved her diabetes, cholesterol and angina:

*My diabetes is a lot lower than it used to be and my cholesterol is low, also my heart doesn't pump as hard as it used to when I was walking uphill, so I know it has all had an impact (Mary 2:91)*

Whereas Carl, who suffered from emphysema, was able to talk about how he could now walk for much longer periods of time:

*I would say nine out of ten, because I couldn't walk up stair and had to sell the house to move to a bungalow. Now I can do a walk which used to take me an hour in 25 minutes (Carl 3:61)*

Len was able to give an example of symptom based evidence to support his views. Len explained how the exercises had helped to strengthen the soft tissue injury in his hip, and how this had prevented him having to have a hip replacement:

*I was diagnosed as having a hip problem which was thought might need a hip replacement. Over the period of time with various x-rays they discovered I haven't got a hip problem, it is possibly a muscle or ligament problem. The exercise in general was to control that and I no longer take medication for that (Len 3:68)*

The second property of the medical implications theme related to how longitudinal adherence to the scheme had either reduced some patients medication, or for the majority of patients, stabilised their medication. Joan, a COPD sufferer, said that the scheme had enabled her to stop taking one type of medication and significantly reduce the other one:

*I used to have a nebuliser but I don't use that at all now. I don't use the Ventolin inhaler as much now either. The dose has been reduced by about three quarters (Joan 3:70)*

Billy also attributed the exercises that he had done over the years to his reduction in medication, highlighting that the exercises had helped him to manage to deal with stress: *'I haven't used the angina pump for about four years now, because the exercises I do help me deal with stress'* (Billy 3:48). Len had also identified that the exercise referral scheme had enabled him to significantly reduce his medication for his hip problem and his heart condition: *'I would say my medication has been reduced by about 80 percent. My medication has been reduced for the hip problem and one of the heart tablets has also been stopped'* (Len 3:68). Whilst reductions in medication were not prominent for all of the patients the majority had reported how their medication had stabilised over the twelve month duration of the scheme. The important point here is that none of the patients, who attended the scheme for the duration of the twelve month period, had any increases in their medication. Interestingly the two patients who were unable to engage with the scheme due to

exacerbation of their existing medical conditions had increased their medication over the twelve month data collection period. For example, Paul explained how his chest infections had increased over the 12 months resulting in an increase in his medication:

*In the past 12 months I have been taking more steroids because, if I have an infection I would take 30mgs a day for seven days to try and help my breathing but now I am taking 40mgs a day to try and increase my breathing (Paul 3:77)*

Access to medical services for the patients who adhered to the scheme was the final property of the medical implications theme. Of the nine patients, who adhered to the scheme over the twelve month period, five had demonstrated a decline in access to medical services and four were accessing medical services at the same rate. For example, Wendy had stated how she no longer needed to attend the clinic so often because she did not get so many chest infections: *'I don't really go to the surgery very much. I would say I go less than I used to as I don't get as many chest infections now'* (Wendy 3:47). However, due to a number of medical problems, Len was still accessing medical services the same as had had been over the year:

*About the same, I don't think there's much difference. I saw the doctor over a month ago regarding the hernia and it has now flared up, but prior to that it was probably two months ago. This depends on what problems you have and of course my medication is on-going, so that is reviewed on a regular basis. So I probably see my GP once every 2 -3 months (Len 3:53)*

Interestingly the two patients who were unable to attend the scheme due to exacerbations in their medical conditions demonstrated increased access to medical services over the twelve month period. For example, Paul explained that this was due to his increase in chest infections: *'I think it has gone up purely because I've had infections on my chest'* (Paul 3:62). Kate's explanation also related to her increased number of chest infections: *'I am seeing the doctor more because of my ear and I have had chest infections lately and been given antibiotics to clear them up'* (Kate 3:60). Therefore, for the majority of patients the exercise referral scheme had a positive effect on stabilising or reducing their medication and access to medical services.

## ***8.8 Discussion: Introduction***

Some of these findings are congruent with previous published research in physical activity interventions for public health promotion. For example, in the areas of: types of medical conditions for referred patients; gender ratios for participation; evaluation methods used to determine effectiveness. However, through interviewing the patients who were involved in a practice-based exercise referral scheme, new findings have also emerged to compliment previous research in this area. New knowledge from this research contributes to findings regarding the following: patients' perceptions of how their lifetime physical activity behaviours had impacted on the development of their hypokinetic diseases; that a quartet of support systems can enhance the long term effectiveness of physical activity interventions; and the impact that physical activity can have on patient's medication and access to medical services. The following discussion examines the findings from this study in relation to existing literature, followed by an analysis of what is new in comparison to published literature to date. In conclusion three findings from this study provide a significant contribution to knowledge in the area of primary care health promotion interventions.

### ***8.8.1 Discussion of main findings***

The aspects that shaped the health of the patients included non-modifiable age and gender-related factors, along with inherited genetic factors (Dahlgren and Whitehead, 1991). In addition to these non-modifiable factors, a range of modifiable factors also impacted on the health of these patients, these included inactivity, dietary behaviour and smoking, through the lifestyle choices that they made (Dahlgren and Whitehead, 1991). Through manipulation of these modifiable individual factors, the patients reported perceived improvements in their medical conditions and quality of life over the twelve month data collection period.

Several studies have been conducted to date that have identified a number of factors associated with the effectiveness of exercise referral schemes. These factors include the type of medical condition in relation to CHD risk factors (Dugdill et al., 2005; Fox et al., 1997; Harrison et al., 2005; Harrison et al., 2004; Hillsdon et al., 2002; James et al., 2008; Leijon et al., 2010; Taylor et al., 2005; Van Heuvelena et al., 2006); socio-economic status (Damush et al., 2001; Harrison et al., 2005; Gidlow et al., 2007; James et al., 2009; Lee et al., 2009; Sowden et al., 2008); the age of the

patient (Cortés & Arthur, 2008; Dugdill et al., 2005; Sowden & Raine, 2008; Leijon et al., 2008); the gender of the patient (Dugdill et al., 2005; Gidlow et al., 2007; Harrison et al., 2004; James et al., 2008; Leijon et al., 2008; Morton et al., 2008). Some of the findings from this study were comparable to those above; these will be discussed and explored in the following sections.

Adherence rates for exercise referral schemes for patients with Coronary Heart Disease risk factors have been identified as being between 37% and 48% (Pavey et al., 2011). The duration of physical activity interventions is between 8 – 12 weeks (Crone et al., 2004; Dinan et al., 2006; Dugdill et al., 2005). This study differs from those identified in the Pavey et al., (2011) systematic review, in the way that it was ongoing without a clear start and end date. One explanation for the effectiveness of the scheme in this study is that the longer a patient was engaged with physical activity, the more likely it was that they would experience tangible improvements in health status. Tangible improvements in health status have been identified as a result of adherence to a scheme (Dugdill et al., 2005; James et al., 2009; Lavi and Milani, 1994; Lee et al., 2009), and an important motivational factor for keeping physically active, six months after an exercise referral scheme intervention (Crone et al., 2004). Further explanations for the effectiveness of the scheme were that, the intervention was based in a Primary Health Care Centre with its own 'low key' gym as part of the centre. The locality of the centre enabled easy access for the patients, the 'low key' gym presented a none threatening environment, and the location of the gym inside the Primary Health Care Centre created a feeling of medical credibility to the scheme. The Primary Health Care Centre was also located in the centre of the community, which has been identified by Schmidt et al., (2008) as necessary for effective physical activity interventions in deprived areas.

In contrast to government guidelines on exercise referral schemes (Department of Health, 2001) that have recommended their suitability for patients with mild to moderate health problems, most of the patients in this study had multiple co-morbidities, and therefore could be considered as high risk patients (Appendices 8 and 9). However, in reality it could be difficult for health professionals to adhere to these rigid criteria as many of the health conditions are interrelated (Department of Health, 2001). This would seem the case with previous applied research which has

not followed a randomised control trial approach (Harrison et al., 2005; James et al., 2008). Although not a significant finding, the high level of lifestyle diseases present with the majority of patients in this study, associated with living in areas of high social deprivation (Marmot Review, 2010), may have contributed to their take-up and the effectiveness of the physical activity intervention. This is in contrast to the findings of James et al., (2010) that found a lower up take and adherence from patients with an IMD ranking of 2, who also had fewer negative health parameters, compared with this study such as BMI and inactivity.

Limited and contrasting evidence has been put forward on the impact that socio-economic status has on the effectiveness of physical activity interventions. Some studies have indicated that patients from lower socioeconomic backgrounds are less likely to take-up and adhere to a physical activity intervention, than those patients from higher socioeconomic backgrounds (Damush et al., 2001; Gidlow et al., 2007; James et al., 2010; Lee et al., 2009). In contrast other studies have found that patients living in areas of deprivation were just as likely to take-up a referral as those living in more advantaged locations (Harrison et al., 2005; Sowden et al., 2008). The findings from this study would support the views of Harrison et al., (2005) and Sowden et al. (2008) as it was conducted in an area of very high deprivation (IMD ranking 1). The effectiveness of this scheme was in contrast to that of Gidlow et al., (2007); James et al., (2010); and Lee et al., (2009), who found that patients with higher socioeconomic status were more likely to take-up and adhere to a scheme than patients with lower socioeconomic status. Further explanations for the effectiveness of this scheme are that it met similar requirements to those identified by Schmidt et al., (2008), as being necessary for a physical activity intervention in an area of social deprivation. For example: the scheme was delivered in a supportive environment; and the patients were able to socialise with other patients from the same community, with similar health problems (Schmidt et al., 2008). However, it must be acknowledged as discussed above, that the factors that determine the effectiveness of a scheme, are many and complex, suggesting that socioeconomic background in isolation is unlikely to be a predictor of success or failure in relation to take-up and adhere to a scheme.

Differences were found with the age range for the patients in this study compared to others, but similarities were found in the ratio of male to female patients. The patients'

ages ranged from 65 to 74 years for the men, with a mean age of 68.0 years, (SD  $\pm$  4.2). Ages for the women ranged from 52 to 68 years, with a mean age of 62.0 years, (SD  $\pm$  5.8). This is much higher than the average age ranges identified in the systematic review by Pavey et al., (2011) who found that patients who participated in exercise referral schemes were generally younger than those who participated in this study. Pavey et al., (2011) found that patients' mean ages ranged from 44.9 to 51.9 years across the observational studies in their systematic review. The higher age range of the patients in this study could have had an impact on the effectiveness of the scheme over the 12 month period. Other studies have shown high adherence rates for older patients who took up physical activity interventions (Dinan et al., 2006; Leijon et al., 2010; Sherringham et al., 2008). In this study twice as many women attended the scheme as men, which is comparable to most other physical activity interventions (Bull and Milton, 2010; Dugdill et al., 2005; James et al., 2010; Leijon et al., 2010).

Throughout the three data collection periods of this study the patients reported increases in perceived health and fitness status. Increases in physical health, physical conditions, physical activity and fitness status have been reported elsewhere for physical activity interventions (Crone et al., 2005; McAuley et al., 2012; Pavey et al., 2011; Taylor and Fox, 2005; Wormald et al., 2006). The patients' explanations for their increased perceptions of health and fitness status in this study related to the exercise they had been doing, and a combination of exercise and diet. Reduced incidences of all-cause mortality have been shown to be associated with cardio-respiratory fitness in obese patients (McAuley et al., 2012). Most of the patients in this study had been overweight or obese, for long periods of time prior to taking part in regular physical activity. Despite this they identified that physical activity had contributed to their improvements in health status, which is in contradiction to the findings of (Shepherd, 2009) whose systematic review found limited evidence to support the use of physical activity for controlling obesity. The patients in this study were able to give tangible examples of how the physical activity that they had undertaken, had positively affected their diagnosed medical conditions over the twelve month period.

Following the publication of the NICE (2006) report on physical activity interventions in public health and *Let's Get Moving* (Department of Health, 2009), that both

recommend the use of brief interventions, a number of studies were conducted to determine its effectiveness (Bull and Milton, 2010; Breckon et al., 2008; Hutchinson et al., 2009; James et al., 2010; Lohmann et al., 2010). The findings from the above studies provided inconsistent evidence to support the effectiveness of brief interventions in the form of motivational interviewing, as a means of promoting physical activity behaviour change. For example, James et al., (2010) and Curry et al., (2011) found low adherence rates to physical activity interventions, that were attributed to a lack of information at the point of joining the scheme. Bull and Milton (2010) found that inconsistencies in design, training and delivery of brief interventions, negatively impacted on physical activity take-up. However, one of the explanations given by the patients in this study, for the effectiveness of the intervention, was the opportunity that they had to be engaged with the research, through discussing their health and fitness with the researcher (which could be considered to be a brief intervention). The patients identified that participating in the research gave them the opportunity to discuss aspects of their involvement with the scheme, which they would not normally be able to talk about. The patients also identified that talking to the researcher gave them the motivation to carry on being physically active. Therefore, a finding from this study that is in contrast to that of Breckon et al., (2008), is that merely allowing patients to discuss their health and fitness behaviours can have an impact on the effectiveness of a scheme. This also contradicts the findings of the Hutchinson et al., (2009) systematic review that identified, that four key dimensions of motivational interviewing needed to be present for long term physical activity behaviour change. However, the effectiveness of the 'brief intervention' identified by the patients in this study would support the view of NICE (2006) and *Let's Get Moving* (Department of Health, 2009), to use brief interventions as a tool for physical activity promotion.

One of the problems associated with physical activity interventions in public health promotion is the NICE (2006) recommendations for the use of randomised controlled trials (RCTs) as the main evaluation tool. RCTs are at the top of the hierarchy for evidence based medicine. One explanation for this is the isolation of the intervention effect, through the use of a control group (Gidlow et al., 2008). Another explanation is that they are generally quantitative in nature with large sample sizes. However, when RCTs have been used to evaluate two of the main physical activity interventions, those being brief interventions (Ackerman et al., 2005; Breckon et al., 2008; Bull and

Milton et al., 2010; Hillsdon et al., 2002; James et al., 2010), and exercise referral schemes (Gidlow et al., 2005; Harrison et al., 2004; Morgan et al., 2005; Williams et al., 2007; Pavey et al., 2011), they tend to present them as being ineffective methods for increasing long term physical activity behaviour. Although this study is qualitative in nature; has a relatively small sample size; and has no statistical power; it has provided qualitative evidence that physical activity interventions such as an exercise referral scheme, can be an effective method, from the self-reported perspectives of participants who take part, at increasing long term physical activity. These findings are similar to other qualitative research that has been shown to reflect exercise referral schemes more favourably (Crone et al., 2004; Day and Nettleton, 2001; Wormald et al., 2006; Sharma et al., 2012).

The findings from this study appears to contradict those from a number of systematic reviews (Gidlow et al., 2005; Morgan, 2005; Ogilvie et al., 2007; Pavey et al., 2011; Williams et al., 2007), and the NICE (2006) guidelines, that have questioned the effectiveness exercise referral schemes for promoting long term physical activity behaviour change. This study also contradicts the findings from the systematic review by Shepard (2009), who concluded that there was not enough evidence to determine the effectiveness of exercise for diabetic and obese patients. The patterns of physical activity behaviour for the patients in this study increased over the 12 month data collection period. At the start of the data collection period the patients were engaged in similar amounts of organised exercise classes and independent physical activity (walking) on a weekly basis. At the end of the data collection period the patients overall amount of physical activity had increased from baseline. During the 12 month data collection period the patient's type of physical activity had changed. The amount of gym sessions had decreased and the amount of independent physical activity (walking) had increased. This is in contrast to the findings of the National Institute for Health and Clinical Excellence (2006) who did not find enough evidence to support the use of walking as a physical activity intervention in the short, medium or long term, and Ogilvie et al., (2007) whose systematic review only found evidence to support the use of walking as a physical activity intervention in the short term.

At the end of the self-report data collection period, several patients claimed to be either meeting or exceeding the government recommendations of 150 minutes of

moderate intensity physical activity per week (Department of Health, 2011). These claims from the perspectives of the patients, would suggest that exercise referral schemes not only have a place for the development of long term physical activity behaviour, but are effective means of enabling patients to apply knowledge gained, to develop physically active lifestyles. Explanations for the effectiveness of the intervention in this study include: the quartet of support systems (see 8.7.3) that were in place throughout the data collection period; the high level of technical knowledge of the exercise professionals; the locality of the facility; and tangible improvements in fitness and health status.

### ***8.8.2 What has been learnt that enabled patients to adhere to a clinical pathway from entry to one year.***

What this study has shown is the important role that a practice based exercise referral scheme can have in developing patient's longitudinal physical activity behaviours. After the patients took up the referral the exercise professional's created a safe and supportive environment for the patient's to develop their physical activity skills and knowledge. This was achieved primarily through effective monitoring and feedback of health outcome measurements and individual exercise prescription. Over time the patients were able to apply the knowledge gained (experience of exercise intensity) in the controlled environment to their lifestyle behaviours such as walking. This allowed the patients to increase weekly combined (gym and walking) physical activity levels over the 12 month data collection period, which in-turn impacted on their health status. At baseline the patients attended an average 1.8 gym sessions per week and were encouraged to engage in walking in addition to this (average 1.7 sessions a week). At the 12 month data collection point the combined gym and walking sessions had increased from 3.5 to an average of 3.8 sessions per week. However, gym classes had decreased to 1.5 sessions per week but walking had increased to 2.2 sessions per week. This demonstrates not only the effectiveness of practice based schemes in increasing long term physical activity behaviour, but it also acknowledges that such schemes can be effective at helping patients to adopt a healthy lifestyle through application of knowledge learnt through such schemes. The following factors were important in keeping the patients engaged with the scheme over the 12 month period.

The patients identified that support from exercise professionals, family and friends, other patients and involvement with the research, contributed to their longitudinal engagement with the scheme. Support from exercise professionals (Crone et al., 2005; Dinan et al., 2006; Gidlow et al., 2005) and family and friends (Crone et al., 2005; Little & Lewis, 2006; Wormald et al., 2006) have been identified as factors that enhance adherence. What has been learnt from this study is that additional support from patients going through the scheme and an opportunity to discuss their physical activity behaviour and progress with the scheme, can further enhance adherence and allow longitudinal physical activity behaviours to develop. Therefore, future schemes could continue to include the provision to allow patients to socialise with each other, as this could provide the opportunity for both formal and informal peer support systems to develop. In addition, schemes could allow for the provision of a health professional (practice nurse), with whom the patients could review their progress twice a year.

Knowledge of tangible improvements in fitness status such as intensity and duration of exercise, along with sets and repetitions of exercises helped to motivate the patients to adhere to the scheme over the 12 month data collection period. Therefore, schemes could include monthly monitoring and feedback by exercise professionals to patients, in relation to their fitness status. Improvements in fitness status over time resulted in increases in patient exercise self-efficacy, which motivated them to try harder and try different types of exercises.

Knowledge of tangible improvements in health status also motivated patients to adhere to the scheme. The patients were initially able to identify these changes through regular monitoring and feedback of simple biomedical markers such as blood pressure, peak flow, blood glucose and blood cholesterol. The patients also identified that they felt healthier at the 8 month data collection point than they did at baseline, and even healthier at the 12 month data collection point. Over the 12 month data collection period the patients also perceived that their medical conditions were improving. These assumptions were based on stabilisation or reductions in medication and stabilisation or reductions in access to medical services. Therefore, it would make sense to monitor biomedical markers, medication and access to services for future schemes. This type of monitoring and feedback would be easier to achieve if more

schemes were run in conjunction with Primary Care Health Centres. As the patients experienced the health and fitness benefits of the exercise referral scheme they also experienced feelings of well-being directly associated with the physical activity. In turn this led to the patient's enjoyment of the scheme, as in addition to helping them to manage their medical conditions, it increased their overall sense of wellbeing. The patients identified that enjoyment and improvements in perceptions of wellbeing were key motivational factors for adherence.

### ***8.8.3 Contribution to knowledge***

Three areas from this chapter make a contribution to existing knowledge in this area of research. These are as follows: patients' perceptions of how their lifetime physical activity behaviour had impacted on the development of their hypokinetic diseases; a quartet of support systems can enable long term physical activity adherence; and the impact that physical activity can have on patient's medication and access to medical services.

The first area relates to the type and intensity of physical activity undertaken by the patients during their lifetimes. Very few studies to date have identified any relationships between patients' perceptions of their lifetime physical activity and the development of their hypokinetic diseases. Although a study by Butterly et al., (2009) on knowledge, attitudes and intentions about participation in physical activity of older post-acute hospital inpatients, found that elderly patients generally believed their habitual physical behaviours to have been adequate, before hospital admission. There is an important distinction between the patients in the study and those of Butterly et al., (2009), in that the patients in this study were in primary care as opposed to secondary care. The majority of patients in this study thought that the physical nature of their manual work for example: lifting and moving heavy objects, as a store man; or being on their feet all day as a waitress or a cook, would have been enough to keep them healthy throughout their lives. Consequently, most of the patients believed that it was not necessary to engage in any additional forms of exercise during their lives. Furthermore, for those patients who did participate in leisure time physical activity, it was generally at an inappropriate intensity for health gains. The lack of appropriate physical activity necessary for health gains was a significant factor associated with the development of the lifestyle diseases that these patients had been diagnosed with

such as obesity, coronary heart disease, type two diabetes, hypertension and hypercholesterolemia, as has been demonstrated in literature elsewhere (Department of Health, 2009; World Health Organisation, 2010). The sedentary lifestyles of the patients in this study had developed despite all of the health education and health promotion campaigns for physical activity such as: *Health of the Nation* (Department of Health, 1993); *Active for Life* (Department of Health, 1995); *Saving Lives: our healthier nation* (Department of Health, 1999); *Game Plan* (Department of Culture Media and Sport, 2002); and *Change4Life* (Department of Health, 2008a).

For those patients who did participate in leisure time physical activity, it was often an inappropriate type of exercise or intensity for health gains. Several patients indicated how they had bought a dog to keep themselves fit when they were younger, but as the dog aged and became inactive so did the patients. Other patients thought that going for a gentle stroll was appropriate exercise for health gains. Furthermore, some patients who had attended gyms for a number of years believed that that resistance exercises they had been doing would keep them healthy. However, after the patients had attended the exercise referral scheme they were able to understand the correct types and intensities of exercise necessary for health gains. The patients were then able to apply what they had learnt during the exercise classes, and develop physical activity behaviours of the correct intensity and type (mainly walking) for health gains. A misunderstanding of the types of exercise necessary for health gains has also been demonstrated by Cooper et al., (2005) and Wormald et al., (2006). Most of the patients in this study did not understand the impact of their lifestyle choices on the development of their medical conditions. Most of the patients believed that the diseases were a result of external factors beyond their control, such as having a bout of flu. The most common external explanation given by the patients related to their illnesses being hereditary. Consequently, some of the patients believed that there was nothing that they could have done to prevent the development of their lifestyle diseases. This is an interesting finding given the relatively intense amount of public health education and information in the past 20 years such as *Active for Life* (Department of Health, 1995) and *Change4Life* (Department of Health, 2008a) and numerous other interventions in primary care and the community.

The second area relates to the number of support systems necessary for an effective physical activity intervention. Effective patient support systems have been shown to

positively influence adherence to physical activity interventions (Crone et al., 2004; Crone et al., 2005; Gidlow et al., 2005; Horne et al., 2010; Williams et al., 2007). The findings from this study support the previous findings that have shown that the most effective support comes from exercise professionals (Dinan et al., 2006; Gidlow et al., 2005; Leijon et al., 2009), followed by other people in the scheme (Crone et al., 2005) and family and supportive friends (Crone et al., 2005; Damush et al., 2001; Little & Lewis, 2006; Van Heuvelena et al., 2006; Wormald et al., 2006). The patients in this study reported that these support systems were important, which could be a reason for the effectiveness of the scheme. During the twelve month data collection period the patients identified multiple support systems that included: other patients; family and friends; and the exercise professionals. The patients also stated that as well as the support mentioned, talking about their health and exercise behaviours to the researcher was an additional motivational factor for the effectiveness of the scheme. Literature elsewhere has shown that counselling can have an impact on patient's uptake and effectiveness of physical activity and weight control interventions for patients with a range of lifestyle-related diseases: diabetic patients (Lohman et al., 2010); obese patients (Hillsdon et al., 2002); patients with chronic heart failure (Brodie & Inoue, 2005); and smoking cessation patients (Ackermann et al., 2005). Whilst the patients in this study did not receive any form of counselling, the quartet of social support systems identified above, provided similar results. Therefore, a contribution to knowledge that this study makes is that when the following quartet of support systems are in place throughout a scheme, there is recognition from patients that this is important and influential, and could be responsible for the effectiveness of the scheme: other patients; family and friends; exercise professionals; and an opportunity to discuss their physical activity behaviours in a formal environment.

The third area relates to the impact that the scheme had on the patient's medication and access to medical services. Two previous studies have shown that physical activity can implicitly have an impact on patient's access to medical services and medication. A Peruvian study showed that physical activity can prevent patients with metabolic syndrome, developing type two diabetes (Gelaye et al., 2009), and a longitudinal study in the UK demonstrated that physical activity can prevent patients with impaired glucose tolerance from developing type two diabetes (Penn et al., 2009). Neither of these studies however, specifically examined access to medical

services or the impact of the interventions on the patient's medication. Nevertheless, concluded that the patients would not need as much or any medication, and as a consequence would reduce their need to access medical services. However, the only study to date that has specifically examined the effect of an intervention on access to medical services is an art project called ARTLIFT. This unpublished evaluation report states that engagement with a ten week art programme, can significantly reduce patients' access to medical services and health care spend by 24% and 27% respectively (Crone et al., 2011). A recent systematic review from seven RCTs on exercise referral scheme effectiveness, identified that none of the trials included in the review separately reported outcomes for individuals with medical diagnosis (Pavey et al., 2011). However, a study by James et al., (2009) did report on the outcomes of patients with a medical diagnosis. James et al., (2009) found that patients with COPD were less likely to complete a scheme compared to patients with cardiovascular conditions. The findings by James et al., (2009) were in contrast to the findings of this study, as no differences were identified between these types of patients and all of the patients had a medical diagnosis. Therefore, although the findings from this study relate to patients' perceptions of the effect that the scheme had on their medication conditions, and are not from control trial data, they do show some interesting findings in this area, For example: patients, from their perspective, either felt it had helped them to stabilise their conditions, through not increasing their medication or visit's to medical services; or improved their conditions through decreased medication or reductions in visits to medical services. Therefore, the findings from this study suggest that there may be cost benefits for some patients but current quantifiable evidence has not demonstrated this to date.

Further aspects of this study which are unique are its design; it has adopted a longitudinal approach, for example a qualitative data collection period over twelve months; was situated in a location of high social deprivation; and that the physical activity intervention was delivered at the Primary Care Health Centre, rather than in the community where they traditionally take place (Leisure Centres).

## **8.9 Conclusions**

The contribution to knowledge that the study in this chapter makes includes:

- the patients' perceptions of how their lifetime physical activity behaviour had impacted on the development of their hypokinetic diseases;
- that a quartet of support systems, from the patients' perspectives can enhance the long term effectiveness of a physical activity intervention.
- the impact that the involvement in the scheme and the resulting physical activity can have on patient's medication and access to medical services.

The following conclusions can be drawn from this study. The patients misunderstood the appropriate types and intensities of physical activity necessary for health gains. Most of the patients did not understand the impact that their lifestyles had on the development of their medical conditions, often attributing their lifestyle diseases to external factors that were outside of their control. However, the patients in this study believed that physical activity interventions in a primary care setting can be an effective method of helping them to become physically active in the long term. A quartet of support systems were identified by the patients as being important factors for long term engagement with a scheme such as: other patients; family and friends; exercise professionals; and the opportunity to discuss their physical activity behaviours in a formal environment. The patients in this study perceived that the physical activity intervention had improved their medical conditions, through stabilisation or reductions in medication and reduced access to medical services. Therefore, physical activity interventions in the form of exercise referral schemes in similar primary care settings have the potential for cost benefits to the National Health Service. The following chapter provides a summary of the two studies, the implications of the research, and a reflection on the process of completing a PhD.

## **Chapter Nine**

### **Summary, Implications and Reflections**

#### ***9.0 Introduction***

The final chapter provides: a summary of the research showing where the study contributes to knowledge; discusses the implications of the study for practice, policy and research; and provides a reflection on the processes involved in completing a PhD.

#### ***9.1 Summary of the research***

The aims of this study were to investigate via a longitudinal approach, patients' and referring health professionals' experiences of a practice-based exercise referral scheme. The first study investigated the health professionals and patients, and identified how structural aspects of the referral process, and interactions between health professionals and patients could enhance take-up, but also become a barrier to the referral process. The second study investigated the patients and identified: factors leading to their referral; the impact of support systems on the effectiveness of the scheme; the physical activity behaviours that developed through engagement with the scheme; and the perceived impact that the scheme had on patient's health status, medical conditions, medication and access to medical services.

The findings from this study highlight the importance of qualitative research in understanding factors in a public health intervention, which could make health professionals' referrals in to a scheme more effective. The study contributes to knowledge in two specific areas, the first area relates to the referral process used by health professionals to encourage patients to take-up an exercise referral scheme. The second area relates to the impact that a scheme can have on patient's health, lifestyle and the management of their conditions.

The contribution to knowledge that the study makes in relation to the referral process has been demonstrated in four areas:

- the use of professional judgment instead of clinical referral criteria;
- perceived gender views of patient's ability to accept advice on diet and exercise;

- tactics used to encourage patients to take-up an exercise referral;
- health professionals role in referring patients and promoting physical activity.

The contribution to knowledge that the study makes in relation to the impact of long term involvement with the scheme, on perceived patient health status, has been demonstrated in three areas:

- the patients' perceptions of how their lifetime physical activity behaviour had impacted on the development of their hypokinetic diseases;
- that a quartet of support systems, from the patients perspective can enhance the long term effectiveness of a physical activity intervention.
- the impact that the involvement in the scheme and the resulting physical activity can have on patient's medication and access to medical services.

Global lifestyle diseases as a result of inactivity are increasing (World Health Organisation, 2008). Global patterns of inactivity are reflected in Europe (World Health Organisation, 2006a) and the United Kingdom (NS-Sec, 2001). Inactivity has been reported to be higher in areas of social deprivation (James et al., 2010; Lee et al., 2009), and higher in the South West Devon City (IMD ranking of 1) compared to national averages (Sport England, 2010). This study has shown that a practice-based physical activity intervention undertaken in an area of high social deprivation, may be an effective means of promoting long term physical activity behaviour change and improving patient's health status. However, for this to happen, certain things needed to be in place in relation to the referral process, and methods of supporting the patients throughout the scheme. Two factors that enhanced the referral process in this study were the use of professional judgement, instead of clinical guidelines; and the use of shock tactics to encourage obese patients to take-up the referral. Professional judgement was considered an appropriate technique, as it allowed the health professionals to consider the psycho-social conditions of their patients, when determining their suitability for referral. The use of shock tactics was another effective technique used by some health professionals to encourage obese patients to take-up the referral, when all other medical and surgical avenues had been exhausted. The study also found that a quartet of support systems that included: other patients; family

and friends; exercise professionals; and being able to talk to the researcher, provided the patients with the motivation needed to develop and sustain long term physical activity behaviours.

The study identified two specific barriers to the referral process. The first barrier related to whose responsibility it was to refer the patients. The second one related to the impact that gender -related views of patient's behaviour had on the take-up of the referral. The referral rates from the health professionals were generally low but consistent with published literature (Harris et al., 2005). Referral up-take was also similar to published research in the area, with lower numbers of men taking up the scheme compared to women (Dugdill, et al., 2005; James et al., 2008; Morton et al., 2008). The following explanations were identified for low levels of referral and take-up.

The first barrier to referral considered the different views held by the health professionals on whose responsibility it was to refer patients into the scheme. Some of the health professionals believed that their referral was an important aspect of a patient taking up the scheme. Others believed that if a patient referred themselves, they would be more likely to take responsibility and ownership for the management of their medical conditions. The differences in views may account for the low number of referrals made by the health professionals, and may indicate a gap in their knowledge of the effectiveness of physical activity interventions. If this knowledge gap in referring health professionals was redressed, it may have the effect of increasing the number of patients referred into schemes.

The second barrier to referral related to the differences in male and female take-up rates. In this study this could be explained by the stereotypical views held by some health professionals. Traditional views of women being less likely to, and men being more able to accept criticisms of their weight, were conducive to females taking up a scheme, but detrimental to men doing so. Therefore, policy guidance is needed to clarify responsibility for referral, and training is needed to encourage health professionals to adopt a more sensitive approach to referring men into schemes.

The findings from the study suggest that there is a need to review the policy guidelines for exercise referral, in relation to the use of referral criteria for schemes in

areas of social deprivation. Primary Health Care Trusts need to provide training for health professionals in relation to techniques to increase referrals and to minimise risk when doing so. In addition, effective patient support systems need to be established from the start of physical activity interventions and maintained throughout a scheme. Training should also be provided for health professionals to identify and minimise the use of preconceived notions of gender behaviour, to enable more men to be referred into schemes. Public health policy needs to address the issues identified by the patients in this study, in relation to the lack of knowledge of how their medical conditions developed, and what they could have done to minimise the impact of their lifestyle behaviours on the development of their chronic lifestyle diseases. This could be achieved by ongoing, locally targeted public health promotion campaigns in areas of social deprivation.

The study has shown that when the right conditions are present, a physical activity intervention can be an effective means of changing health-related behaviour in a primary care setting. To achieve this nationally, more practice-based schemes attached to primary health care centres could be set up. GP County Commissioning Groups could consider further training for health professionals, as a means of increasing the numbers of referrals. Primary health care clinics could consider providing support systems for physical activity interventions. Physical activity interventions may then have the potential to enhance the quality of life for patients suffering with chronic lifestyle diseases and reduce the financial burden of these diseases on the National Health Service. For this to happen locally, the Devon Plymouth and Torbay Commissioning Group Cluster, would need to consider buying in the services that allow for the delivery of exercise referral schemes in primary health care, in the South West of England.

## **9.2 Implications for practice**

The findings from this study have shown that there are several implications for practice in public health, primary care and physical activity promotion, and for referring health professionals, physical activity promoters and commissioners and public health specialists.

### **9.2.1 Implications for practice in public health**

Implications for the National Health Service include funding for the development of more practice-based schemes, run in partnership with appropriately qualified practitioners within the Fitness Industry. Where appropriate, such schemes should be delivered within targeted communities, in areas of high social deprivation. These schemes should be relatively small scale, and be located within Primary Health Care Centres. The National Health Service should consider funding for facility development where the location of facilities allows such developments to be made. For example, conversion of space (consulting rooms) where possible to facilitate small group based exercise classes for up to twelve people, and an additional small space for the location of six resistance and cardiovascular exercise machines. Where conversion of existing space is not possible, the National Health Service should consider additional small construction projects to extend Primary Health Care Centres in order for them to encompass such facilities. An important point to note here is that to be effective, these developments will need to be targeted in areas of high social deprivation.

The National Health Service should also consider further funding and development of walking schemes in areas of social deprivation. This is likely to have minimum cost implications, although a cost economic analysis would need to take place. This study found that the combination of regular walking and attendance at the practice-based scheme, enabled the patients to obtain the tangible benefits to their health that they have described (see section 8.2). Organised walking schemes should be run in conjunction with practice-based schemes, as they have the potential to raise physical activity awareness within a community through making it more visible. However, further research would need to be carried out to determine the impact of such schemes in raising physical activity awareness and participation.

### ***9.2.2 Implications for practice in primary care***

The value of physical activity needs to be promoted more within primary care, as this study has shown that patients generally accept advice from health professionals in relation to physical activity behaviour (see section 7.3.2). However, to achieve this health professionals' need to be convinced of the value of physical activity interventions on the long term health of their patients. Primary Health Care Trusts, local government, public health and county commissioning groups will need to take more responsibility for this. Qualitative research can be used to compliment controlled trial data as a means of helping to communicate such messages to the key stake holders in this area.

Primary care practitioners could be used to help change peoples' attitudes towards the health benefits of physical activity, particularly if the interventions were undertaken within primary care centres. However, this would involve continued professional development training for health professionals in, motivational interviewing techniques, brief interventions, communication skills and risk assessments. Training would need to include the theoretical context of the evidence base that supports physical activity interventions, and the practical application of this in the context of motivational interviewing and brief interventions. To support this, clear protocols, processes and criteria for training and physical activity interventions will need to be established, and policy will need to be written to provide a coherent guide to action for practitioners to follow. Therefore, Primary Health Care Trusts, local government, public health and county commissioning groups, would need to help change people's attitudes towards the health benefits of physical activity making it more socially acceptable for people to seek advice on physical activity interventions.

### ***9.2.3 Implications for practice in physical activity promotion***

For physical activity promotion there is a need to develop training programmes and qualifications to enable exercise professionals to provide additional support to patients in the form of regular progress consultations. Progress consultations, should include the opportunity for the patients to identify the lifestyle behaviours that have led to the referral, along with regular feedback to the patient on tangible changes to their health status as a result of the physical activity interventions, such as BMI, blood pressure, lung function blood glucose levels and blood cholesterol levels. The role of

the exercise professional needs to be developed to include training in the collection, analysis, and feedback of these health outcome measures to patients. Exercise professionals should also include regular feedback on fitness status to patients during consultations to include: changes in frequency, intensity and duration of physical activity behaviours. This would have the effect of raising the skill levels of exercise professionals and standards within physical activity promotion, whilst reducing the pressure on an overburdened National Health Service. Combined feedback to patients on health and fitness outcome measures, could have the effect of motivating them to adhere to schemes for the long term. To achieve these increases in knowledge and skills identified, qualifications for exercise professionals will need to be developed, that include training in motivational interviewing techniques; the use of brief interventions for physical activity promotion; giving motivational feedback; and developing listening and counselling skills.

#### ***9.2.4 Implications for practice, referring health professionals***

Implications for practice with regard to referring health professionals relates to training needs. Training should be provided as a means of improving the referring health professionals' competencies in communication in particular with obese patients, and minimising the risk to health professionals during such consultations. Training ought to be provided to help health professionals determine the suitability of patients for referral, who live in areas of high social deprivation. Training programmes should also be developed by primary care Trusts in the use of shock tactic techniques, as a means of helping health professionals to engage hard to reach patients, such as those with obesity and related diseases. In addition safety mechanisms would need to be put in place to protect health professionals, as some patients can initially have adverse reactions to their use. Although further evidence is needed in the form of longitudinal cohort studies to provide the specific evidence needed to substantiate this. Further training should consider techniques to reduce the direct approaches, founded on stereotypical perceptions of male-related behaviours, used by some health professionals when referring men into a scheme. Adopting a more sensitive and cautious approach when referring men into a scheme could increase the numbers of men taking up the referral.

### ***9.2.5 Implications for practice, commissioners of services.***

The responsibility for exercise referral and physical activity promotion needs to be made more explicit. Therefore, commissioners should consider commissioning the services of nurses for the referral of patients into schemes, leaving GPs to pursue the business of consultation and diagnosis.

### ***9.3 Implications for research***

The findings from this research project provide a number of potential directions and implications for further research. These are detailed below:

- Conduct further research to test the hypothesis that ‘shock tactics’ can be an effective means of engaging obese patients to take-up and adhere to an exercise referral scheme.
- Use systematic reviews of qualitative research to provide the evidence needed for health service commissioners to commission appropriate schemes tailored to specific population groups. This could provide the missing link between the effectiveness of exercise referral schemes to promote long term physical activity behaviour change, which randomised controlled trials have so far failed to achieve.
- Investigations could also be carried out into testing the hypothesis that long term (12 months or longer) involvement in an exercise referral scheme can improve lifestyle-related medical conditions such as obesity, coronary heart disease, chronic obstructive pulmonary disorders, type 2 diabetes and hypertension. Research has been conducted in the short term.
- Research into the impact of exercise referral schemes on the long term management of chronic illness, and the role that schemes could have in the treatment plans of these patients.

#### **9.4 Implications for policy**

- Despite the number of health promotion strategies over the past twenty years (Department of Health, 1993; Department of Health, 1995; Department of Health, 1999; Department of Culture Media and Sport, 2002; and Department of Health, 2008a), the patients in this study had a clear misunderstanding of the frequency, intensity, type and duration of exercise necessary for health promotion. This highlights that previous national health promotion and risk prevention strategies have been ineffective, and that more targeted interventions need to be funded, within local communities.
- Local health care service commissioners need to consider investing in facilities at the heart of targeted local communities, in areas of social deprivation. Physical activity promoters could then deliver practice-based schemes in conjunction with health service providers. Furthermore, such an initiative could have an impact on 'kick starting' the economy through the creation of jobs within the construction and fitness industries and health service. Such a scheme could be offset through future savings gained from reduced patient access to medical services, along with reduced medication budgets. Although a cost economic analysis would need to be performed as a means of substantiating this.
- Policies would then need to be put in place that would allow for a co-ordinated central referral system in cities that do not have them, and have been identified as having high levels of social deprivation, such as those that have been put in place in Somerset (Crone et al., 2004). This type of coordinated approach would allow easier access for patients who wish to enter into such a scheme.

### ***9.5 Conclusions of the study***

The referring health professionals in this practice-based scheme, played an important role in getting the patients to take-up the referral. Once the referral had been taken up by a patient, a quartet of support systems was identified as being essential for long term physical activity behaviour change. This study has shown that an exercise referral scheme can be an effective way of motivating patients with chronic lifestyle diseases to change their physical activity behaviours. The patients in this study learnt to apply the knowledge gained from participating in the scheme, to their daily lifestyles in terms of developing regular walking behaviours. It was the combination of the exercise classes and the regular walking that helped them to manage and generally improve their medical conditions.

## **9.6 Reflections on the process.**

### **9.6.1 Introduction**

The inclusion of a reflective section in a PhD is important as it allows connections to be made between the researcher's thoughts, learning and development. Reflection in a healthcare research setting is essential as it allows the researcher to generate insights, institute changes and improvements, whilst continuing to reflect on outcomes, and to use practice as evidence (Taylor, 2010). Reflection is also essential within the context of exercise referral (Department of Health, 2001; Department of Health, 2009).

This section aims to recognise and acknowledge the influences and biases of the researcher within this study. Therefore, it is a reflection on my background and experiences as important determinants of the specific approaches taken for this study. This section also examines the ways in which the process has influenced my outlook. Consequently, this section is written in the first person.

### **9.6.2 Research process reflections**

My first challenge was to familiarise myself with the research and policy documents in the area. This resulted in the construction of data base that I could use as the study evolved. This enabled me to develop my background knowledge of health exercise and physical activity further and focus on physical activity interventions in public health. Initially, I had difficulties trying to find a GPs surgery in the South West Devon City that was prepared to have their provision of exercise referral evaluated, even from GPs who I had worked with in the past with exercise referral. Eventually, after several months of searching, a doctors surgery was found that agreed to participate in the study. This particular Primary Health Care Centre was keen for me to evaluate its exercise referral provision, as it had recently opened a small fitness suite at the practice. What I learnt from this was that a face to face meeting was more likely to produce a positive result in relation to finding a willing participant to discuss the possibility of a study, as this gave me the opportunity to enquire as to whether the practice ran a scheme and discuss my ideas. Furthermore, that sending e-mails and attempting contact via telephone, was an ineffective way of contacting a clinical lead

of a Primary Health Care Centre, as this type of communication tended to be blocked by the practice managers, never reaching the intended recipient.

The Primary Health Care Centre was clearly located in an area of high deprivation. I made this assumption based on the run down nature of the housing on the approach to the Primary Health Care Centre. Therefore, visiting the site helped me to make an initial assumption on the level of social deprivation where the site was located. This was important as research question 2, related to the perceived health benefits and behaviours of patients in an area of high social deprivation.

### ***9.7 Methodological challenges***

My first challenge came with the first interview. Despite having piloted the initial interview schedule, I realised that it was very easy for the patients to respond at a tangent to the questions that were asked. Having completed two interviews and attempted to open code them (Corbin and Strauss, 1998), I realised that the analysis would become very difficult if I allowed the interviewee to wonder too far from the questions being asked. A common theme that started to emerge was that the patients wanted to explain their medical histories in too much detail. Therefore, I had to control the following interviews more carefully, by striking a balance between preventing the participants wondering too far from what I was asking them, whilst allowing them to provide the detailed information that was required. To achieve this I used a combination of approaches that included aspects of the orthodox and qualitative approaches to asking questions (O'Connell-Davidson & Layder, 1994). The following aspects of the orthodox approach were used to keep the participants focused on the questions: standardising the information collected; taking control of the interview in relation to seating arrangements, start and finish times, topics covered and the order in which they were covered, avoiding leading questions; and phrasing questions in a neutral way without intonation, facial expression or verbal comment relating to desired or undesired responses to questions (O'Connell-Davidson & Layder, 1994). For example, when the patients discussed the amount of physical activity they had previously undertaken, or were now undertaking. At the same time as providing a controlled environment, I needed to establish a rapport with the participants in order for them to feel comfortable about providing me with the detailed information that I required. Three techniques highlighted by O'Connell-Davidson & Layder (1994) in

their qualitative approach to interviewing were used to establish rapport. The techniques included projecting a warm and caring approach by making sure that the patients were comfortable. This was achieved by ensuring their immediate environmental comfort, and engaging with informal conversations prior to the start of the interview. The second technique I used to develop an interaction with the participants was double checking that they understood the questions being asked and clarifying responses that they gave. The final technique consisted of listening to what the participant chose to say, rather than forcing the respondent to simply answer a list of pre set questions (O'Connell-Davidson & Layder, 1994). Consequently, I learned that I had to produce a non-judgemental environment that was welcoming and put the participants at their ease. I was also aware that I was from a different background to the subjects in that I had extensive knowledge of health and exercise through my background in higher education, and that I have been an avid exerciser all of my life. An awareness of this helped me to keep the conversation and manor as accepting as possible.

Prior to undertaking this research project most of my expertise was in quantitative data analysis, although I did have some experience of qualitative data collection and analysis. My experience of qualitative data collection had given me insights into the quality and depth of data that can be gained through a qualitative enquiry. It was this experience that made me decide to engage with qualitative data collection and analysis techniques, particularly because very little research had been undertaken on exercise referral schemes using these techniques. However, it soon became apparent that getting my understanding and appreciation of qualitative methods and eventually grounded theory, up to the standard of a PhD was going to be a challenge. Initially I had concerns with the use of grounded theory, as the original texts were very complex, and each revision appeared to develop in complexity. That was until I read Corbin and Strauss (1998). At this point I found that the techniques described by Corbin and Strauss (1998) were starting to become clearer. I also realised that software could be used to help with the coding and analysis of the data transcripts. What followed was a problematic process that involved difficulties with: obtaining and installing the software; rebuilding the computer to run the programme; and being trained in its use. After six months with little progress being made, despite attending some poor quality training in the use of NVivo, I decided to abandon this path and

analyse the data manually. The advantage of this manual process of data analysis was that I came to know the data extremely well.

### ***9.8 Personal growth and realisations***

I initially found the coding processes to be very difficult, in particular the process of concept generation from the transcriptions during open coding, which was carried out with a certain amount of trepidation. However, I soon realised that after certain concepts kept emerging, a concept framework could be developed and applied as a basis for the open coded data (Corbin and Strauss, 1998). Following the open coding, I applied axial and selective coding techniques to develop coherent data sets. I then had to take a step back, as a means of examining the emergent themes that were evolving. This was particularly difficult due the vast amount of data that the interviews had generated. At this point I started to loose confidence in the processes that I was undertaking, as the amount of data appeared to be overwhelming. At this point I had to decide which aspects of the data I would continue to analyse. To help with this I returned to the original research questions, which helped me to focus on the direction that the analysis needed to take. This resulted in narrowing down the data for the patients into aspects associated with the impact physical activity on their health. For the health professionals group, this related to focussing on data, relating to the referral process. The process of reviewing literature significantly helped me to narrow down the focus of the data, as did the process of selecting two core categories, one for each data set (patients and health professionals). This enabled me to develop two theoretical frameworks, and their supporting conceptual models.

Several aspects of the findings surprised me. From, the patients this related to how much they perceived that exercise had enabled them to improve their medical conditions, and how much healthier they believed they had become over the 12 month period of time. However, findings from the health professionals surprised me more. Particularly, the use of shock tactics and their effectiveness at encouraging obese patient's to take-up and adhere to the scheme. I was also surprised at how few referrals were made by most of the health professionals particularly in the context of the fitness suite that had been constructed on site. Another surprise was the stereotypical views help by some of the health professionals in relation to specific

gender-related behaviours. These views may explain why so few men see their GP regularly and do not take-up exercise referral schemes.

Personal bias has been identified as a limitation when carrying out interview based qualitative research. Sparkes (1994) has suggested that researchers need to acknowledge the similarities and differences between themselves and their participants, as these differences can shape the interactions between the researcher and the participant. Furthermore, Sparkes (1994) identified that power differences between an academic and a participant, can shape the level of interaction between them. One way that such power differences can be redressed is through the passage of time, with the participant being more likely to feel confident in the sharing of stories the longer they are engaged with the research (Sparkes, 1994).

Over the 12 month data collection period, relationships became established with the patients, who felt more comfortable discussing aspects such as, the impact that the scheme had on their medication, access to medical services, and medical conditions. This enabled a true reflection of their experiences of the impact that physical activity had on their health, and prevented me from diluting my findings, and allowed the participants to lead this aspect of the story of my research. Relationships had also developed with the health professionals over the 8 month data collection period. As the health professionals became more comfortable with the interview process, they were able to give more detailed responses during their second set of interviews.

Researchers in qualitative studies can also be viewed as having a therapeutic role by the participants in the research, with participants using the interviews as a means of emotional support (Sparkes, 1994). During the 12 month course of the interviews, the patients often expressed frustrations about their medical conditions and difficulties associated with exercising with a range of lifestyle diseases. However, the patients also used the interviews as a means of motivating themselves to continue with the exercise referral scheme. They were keen to discuss how much their exercise capacity had improved, and how they were seeing tangible improvements in their health status as a result of their engagement with the scheme. However, it must be acknowledged that I do not see myself as a therapist and at no point during any of the

interviews did I attempt to provide a therapeutic service to any of the participants in the study.

The final part of my PhD process became the most challenging, because it was not until I had a complete draft of the thesis that I was able to appreciate what other work was needed. Despite the majority of sections having been produced to a good standard, it was not until this point that I could see the whole picture. This process further helped me to contextualise what I had produced and needed to develop further, and helped me to integrate and incorporate my nature of thinking into the structure of the final PhD thesis.

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## Appendix 1: Initial information letter sent to the clinical lead of the practice.



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Dear Dr Rudge

I am currently studying towards a PhD at the Faculty of Education at the University of Plymouth. The title of my study is as follows:

'Patients' and doctors' attitudes towards health and fitness during the course of an exercise referral scheme'.

The aims of the study are as follows, to examine:

- the effects of exercise prescription.
- the different ways that participants experience the ERS programme.
- the adherence to and sustainability of physical activity behaviour.

I would like to achieve this via a qualitative study that focuses on the socio-medical model of health. The reason for using this type of methodology is that it can be effectively used to focus on the patients, understanding of health and perceptions of the referral scheme, as well as gaining the doctors, views and hopes for the scheme. The main tool used would be semi-structured interviews.

From the doctors' perspective this would involve two interviews, one at the start of the scheme and then one approximately 6 to 12 months later. Each interview would last between 30 and 60 minutes and focus on the doctors' hopes and perceptions of the exercise referral scheme. I would also like to gain an understanding of how doctors make decisions on referring people into the scheme. The follow-up interview would hope to identify any changes of opinions about the scheme; suggestions for developing the scheme; experiences with the scheme; and effectiveness of the scheme. Information would also be required to gauge the effectiveness of the scheme in relation to the originally diagnosed complaint.

From the patients' perspective this would involve three interviews, the first toward the start of the scheme, the second at the end and the third six months after completion. The interviews would last between 30 and 60 minutes and focus on the patients' understanding of health, fitness, illness and disease, along with perceptions of the exercise referral scheme and their personal health. In addition to this I would hope to explore any effects that the referral scheme has on immediate family members. In addition to interviewing patients I would also like to interview the fitness instructor.

All information would remain confidential and no specific access to patients' medical information would be requested.

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## Appendix 2: Doctor's informed consent letter



Martyn Queen  
Research student  
Faculty of Education  
University of Plymouth  
01752 636700 (Ex 5658)  
[mqueen@marjon.ac.uk](mailto:mqueen@marjon.ac.uk)

Dear Doctor

I am inviting you to participate in a research project that I am conducting. The title of this study is:

'Patients' and doctors' attitudes towards health and fitness during the course of an exercise referral scheme'.

You will be required to participate in two interviews, one at the start of the scheme (January 2008) the other approximately 6 months later (July 2008). Both of the interviews will be recorded by audio device. Each interview will last about 30 minutes and focus on your hopes and perceptions of the exercise referral scheme. I would also like to gain an understanding of how doctors make decisions on referring people into the scheme. The follow-up interview will focus on: any changes of opinions about the scheme; suggestions for developing the scheme; experiences with the scheme; and effectiveness of the scheme.

The Research Ethics Committee at the Faculty of Education of the University of Plymouth and Dr Peter Rudge have approved this research project. I am asking for your consent to participate in this study. A debriefing will be held sometime after the completion of the interviews. The findings could be used in published articles and conference presentations.

Every effort will be made to keep the data confidential. Privacy and confidentiality will be achieved by anonymising data. Data will be stored under lock and key, the researcher and his supervisor will be the only persons with access to the raw data. I will sign up to the practices confidentiality policy.

Yours sincerely

**Martyn Queen**

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Martyn Queen  
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Please could you give your written consent below to participate in the following study:

'Patients' and doctors' attitudes towards health and fitness during the course of an exercise referral scheme'

Please let me know how you prefer to be contacted and give contact details in the space below.

Preference and Contact details:

.....  
.....

I consent to participating in the study and understand that my identity will be protected.

.....(please print name)

Signed.....date.....

I consent to the interview being tape recorded.

Signed.....date.....

I consent to being contacted again for the follow up interview and to withdraw altogether or in parts from the project.

Signed.....date.....

### Appendix 3: Patient's informed consent letter



Martyn Queen  
Research student  
Faculty of Education  
University of Plymouth  
01752 636700 (Ex 5658)

mqueen@marjon.ac.uk

Dear Sir/Madam

I am inviting you to participate in my research study:

'Patients' and doctors' attitudes towards health and fitness during the course of an exercise referral scheme'

The aims of the research are to examine:

- the effects of exercise prescription.
- the different ways that participants experience the ERS programme.
- the adherence to and sustainability of physical activity behaviour.

I seek to include approximately 20 patients. For the study you will not need to take part in any physical or medical tests. You will be required to participate in three interviews, one at the start of the scheme (January 2008) one approximately 6 months later (July 2008) and a final one in January 2009. The interviews will be recorded by audio device. Each interview will last about 30 minutes during which I will ask you about 10 questions. You can interrupt the interview or leave the study at any time without giving your reasons and without any disadvantages.

The Faculty Research Ethics Committee at the Faculty of Education of the University of Plymouth and Dr Peter Rudge have approved this research project. I am asking for your consent to participate in this study. The findings will be introduced sometime after completion of interviews.

All data will be completely confidential. Privacy and confidentiality will be achieved by anonymising interview transcripts and the researcher will sign up to the surgery's confidentiality policy. Data will be stored under lock and key and the researcher and his PhD supervisor will be the only persons with access to the raw data.

I am looking forward to hearing from you.

Yours sincerely

Martyn Queen

**Martyn Queen:**

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Please could you give your written consent below to participate in the following study:

'Patients' and doctors' attitudes towards health and fitness during the course of an exercise referral scheme'

Please let me know how you prefer to be contacted and give contact details in the space below.

Preference and Contact details:

.....  
.....

I consent to participating in the study and understand that my identity will be protected.

.....(please print name)

Signed.....date.....

I consent to the disclosure of any relevant medical information to the researcher

Signature:.....date.....

I consent to the interview being tape recorded.

Signed.....date.....

I consent to being contacted again for the follow up interview and to withdraw altogether or in parts from the project.

Signed.....date.....

## **Appendix 4: Interview schedule for first set of health professionals interviews**

### **Explanation of who I am:**

PhD student at University of Plymouth conducting a research project into:

'Patients' and doctors' attitudes towards health and fitness during the course of an exercise referral scheme'

### **Confidentiality statement (to be read out):**

You can be reassured that any information disclosed to me the researcher, will be kept confidential and that it will not be possible to be identified by other members of the clinical practices or patients, unless you tell me otherwise. Your participation in this project is voluntary and therefore you may withdraw from it at any time without penalty. You have the right not to answer specific questions and to ask for the tape recording or note taking to stop at any point.

### **Questions**

#### **The exercise referral scheme**

Q1) How long have you been working with the exercise referral scheme.

Q2) Please describe your experiences so far with the exercise referral scheme.

#### **Referring patients into the scheme**

Q3) What criteria do you use for referring patients into the scheme.

Q3a) Who sets the criteria.

Q4) Have you had any problems referring patients into the scheme.

Q4a) If so what are they.

Q4b) How do you feel about this.

Q5) How do you perceive your role in promoting physical activity behaviour change.

Q5b) How do you feel about this.

#### **Effectiveness of the scheme**

Q6) How do you know that the scheme is working.

Q6a) What systems are currently used for patient feedback from the scheme.

Q6b) What mechanisms are in place to act on patient feedback.

Q6c) What are the positive aspects of the scheme.

Q6d) What are the negative aspects of the scheme.

#### **Future developments of the scheme**

Q7) How do you perceive the scheme developing in the next five years.

Q7a) How would you like to see the scheme developing in an ideal world.

Q8) Do you want to say anything further that you consider important and that I may have forgotten to ask.

## **Appendix 5: Interview schedule for second set of health professionals interviews**

### **Explanation of who I am:**

PhD student at University of Plymouth conducting a research project into:

'Patients' and doctors' attitudes towards health and fitness during the course of an exercise referral scheme'

### **Confidentiality statement (to be read out):**

You can be reassured that any information disclosed to me the researcher, will be kept confidential and that it will not be possible to be identified by other members of the clinical practices or patients, unless you tell me otherwise. Your participation in this project is voluntary and therefore you may withdraw from it at any time without penalty. You have the right not to answer specific questions and to ask for the tape recording or note taking to stop at any point.

**Please state your name**

### **Questions**

#### **1) Referral**

- 1) Should GP's refer patients for exercise.
- 2) Should patients refer themselves.
- 3) If the ERS was only based on self-referral, what impact do you think this would have on the numbers attending.
- 4) Approximately how many patients do you refer weekly.
- 5) Has there been any clarity in the referral system over the last 7 months.
- 6) Has anything been done to streamline the referral process.
- 7) Have any steps been made to allow other health professionals to refer for exercise. (i.e. healthcare assistants).

#### **2) Doctor patient relationships**

- 1) Occasionally tensions occur when discussing the need for diet and exercise.
  - 1a) In your experience are the tensions gender specific.
  - 1b) In your experience are the tensions age specific.
- 2) Has any training been provided on how to engage patients in exercise and diet, whilst preventing confrontation.

#### **3) Physical activity promotion**

- 1) Are you aware of any recent policy initiatives to promote physical activity, if so what are they.
- 2) Have there been any improvement in local facilities to engage the community in physical activity or healthy eating.
- 3) Have there been any positive developments in opening up the gym in the evenings.
- 4) Have there been any developments in the community at targeting 10 – 16 year olds.
- 5) Do you think that the patients believe that diet and exercise is what they need to improve their health.

**4) Evidence of effectiveness of the ERS**

- 1) Have any discussions taken place to develop feedback systems.
- 2) Have you had any successes with patients who have entered into ERS during the past seven months.
- 3) Have there been any initiatives to make the ERS more visible in the community.
- 4) Do you think that the ERS makes a real difference to the patients.
- 4a) What evidence do you have to support this.
- 5) Are you aware of any initiatives to standardise the ERS within the Plymouth area.

**5) Additional Information**

- 1) Would you like to say anything further that you consider important that I have not asked.

## **Appendix 6: Interview schedule for first set of patients interviews v 1**

### **Explanation of who I am:**

PhD student at University of Plymouth conducting a research project into:

'Patients' and doctors' attitudes towards health and fitness during the course of an exercise referral scheme'

### **Confidentiality statement:**

Patients can be reassured that the research will be independent of the doctors treatment of them. Any information disclosed to the researcher, will be kept confidential and the health practitioners will be not be able to identify any individuals participating in the study.

The only exception to this confidentiality statement will be if a child protection issue is discussed. If such circumstances arise then social services will be informed and child protection information leaflets will be given out.

Q1) How do think you came to be involved in the exercise referral scheme?

Q2) Did the doctor explain what may happen to you if you exercise?

Q3) How do you feel about this?

Q4) Did the doctor explain what may happen to you if you do not exercise?

Q5) How do you feel about this?

Q5a) How healthy do you consider yourself to be?

Q6) What are your good experiences of the ERS

Q7) What are your bad experiences of the ERS

Q8) Do you have any children

Q8a) How old are they

Q8b) When I started exercising my children wanted to do it as well, has your exercising had any impact on your children?

Q9) What prevented you from exercising before the exercise referral scheme?

Q9a) What types of physical activity did you do before the ERS

Q9b) How often did you exercise before the ERS, daily, weekly, monthly?

Q10) Have you changed your daily physical activity patterns such as walking or cycling since becoming involved with the ERS?

Q12) Have there been any other changes to your lifestyle since joining the ERS?

## **Appendix 7: Interview schedule for first set of patients interviews v 2**

### **Explanation of who I am:**

PhD student at University of Plymouth conducting a research project into:

‘Patients’ and doctors’ attitudes towards health and fitness during the course of an exercise referral scheme’

### **Confidentiality statement (to be read out):**

You can be reassured that any information disclosed to me the researcher, will be kept confidential and that it will not be possible to be identified by any of the doctors or any other individuals participating in the study, unless you tell me otherwise Your participation in this project is voluntary and therefore you may withdraw from it at any time without penalty. You have the right not to answer specific questions and to ask for the tape recording or note taking to stop at any point.

However, if in the course of the interview a child protection issue emerges, I cannot guarantee confidentiality and may have to take further steps, like contacting social services. If this should be the case I will inform you about the actions I take.

### **Questions**

**Q1a) How long have you been in the exercise referral scheme.**

Q1b) How often do you exercise on average per week.

Q1d) How do you come to be involved in the exercise referral scheme.

Q2) Did the doctor explain what may happen to you if you exercise.

Q2a) How do you feel about this.

Q3) Did the doctor explain what may happen to you if you do not exercise.

Q3a) How do you feel about this.

Q4) How healthy do you consider yourself to be.

Q4a) How do you feel about this.

Q5) What would you say are the good sides of the ERS.

Q6) Would you say there are bad sides to the ERS.

Q7) What prevented you from exercising before the exercise referral scheme.

Q7a) What types of exercise did you do before the exercise referral scheme.

Q7b) On average how many times per week did you use to exercise.

Q7c) How healthy did you consider yourself to be before the exercise referral scheme.

Q7d) How did you feel about that.

Q8) Have you changed your daily physical activities such as walking or cycling since becoming involved with the ERS.

Q8a) How healthy do you consider yourself to be since joining the exercise referral scheme .

Q8b) How do you feel about this.

Q9) Have there been any other changes to your lifestyle since joining the ERS.

**Q10) Who lives in your household.**

Q10a) When I started exercising my children wanted to do it as well, has your exercising had any impact on your children.

Q10b) Have there been any changes in your partners exercise behaviours since you started the ERS.

Q10c) Has your partner changed their daily physical activities such as walking or cycling since you become involved with the ERS.

Q10d) On average how many times per week did your partner exercise before you joined the ERS.

Q10e) On average how many times per week does your partner exercise now.

Q10f) How healthy does your partner consider them self to be.

Q10g) Has your partner changed their opinion of this since you joined the exercise referral scheme .

Q10h) How do you feel about this.

Q11) Would you like to say anything further that you consider important that I have not asked.

**General Questions:**

How many units of alcohol do you drink per week

How many cigarettes do you smoke

Are you currently employed

What type of job do you do when you are in employment

Please could you tell me what your age is.

What are the ages of the people who live in your household.

## **Appendix 8: Interview schedule for first set of patients interviews v 3**

### **Explanation of who I am:**

PhD student at University of Plymouth conducting a research project into:

'Patients' and doctors' attitudes towards health and fitness during the course of an exercise referral scheme'

### **Confidentiality statement (to be read out):**

You can be reassured that any information disclosed to me the researcher, will be kept confidential and that it will not be possible to be identified by any of the doctors or any other individuals participating in the study, unless you tell me otherwise Your participation in this project is voluntary and therefore you may withdraw from it at any time without penalty. You have the right not to answer specific questions and to ask for the tape recording or note taking to stop at any point.

However, if in the course of the interview a child protection issue emerges, I cannot guarantee confidentiality and may have to take further steps, like contacting social services. If this should be the case I will inform you about the actions I take.

### **Please state your name**

#### **A) Exercise referral scheme.**

- Q1) How do you come to be involved in the exercise referral scheme.
- Q2) Did the doctor explain what may happen to you if you exercise.
- Q3) Did the doctor explain what may happen to you if you do not exercise.
- Q3a) How do you feel about this.
- Q4) How healthy do you consider yourself to be now.
- Q4a) How healthy did you consider yourself to be before joining the ERS.
- Q5) What would you say are the good sides of the ERS.
- Q6) Would you say there are any bad sides to the ERS.
- Q7) What has prevented you from exercising past.
- Q7a) What types of exercise did you do before the exercise referral scheme.
- Q7b) On average how many times per week did you use to exercise.

Q8) Have you changed your daily physical activities such as walking or cycling going to the gym, since becoming involved with the ERS.

Q8a) How do you feel about this.

### **B) Medical condition**

Q1) What do you think is the reason that you ended up with your current medical condition.

Q1a) Do you know the names of the medical conditions that have lead you to being referred for exercise.

### **C) General perceptions of health and lifestyle**

Q1) What do you think a healthy lifestyle is.

Q2) What has your doctor said to you about making changes to your lifestyle.

Q2a) What have the fitness instructors said to you about making changes to your lifestyle.

Q2b) How do you feel about making these changes to your lifestyle.

Q2c) How are you getting on with making these changes.

Q2d) What are you finding easy about making these changes.

Q2e) What are you finding hard about making these changes.

Q3) How active would you say the jobs that you have done in the past and present have been.

### **D) Partners / children**

Q1) Who lives in your household.

Q1a) Have there been any changes in your partners exercise behaviours since you started the ERS. i.e. more walking or cycling, going to the gym etc.

Q1b) On average how many times per week did your partner exercise before you joined the ERS.

Q1c) On average how many times per week does your partner exercise now.

Q1d) How healthy does your partner consider them self to be now.

Q1d) How healthy has your partner considered them self to be in the past.

Q1e) When I started exercising my children wanted to do it as well, has your exercising had any impact on your children/ or grandchildren

Q2) Would you like to say anything further that you consider important that I have not asked.

**E) General Quantitative Questions:**

- 1) How many units of alcohol do you drink per week.
- 2) How many cigarettes do you smoke per day.
- 3) Are you currently employed.
- 4) Please could you tell me what your age is.
- 5) What are the ages of the people who live in your household.
- 6) How often do you exercise on average per week.

## **Appendix 9: Interview schedule for second set of patients interviews**

### **Explanation of who I am:**

PhD student at University of Plymouth conducting a research project into:

'Patients' and doctors' attitudes towards health and fitness during the course of an exercise referral scheme'

### **Confidentiality statement (to be read out):**

You can be reassured that any information disclosed to me the researcher, will be kept confidential and that it will not be possible to be identified by any of the doctors or any other individuals participating in the study, unless you tell me otherwise Your participation in this project is voluntary and therefore you may withdraw from it at any time without penalty. You have the right not to answer specific questions and to ask for the tape recording or note taking to stop at any point.

However, if in the course of the interview a child protection issue emerges, I cannot guarantee confidentiality and may have to take further steps, like contacting social services. If this should be the case I will inform you about the actions I take.

### **Please state your name**

#### **1) Exercise**

- 1) Are you still going to the gym, if so, how often.
- 2) What is it that keeps you going to the gym.
- 3) How active are you on a daily basis, in addition to the gym.
- 4) What is it that keeps you active.
- 5) Have you had any lapses in your exercise regime during the past 7 months.
- 6) What has caused those lapses.

#### **2) Application of exercise to daily lifestyle**

- 1) How are you getting on applying what you have learnt to your everyday lifestyle
- 2) How do you know that you are exercising at the correct level to achieve the desired health benefits, apart from when you are at the gym.
- 3) Can you think of anything that may help you to do this.
- 4) Is there anything that you think would help you to be more active

#### **3) Current perceptions of your health**

- 1) How healthy would you say you are now.
- 2) On a scale of 1-10 how would you rate yourself.

#### **4) Diet**

- 1) Were you advised to make changes to your diet.
- 2) How have you got on with making the changes.
- 3) What did you find easy about making the changes.
- 4) What did you find hard about making the changes.
- 5) Have you had any lapses in your diet during the past 7 months.
- 6) What has caused those lapses.
- 7) On a scale of 1-10 how would you rate the way that you have managed your weight.
- 8) Tell me about any changes to your weight over the past 7 months

#### **5) Doctor patient relationships**

- 1) Prior to the ERS were you ever told by a health professional/doctor that you were overweight or obese.
- 2) If so, how long were you overweight or obese for.
- 3) How did you feel about being told that you were overweight /obese.
- 2) How did you feel about being told that you need to diet.
- 3) How did you feel about being told that you need to exercise.
- 4) Do you think that exercise is appropriate for the condition that you have.
- 5) How do you feel about the way that you were told that you needed to diet and or exercise.
- 6) How does your doctor know how you are getting on with the ERS and the impact that this is having on your medical condition.
- 7) Would you have engaged in exercise if your GP had not referred you.

#### **6) Referral type**

- 1) Did your doctor refer you or were you a self-referral.
- 2) If self-referral what motivated you to get referred.

## **7) Healthy lifestyle**

- 1) What do you consider a healthy lifestyle to be.
- 2) How have you got on with making the lifestyle changes that you have been advised to make.
- 3) How do you motivate yourself to continue to lead a healthy lifestyle.
- 4) What would help you to continue to do this.
- 5) What impact has exercise and/ or diet had on your medical condition.

## **Appendix 10: Interview schedule for third set of patients interviews v 1**

### **1: Exercise**

1.0) How long after starting with the ERS did you feel confident enough to try harder exercises.

1.1) How long after starting to regularly attend exercise classes was it that you felt confident enough to incorporate physical activity such as walking into your daily lifestyle.

1.2) How much physical activity i.e. walking are you doing on a daily/weekly basis now and for how long.

1.3) How many times per week do you attend exercise classes now.

1.4) What would you say is the one thing that has helped you to become physically active on a regular basis.

1.5) What would you say is the one main thing that has prevented you becoming physically active.

1.6) How does your current physical activity levels compare with those of twelve months ago (on a scale of 1–10).

1.7) What is it about the gym environment that has influenced the way you have continued to exercise.

1.8) How much exercise, gym and or walking etc. have you completed in the past month.

1.8.1) What has prevented you from doing this

### **2: Health**

2.0) On a scale of 1-10, how healthy would you say you are now.

2.1) How knowledgeable would you say you are now about healthy lifestyles, compared to 12 months ago (on a scale of 1–10).

2.2) What is the main thing that you would attribute this to.

### **3: Diet**

3.0) On a scale of 1-10 how successful have you been at managing your weight over the past year.

3.1) How much weight have you lost over the past year.

3.2) How much weight have you gained over the past year.

#### **4: Healthy Lifestyles**

4.0) How long was it before you started to enjoy the exercise classes.

4.1) How long was it before you started to be able to regularly incorporate Physical activity into your daily lifestyle.

4.2) How long was it before you started to get a general feeling of wellbeing.

4.3) When do you get the feeling of well being.

4.4) How long does it last.

4.5) Do you feel any younger than you did before you started exercising.

4.6) Are you leading a healthy lifestyle.

4.7) How long was it from the initial meeting with the GP before you could say that healthy living was fully incorporated into your lifestyle.

#### **(-ve cases only)**

**4.8) You have not been able to do as much exercise as you would like because of your conditions. This makes diet even more important for you. Can you identify why you have struggled so much with your diet.**

**4.8.1) How have you got on with your exercise DVD**

**4.8.2) What effect has this had on your current conditions**

**4.8.3) How have you got on using the Wii FIT**

**4.8.4) What effect has this had on your current conditions**

#### **5: Use of Medical Services**

5.0) How often were you seeing a doctor/nurse twelve months ago.

5.1) How often are you seeing one now.

5.2) How much has this decreased by.

5.3) How much has this increased by.

#### **(-ve cases only)**

**5.4) Some people have stated that getting out of the house, for example by going for a drive, can give them a psychological lift. Have you experienced this.**

**5.5) What else gives you a lift when you are feeling low.**

## **6: Medical conditions**

6.0) Do you feel any better than you did 12 months ago

6.1) How much better do you feel (on a scale of 1 – 10)

6.2) What would you put this down to.

6.3) What support has been the most effective in helping you to manage your medical conditions and why.

6.4) What has had the most impact on your medical conditions, diet, exercise or other, please explain.

6.5) How successful has diet been in the management of your medical conditions over the past year (on a scale of 1 – 10).

6.6) How successful has exercise been in the management of your medical conditions over the past year (on a scale of 1 – 10).

## **7: Medication**

7.0) Were you ever advise to stop exercising by a doctor.

7.1) Why was this.

7.2) Have you been told by a doctor in the last 12 months to stop exercising because of the medication you were taking.

7.3) If so what medication was it and what impact was it having on the exercises that you were doing.

7.4) Have you reduced any of your medication over the past twelve months.

7.5) Can you explain to me what changes have occurred.

7.6) How much has this reduced over the past month.

## **8: Depression**

8.1) Have you ever been diagnosed with depression.

8.2) Were you given antidepressant medication by your GP for your depression.

8.3) Are you still taking the medication.

8.4) When did you stop taking the medication.

8.5) What impact do you think exercise has had on reducing your antidepressant medication.

8.6) What has had the most impact on reducing your depression, gym classes, daily physical activity, diet, other.

8.7) How long after starting the ERS did you feel that your depression had started to lift.

8.8) At what point do you think your depression had lifted completely.

8.9) How long has it been lifted now.

### **9: Anything further**

9.1) Would you like to say anything further that you consider important that I have not asked.

#### **Len**

- 1) What type of exercise keeps you the healthiest
- 2) How much of this do you do on a weekly basis
- 3) You previously mentioned you would like to take-up ballroom dancing but you were not fit enough, what would you have to do to address this.

#### **Andrea**

- 1) You previously mentioned that you put on 2.5 stone as a result of HRT medication.
- 2) Tell me about the changes to your weight over the past 12 months years
- 3) Have you lost the weight that you put on.

## **Appendix 11: Interview schedule for third set of patients interviews v2**

### **1: Exercise**

- 1.0) How many times per week do you attend exercise classes now.
- 1.1) How much physical activity i.e. walking are you doing on a daily/weekly basis now and for how long.
- 1.2) What would you say is the one thing that has helped you to become physically active on a regular basis.
- 1.2a) What would you say is the one main thing that has prevented you becoming physically active on a regular basis.
- 1.3) How does your current physical activity levels compare with those of twelve months ago (on a scale of 1–10).
- 1.4) How much exercise, gym and or walking etc. have you completed in the past month.
- 1.4a) What has prevented you from doing this
- 1.5) Has the gym environment had any influence on the way you have continued to exercise.
- 1.6) Can you remember how long after starting with the ERS did you feel confident enough to try harder exercises.
- 1.7) Can you remember how long after starting to regularly attend exercise classes was it that you felt confident enough to incorporate physical activity such as walking into your daily lifestyle.

### **2: Health**

- 2.0) How healthy would you say you are now (on a scale of 1-10)
- 2.2) What is the main thing that you would put this down to.
- 2.1) How knowledgeable would you say you are now about healthy lifestyles, compared to 12 months ago (on a scale of 1–10).
- 2.2) What is the main thing that you would put this down to.

### **3: Diet**

3.0) How successful have you been at managing your weight over the past year (on a scale of 1–10).

3.0a) Controlling weight over a long period of time can be very difficult, as it can go up and down.

Has your weight loss during the past year been in the region of **(1 stone = 6.35 kgs or 14 lbs)** :

Up to 5kgs (11lbs)    Up to 10kgs (22lbs)    Up to 55kgs (33lbs)    Other

3.0b) Has your weight gain during the past year been in the region of:

up to 3kgs (6.6lbs)    up to 5kgs (11lbs)    up to 10kgs (22lbs)    up to 55kgs (33lbs)    Other

### **4: Healthy Lifestyles**

4.0) I have heard that initially people did not like to exercise, then they really started to enjoy it. Was this the same for you.

Do you know at what point this happened

4.1) I also heard that initially people found it hard to incorporate physical activity in their daily lifestyles, then they really started to enjoy it. Was this the same for you.

Do you know at what point this happened

4.2) Some people have told me that after exercising for a while, they started to get a general feeling of wellbeing. Was this the same for you.

Do you know at what point this happened

How long does it last.

4.3) Would you say that you are you leading a healthy lifestyle.

As you know leading a healthy lifestyle is a gradual process. Do you know roughly from what point over the past year you could say you were doing this.

Are you managing to keep it up for:

1 week in three    2 weeks in four    3 weeks in 4    4 weeks out of 4

**(-ve cases only)**

**4.8) You have not been able to do as much exercise as you would like because of your conditions. Can you identify anything that you have done over the past 12 months to help with the conditions you have.**

**4.8.1) How have you got on with your exercise DVD**

**4.8.2) What effect has this had on your current conditions**

**4.8.3) How have you got on using the Wii FIT**

**4.8.4) What effect has this had on your current conditions**

## **5: Use of Medical Services**

5.0) Has your access to medical services changed over the past 12 months

5.0a) How often are you seeing one now.

5.0b) How much has this decreased by.

5.0c) How much has this increased by.

## **6: Medical conditions**

6.0) Please can you remind me of the main medical conditions that you have.

6.0a) Which ones did you think exercise and or diet would be good for.

6.0b) Has exercise and or diet been good for them (on a scale of 1 – 10).

6.0c) Has this been reflected in any changes in medication.

### **PROBE – what has occurred, monthly, weekly changes etc.**

6.1) Who has been the most effective at supporting you to achieve a healthy lifestyle.

How did they support you.

How have you helped yourself.

**(-ve cases only)**

**6.2) Were you ever advised to stop exercising by a doctor in the past 12 months.**

**6.2a) Why was this.**

**6.3) Have you been told by a doctor in the last 12 months to stop exercising because of the medication you were taking.**

**6.3a) If so what medication was it and what impact was it having on the exercises that you were doing.**

## **7: Depression**

7.0) Some people have stated that getting out of the house, for example by going for a drive, can give them a psychological lift. Have you experienced this.

7.0a) What else gives you a lift when you are feeling low.

7.1) Have you ever been diagnosed with depression.

7.2) Were you given medication by your GP to help you with this.

7.3) Are you still taking the medication.

7.4) If not can you remember when you stopped taking the medication.

7.4a) Can you think of anything that has contributed to this.

7.4b) How long after starting the ERS did you stop taking antidepressant medication.

## **8: Anything further**

8.1) Would you like to say anything further that you consider important that I have not asked.

8.2) What do you think your new year's resolution is likely to be in January 2010.

8.3) How have you found the interviewing process over the past 3 interviews.

8.4) Have there been any negative aspects of the interview process that you would like to report.

**Appendix 12: Interview schedule for third set of patients interviews v 3**

<b>Question</b>	<b>1: Exercise</b>	<b>Concept</b>
1.0) How many times per week do you attend exercise classes now.		
1.1) How much physical activity i.e. walking are you doing on a daily/weekly basis now and for how long.		
1.2) What would you say is the one thing that has helped you to become physically active on a regular basis.		
1.2a) What would you say is the one main thing that has prevented you becoming physically active on a regular basis.		
1.3) How does your current physical activity levels compare with those of twelve months ago (on a scale of 1–10).		
1.4) How much exercise, gym and or walking etc. have you completed in the past month.		
1.4a) What has prevented you from doing this		
1.5) Has the gym environment had any influence on the way you have continued to exercise.		

1.6) Can you remember how long after starting with the ERS did you feel confident enough to try harder exercises.		
1.7) Can you remember how long after starting to regularly attend exercise classes was it that you felt confident enough to incorporate physical activity such as walking into your daily lifestyle.		
	<b><u>2: Health</u></b>	
2.0) How healthy would you say you are now (on a scale of 1-10)		
2.2) What is the main thing that you would put this down to.		
2.1) How knowledgeable would you say you are now about healthy lifestyles, compared to 12 months ago (on a scale of 1–10).		
	<b><u>3: Diet</u></b>	
3.0) How successful have you been at managing your weight over the past year (on a scale of 1–10).		
	<b><u>4: Healthy Lifestyles</u></b>	
4.0) I have heard that initially people did not like to exercise, then they really started to		

enjoy it. Was this the same for you.		
Do you know at what point this happened		
4.1) I also heard that initially people found it hard to incorporate physical activity in their daily lifestyles, then they really started to enjoy it. Was this the same for you.		
Do you know at what point this happened		
4.2) Some people have told me that after exercising for a while, they started to get a general feeling of wellbeing. Was this the same for you.		
Do you know at what point this happened		
How long does it last.		
4.3) Would you say that you are you leading a healthy lifestyle.		
Are you managing to keep it up for:		
<b>(-ve cases only)</b> <b>4.8) You have not been able to do as much exercise as you would like because of your conditions. Can you identify</b>	<b><u>For Mr and Mrs Kyte only</u></b>	

<p>anything that you have done over the past 12 months to help with the conditions you have.</p> <p>4.8.1) How have you got on with your exercise DVD</p> <p>4.8.3) How have you got on using the Wii FIT</p>		
<b><u>5: Use of Medical Services</u></b>		
5.0) Has you access to medical services changed over the past 12 months		
5.0a) How often are you seeing one now.		
5.0b) How much has this decreased by.		
5.0c) How much has this increased by.		
<b><u>6: Medical conditions</u></b>		
6.0) Please can you remind me of the main medical conditions that you have.		
6.0a) Which ones did you decided exercise and or diet would be good for.		
6.0b) Has exercise and or diet been good for them (on a scale of 1 – 10).		
6.0c) Has this been reflected in any changes in medication.		
6.1) Who has been		

the most effective at supporting you to achieve a healthy lifestyle.		
How did they support you.		
How have you helped yourself.		
	<b>Mr and Mrs Kyte only</b>	
<b>ve cases only)</b>  <b>6.2) Were you ever advise to stop exercising by a doctor in the past 12 months.</b>  <b>6.2a) Why was this.</b>  <b>6.3) Have you been told by a doctor in the last 12 months to stop exercising because of the medication you were taking.</b>  <b>6.3a) If so what medication was it and what impact was it having on the exercises that you were doing.</b>		
	<b><u>7: Depression</u></b>	
7.0) Some people have stated that getting out of the house, for example by going for a drive, can give them a psychological lift. Have you experienced this.		
7.0a) What else gives you a lift when you are feeling low.		
	<b><u>8: Anything further</u></b>	
8.1) Would you like		

<p>to say anything further that you consider important that I have not asked.</p>		
<p>8.2) What do you think your new years resolution is likely to be in January 2010.</p>		
<p>8.3) How have you found the interviewing process over the past 3 interviews.</p>		
<p>8.4) Have there been any negative aspects of the interview process that you would like to report.</p>		

## ETHICS PROTOCOL

Patients' and doctors' attitudes towards health and fitness during the course of an exercise referral scheme (ERS).

### 1. Who I am

My name is Martyn Queen. I am a PhD student and Senior Lecturer and Foundation Degree Progression Co-ordinator for the School of Sport Physical Education and Leisure at the University College Plymouth St Mark and St John. I am also the programme leader for the BSc degree in Coach and Fitness Education.

### 2. What this research is about

I am investigating:

- the effects of exercise prescription.
- the different ways that participants experience the ERS programme.
- the adherence to and sustainability of physical activity behaviour.

I hope to submit an article for publication on completion of this study.

### 3. Data collection

I intend to carry out a number of case studies in order to gain an understanding of the influences that may alter patients and doctors attitudes towards health and fitness during the course of the exercise referral scheme. To achieve this I intend to interview approximately twenty patients and five doctors.

*Patients* – Will be selected by inviting all those taking part in the exercise referral scheme at the health clinic, to participate in the study and then randomly selecting a sample from those wishing to participate. Three interviews will then be conducted, the first toward the start of the scheme, the second at the end and the third six months after completion. The interviews would last between 30 and 60minutes and focus on the patients understanding of health, fitness, illness and disease, along with perceptions of the exercise referral scheme and their personal health.

*Doctors* - Doctors will be selected by inviting all those referring patients into the exercise referral scheme to participate in the study and then randomly selecting a sample. Two interviews will then be conducted, one at the start of the scheme and then another six months later. Each interview would last between 30 and 60 minutes and focus on the doctors' hopes, aspirations and perceptions of the exercise referral scheme and if this changes over the course of the ERS.

This ethics protocol will be sent to all prospective interviewees with an invitation to take part. If they are willing to be involved I shall seek their permission to audio-record the interview or take notes instead if they prefer. If requested, copies of the interview transcript (which may be in partial or summary form) of my notes will be provided. Any audio-recording will be kept securely and will be destroyed no more than 12 months after my report has been published.

#### **4. Right to withdraw**

Participation in the project will be voluntary and participants will be able to withdraw from the study at any time without penalty. Participants will have the right not to answer specific questions and to ask for recording or note-taking to cease at any point.

#### **5. Confidentiality**

*Patients* - Every effort will be made to ensure that participants are not identifiable in the report of the research. Patients can be assured that the research will be independent of the doctor's treatment of them. Any information disclosed to the researcher, will be kept confidential and that the doctors will not be able to identify any individuals participating in the study.

The only exception to this confidentiality statement will be if a child protection issue is raised. If such circumstances arise then social services will be informed and child protection information leaflets will be given out.

*Doctors* - Can be reassured that any information disclosed will be kept confidential and that it will not be possible to be identified by other members of the clinical practices or patients.

#### **6. Feedback**

I shall provide you with a summary of my findings on request.

**If you do agree to take part – many thanks!**

If you require further information please contact me by email, via [mqueen@marjon.ac.uk](mailto:mqueen@marjon.ac.uk)

### **Appendix 14: Confirmation of ethical approval from University of Plymouth**

**From:** Jenny Lowe [jenny.lowe@plymouth.ac.uk]

**Sent:** 17 December 2007 15:04  
**To:** Martyn Queen; 'martyn.queen@virgin.net'  
**Subject:** Ethics Protocol

Hi Martyn

The Faculty Research Ethics Committee are pleased to approve your ethics protocol, subject to two minor amendments:

- 1) Could you please indicate in the consent letters that the protocol has been approved by the Faculty Research Ethics Committee, not just Faculty of Education, UoP;
- 2) It would be less complex if you were simply to indicate that participants will not be identifiable in the report, rather than allowing for choice. An anonymous report should be just that.

I hope this is ok – if you have any queries please don't hesitate to contact me.

Kind regards,

*Jenny*

Jenny Lowe  
Research Administrator & Quality Assurance  
Faculty of Education  
01395 255466  
[jenny.lowe@plymouth.ac.uk](mailto:jenny.lowe@plymouth.ac.uk)

**Appendix 15: Plymouth Teaching Primary Care Trust –Confidentiality Policy v 1.5**

Plymouth Teaching Primary Care Trust

## Confidentiality Policy

Version No 1:5

### **Notice to staff using a paper copy of this guidance**

The policies and procedures page of Healthnet holds the most recent and approved version of this guidance. Staff must ensure they are using the most recent guidance.

***Authors/Editor***                      *Caroline Flynn*

**Access ID Number**                      63

## Reader Information and Asset Registration

<b>Title</b>	Confidentiality Policy v1:5
<b>Information Asset Register Number</b>	PPCTG63
<b>Rights of Access</b>	Public
<b>Type of Formal Paper</b>	Policy
<b>Category</b>	Clinical
<b>Format</b>	Word Document
<b>Language</b>	English
<b>Subject</b>	Guidance for dealing with Confidential Data
<b>Document Purpose and Description</b>	To provide all Trust Staff with details of their responsibilities in respect of personal and corporate data.
<b>Author(s)/Editor(s)</b>	Caroline Flynn
<b>Ratification Date and Group</b>	5 <sup>th</sup> June 2007, Governance Committee.
<b>Publication Date</b>	8 <sup>th</sup> August 2007
<b>Review Date and Frequency of Review</b>	5 <sup>th</sup> June 2009, Two yearly.
<b>Disposal Date</b>	The Public Information Service will retain a copy for the archive in accordance with the Retention and Disposal Schedule, all copies must be destroyed when replaced by a new version or has been withdrawn from circulation.
<b>Job Title of Person Responsible for Review</b>	Director of Nursing
<b>Target Audience</b>	All PCT Staff
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<b>Consultation Process</b>	Via Clinical Governance Committee
<b>Equality Impact Assessment</b>	Yes -
<b>References/Source</b>	<ul style="list-style-type: none"> <li>• Access to Health Records Act 1990</li> <li>• Access to Medical Records Act 1988</li> <li>• Data Protection Act 1998</li> <li>• Protecting and using patient information-A Manual for Caldicott Guardians , Nhs Executive</li> <li>• Transferring Patient Identifiable Data – Faxing Policy ,South and West Devon Heath Community Caldicott Guardian Group</li> <li>• The Mental Capacity Act 2005</li> </ul>
<b>Supersedes Document</b>	Confidentiality Policy 2005 Mental Health and Learning Disabilities
<b>Author Contact Details</b>	Caroline Flynn  Practise Development Facilitator 25 Wyndham Square, ☎01752 314824 caroline.flynn@pcs-tr.swest-nhs.uk
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<b>Version Number</b>	<b>Details</b> e.g. Updated or full review	<b>Date</b>	<b>Author of Change</b>	<b>Description of Changes and reason for change</b>
1	Original document	May 2003	Caroline Flynn	Original document
1:1	Updated	May 2005	Stuart Edmunds	Updated to corporate template
1:2	Reviewed	April 2007	Caroline Flynn	Reviewed and updated to be relevant for whole trust, no longer a Mental Health only document.
1:3	Updated	09/05/2007	Jade Brelsford	Updated for publication, appendix added.
1.4	Amendments made	27/06/2007	Caroline Flynn	Amended
1.5	Amendments	01/08/07	Caroline Flynn Amanda Williams	Amended

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## Confidentiality Policy

### 1. Introduction

All personal and personal health information obtained about patients or employees of the Trust should be treated as confidential, as should all corporate information. This Confidentiality Policy is designed to provide all Trust staff with details of their responsibilities in respect of personal and corporate data and best practice guidelines on how to deal with this type of information, details about disclosure of information (when and what you can disclose and to who) and the implications of breaches of confidentiality.

This document is not designed to be an exhaustive and definitive guide to confidentiality, nor is it intended to override any of the guidance or Codes of Conduct laid down by individual medical and professional bodies. Members should still refer to the publications of their professional body, and use these guidelines as a supplement to those documents.

All staff need be aware of all their responsibilities under the Data Protection Act 1998 and the implications of the Caldicott Recommendations. All Trust members of staff should attend the Confidentiality Training, which is assessed via the Training Administrator (PHNT) on 31032.

### 2. Objective

The objective of this document is to provide guidelines to assist all Trust staff in the handling of confidential information and, it covers both patient related information, information relating to other staff members and corporate information.

### 3. Definitions

**Confidentiality** – Information only gets to somebody who is authorised to receive it by someone who is authorised to disclose it, which has been determined on a need to know basis.

**Personal Information** – Factual information, or expressions of opinion, which relate to a living individual who can be identified from that information, or in conjunction with any other information coming into the possession of the holder of that data – this also includes any indication of the intentions of any person in respect of that individual.

**Personal Health Information** – Information relating to the physical or mental health of an individual and any other information obtained in connection with the provision of healthcare requiring it to be held in confidence.

**Corporate Information** - Information relating to the business activities of the organisation and in particular, information relating to funding and contracts.

## **4. Legal Framework**

Everyone working for the NHS has a legal duty to keep any personal or corporate information received in the course of his or her work confidential. However, there are a number of specific legal duties which relate to both the confidentiality and disclosure of personal health information held within a health record, and information obtained regarding other members of staff.

### **4.1 Common Law Duty of Confidence**

The 'duty of confidence' is long established within common law, and as such applies equally to everyone. Stated simply this means, that any personal information given or received in confidence for one purpose may not be used for a different purpose or passed to anyone else without the consent of the provider of the information. There are two exceptions to the common law duty, whereby information may be disclosed without the consent of the individual, these are: -

1. Where there is an over riding public interest in the disclosure, which is usually only satisfied when there is a significant risk to the safety of one or more people.
2. Where disclosure of information is required by law, for example to notify a birth.

### **4.2 Human Rights Act 1998**

The Human Rights Act came in to force on 2 October 2000. It incorporates into domestic law the European Convention on Human Rights (ECHR) to which the UK has been committed since 1951. The main element of the Human Rights Act (HRA) 1998 relevant to data protection, confidentiality and medical/personal records is Article 8. This article states that:

- Everyone has the right to respect for their private & family life, their home and their correspondence; and that
- There shall be no interference by a public authority with the exercise of that right except such as in accordance with the law and is necessary in a democratic society, in the interests of: -
  - National security
  - Public safety or the economic well being of the country
  - For the prevention of disorder or crime
  - For the protection of health or morals; or
  - For the protection of the rights and freedoms of others

The implications for data protection and confidentiality are obvious, as Article 8 effectively gives an individual the right to privacy for the first time in UK law although the Human Rights Act is more about reinforcing existing rights rather than creating new rights and obligations. It is important however, that the rights of Article 8 are taken into account and that the decisions are fair and reasonable. All reasons for decisions should be clearly stated and recorded and should be solely based on fact.

### 4.3 Data Protection Act 1998

#### 4.3.1 Overview

The Data Protection Act 1998 came into force on the 1st March 2000, it implemented the 1995 European Union Data Protection Directive and completely replaces the previous 1984 Act. The Act covers the way organizations deal with personal data, and there are a number of differences between the old Act and the new one. The main differences are:

- It now applies to both manual records and to computer based records
- It covers information regarding the intentions of the owner of the data towards the data subject
- The definition of processing is much wider, - it now covers altering, using, obtaining, retention, storage, archiving and even the destruction of data

#### Data under the Act is any:

Factual information, or expressions of opinion, which relate to a living individual who can be identified from that information, or, in conjunction with other information coming into the possession of the data holder, this also includes any indication of the intentions of any person in respect of that individual.

#### 4.3.2 Data Protection Principles

Within the Act there are eight Data Protection Principles, which are in effect are the essence of the Act. These are that:

1. Personal data shall be **processed fairly and lawfully** and, in particular shall not be processed unless:

- at least one of the conditions in Schedule 2 is met, &
- in the case of sensitive personal data, at least one of the conditions in Schedule 3 is also met

#### Schedule 2 conditions:

- consent of the data subject
- necessary for performance of a contract with the data subject
- legal obligation
- to protect vital interests of the data subject
- to carry out public functions in the public interest
- to pursue legitimate interests of the controller unless prejudicial to interests of the data subject

**Schedule 3 conditions:**

- explicit consent of the data subject
- to comply with employers legal duty
- to protect vital interests of data subject or another person
- carried out by certain non-profit bodies
- the information has been made public by the data subject
- in legal proceedings
- exercising legal rights
- to carry out public functions
- for medical purposes
- for equal opportunities monitoring
- as specified by order

2. Personal data shall be **obtained only for one or more specified and & lawful purposes**, and shall not be further processed in any manner incompatible with that purpose(s).

3. Personal data shall be **adequate, relevant and not excessive** in relation to the purpose or purposes for which they are processed.

4. Personal data shall be **accurate**, and where necessary, kept **up to date**.

5. Personal data processed for any purpose or purposes shall **not be kept any longer than is necessary** for that purpose or purposes.

6. Personal data shall be **processed in accordance with the rights of data subjects** under this Act.

7. **Appropriate technical & Organisational measures** will be taken against unauthorized or unlawful processing of personal data, and against accidental loss, destruction or damage to, personal data.

8. Personal data shall **not be transferred to a country or territory outside of the European Economic Area**, unless that country or territory ensures an adequate level of protection for the rights and freedoms of data subjects in relation to the processing of personal data.

**4.3.3 Access to Health Records**

From the 1st March 2000, all requests for access to the health records of living individuals should be made under the Data Protection Act 1998, and not under the former Access to Health Records Act 1990. Whilst in practice this will make

very little difference to the process from the applicant's point of view, there is one important difference to note; This is that the patient can access any health record relating to themselves, whether held manually or on a computer and, irrespective of when it was written. This is a notable change to the previous regime, which had a backstop of the 1st November 1991 for manual records. Further details on seeking access to health records are contained under section 6 of this document.

#### **4.3.4 Access to Personnel Records**

Employees also have the right to see and receive a copy of the information the Trust holds about them. This right is also contained in the Data Protection Act 1998, which covers access to the records of all living individuals and includes not only information about employees held in computer records but also, from 24 October 2001, information held in relevant filing systems, whether in a central personnel function or elsewhere within the organisation. Further details on seeking access to personnel records are contained under Section 6 of this document.

#### **4.3.5 The Considerations Regarding Disclosure**

There are a number of circumstances when it is possible that a decision not to release some or all information is taken. This is the case whether it is informally as part of a discussion process with either the data subject or their representative, or indeed as part of the formal application of access to information under this Act. The circumstances are discussed in detail in Section 6 of this document.

#### **4.3.6 Individuals Responsibilities**

Under the Data Protection Act 1998, every individual is responsible for ensuring that any personal information they receive, is dealt with appropriately and specifically that:

- Both them as an individual, and the Trust as an organisation, has a right to receive and hold the information that has come into their possession.
- Information should not be passed on to any other person, or body, unless you are sure that you are authorised to disclose it, and the other person is authorised to receive it. Particular attention should be paid to whether the disclosure requires the consent of the subject of the information.
- Any information should only be used for the purposes for which it was originally collected.
- Any information held should be kept accurate and up to date, and should not be held any longer than is necessary.

- Technical, physical and organisational security methods should be implemented to ensure that the information does not get lost, damaged or disclosed inappropriately.
- All other laws, Department of Health Guidelines, Professional Practice Codes of Conduct and & Trust Polices should be complied with.

#### **4.4 Access to Health Records Act 1990**

Whilst most of this Act has now been repealed by the Data Protection Act 1998, it is still the Act under which people can seek access to records of deceased patients. Further details on seeking access to health records, are contained under section 6 of this document.

#### **4.5 Access to Medical Reports Act 1988**

Under this Act an individual has the right, subject to certain specified exemptions, to access any medical report relating to themselves which is to be, or has been, prepared by a medical practitioner for employment or insurance purposes. If the individual wishes to exercise this right they must, before the report is supplied to a third party, tell the practitioner of their intent. The specified exemptions are that a person's right of access may be denied to all or part, of the report if, either: -

- In the opinion of the medical practitioner, the information contained in the report is likely to cause serious harm to the physical or mental state of the individual; or
- This would be likely to reveal information about another person, who is not a healthcare professional and they have not consented to this disclosure.

The individual always has the right to stop the practitioner from supplying the report to a third party, but if they do not ask to see the report before it is sent, this is considered as implicit consent to the supplying of that report. The individual is entitled, before giving consent, to request the medical practitioner to amend any part of the report, which they consider to be incorrect or misleading. If the practitioner does not want to alter the report, they must attach a statement of the individual's views in respect of the report.

#### **4.6 Freedom of Information Act 2000**

The Freedom of Information Act, "Right to know" section, came into force at the beginning of 2004. It deals with access to official information and provides individuals or organisations with the right to request information held by a public authority. They can do this by letter or email.

The public authority must tell the applicant whether it holds the information, and must normally supply it within 20 working days, in the format requested.

However, the public authority does not have to confirm or deny the existence of the information or provide it if an exemption applies, the request is vexatious or similar to a previous request, or if the cost of compliance exceeds an appropriate limit.

If an individual makes a request for personal information about themselves this will not be covered by this Act and the individual will be directed to make an application under the Data Protection Act 1998. If the person makes a request to see information about another person they will either be dealt with under the

- Access to Health Records Act 1995  
or
- Freedom of Information Act 2000, Part II, Exempt Information, Absolute exemption S 40 Personal Information. This states that the Authority must not breach data protection principles or release information likely to cause damage or distress. Each request is considered carefully and with due consideration for public interest.

If exemption applies, but is qualified, this means that the public authority must decide whether the public interest in using the exemption outweighs the public interest in releasing the information.

If an applicant is unhappy with a refusal to disclose information, they can complain to the Information Commissioners Office (ICO), after first exhausting any internal review procedure. They will investigate the case and either uphold the authority's use of an exemption or decide that the information must be disclosed.

See PCT policies and procedures about the Freedom of Information

#### **4.7 Caldicott Report**

The Caldicott Committee Report on the Review of Patient Identifiable Information was released in December 1997. It found that compliance with a range of information confidentiality and security requirements across the NHS was patchy. As a result of their work they produced a list of 16 recommendations to be implemented, and the following set of principles were developed:

- Justify the purpose(s)
- Use and transfer patient identifiable information only when absolutely necessary
- Only use the minimum necessary patient identifiable information
- Access to patient identifiable information to be on a strict need to know basis
- Everyone to be aware of their responsibilities
- Understand and comply with the law

One of the recommendations was to appoint a senior person to act as Caldicott Guardian, responsible for approving uses of patient-identifiable information. Within the Trust, **Dr Simon Payne (Medical Director)**, is our Caldicott Guardian. As an organisation, Plymouth Primary Care Trust is committed to adhering to the principles and implementing the recommendations of this report.

#### 4.8 *Mental Capacity Act 2005*

The Mental Capacity Act 2005 (MCA 2005) provides the legal framework for acting and making decisions on behalf of individuals who lack the mental capacity to make particular decisions for themselves. Chapter 16 of the MCA 2005 Code of Practice “*What rules govern access to information about a person who lacks capacity?*” provides further guidance regarding the disclosure of personal information about someone who lacks capacity. Below is a summary of questions to consider before requesting or disclosing personal information of a person who lacks capacity, as provided in the MCA 2005 Code of Practice.

Questions to ask when requesting personal information about someone who may lack capacity.

- Am I acting under a Lasting Power of Attorney or as a deputy with specific authority?
- Does the person have capacity to agree that information can be disclosed?
- Have they previously agreed to disclose the information?
- What information do I need?
- Why do I need it?
- Who has the information?

Can I show that:

- I need the information to make a decision that is in the best interests of the person I am acting for, and
- The people do not have the capacity to act for themselves?
- Do I need to share the information with anyone else to make a decision that is in the best interests of the person who lacks capacity?
- Should I keep a record of my decision or action?
- How long should I keep the information for?
- Do I have the right to request the information under section 7 of the Data Protection Act 1998?

*Questions to ask when considering whether to disclose information.*

- Is the request covered by section 7 of the Data Protection Act 1998? Is the request being made by a formally authorised representative?

If no:

- Is the disclosure legal?
- Is the disclosure justified, having balanced the person’s best interests and the public interest against the person’s right to privacy?

*Questions to ask to decide whether the disclosure is legal or justified.*

- Do I (or does my organisation) have the information?
- Am I satisfied that the person concerned lacks capacity to agree to disclosure?

- Does the person requesting the information have any formal authority to act on behalf of the person who lacks capacity?

Am I satisfied that the person making the request:

- Is acting in the best interests of the person concerned?
- Needs the information to act properly?
- Will respect confidentiality?
- Will keep the information for no longer than necessary?
- Should I get written confirmation of these things?

It is important to remember that a person may have the capacity to agree to someone seeing their personal information, even if they do not have the capacity to make other decisions.

People caring for, or managing the finances of, someone who lacks capacity may need information to:

- Assess the person's capacity to make a specific decision
- Determine the person's best interests and
- Make appropriate decisions on the person's behalf.

A carer should always start by trying to get consent from the person whose information they are trying to access. If the person lacks capacity to consent, the carer should ask the information holder for the relevant information and explain why they need it. Further guidance regarding how to settle a disagreement about personal information can be found in the Code of Practice 16.29 –16.30.

An attorney acting under a valid Lasting Power of Attorney or Enduring Power of Attorney and sometimes a deputy can ask to see information concerning the person they are representing, as long as the information applies to decisions the attorney has the legal right to make.

The Independent Mental Capacity Advocate's (IMCA) role is to support and represent the person who lacks capacity. For the purpose of enabling him to carry out his functions, an IMCA may interview in private the person whom he has been instructed to represent, and may at all reasonable times, examine and take copies of –

- (i) Any health record,
- (ii) Any record of, or held by, a local authority and compiled in connection with a social services function, and
- (iii) Any record held by a person registered under Part 2 of the Care Standards Act 2000 (c.14).

The IMCA's service protocol provides additional information regarding their confidentiality obligations. A copy of this service protocol can be obtained via Plymouth Highbury Trust. Permission to view or photocopy notes needs to be granted by the Consultant or Care Manager in charge of the patient's care. The Complaints and Litigation department do not need to be informed of a request to view notes by an IMCA.

The Adult Protection Co-ordinator (Tel 306457) needs to be informed if there are any concerns regarding a request to view or photocopy notes by an IMCA.

If you are unsure whether to disclose information, seek further advice from the complaints and litigation department or the Caldicott Guardian.

#### **4.8 Other Relevant Acts of Parliament**

Law from disclosure under other Acts of Parliament restricts some information, these include: -

- Human Fertilisation & Embryology Act 1990
- Human Fertilisation & Embryology (Disclosure Of Information Act) 1992
- NHS (Venereal Diseases) Regulations 1974
- NHS Trust (Venereal Diseases) Regulations 1991
- The Abortion Regulations 1991
- Environmental Information Regulations 2005

Under the Crime & Disorder Act 1998, anyone in the country has the power to disclose information to the Police, for the purposes of preventing or detecting crime. It should be emphasised that this only confers a power; it is not a duty to disclose. It should be further noted that this Act does not override a healthcare professional's common law duty of confidence, and any disclosure must also satisfy the requirements noted above.

#### **4.9 Contract Clauses**

As a member of staff of Plymouth Primary Care Trust, you are bound by the Terms and Conditions under which you are employed. Within the terms and conditions of every employee of the Trust is a clause referring to Confidentiality, it states: -

“Whilst working for the Tpct you may become aware of, or be party to, matters of a confidential nature. In particular, information relating to the diagnosis and treatment of patients, individual staff records, details of contract prices and terms, and any other information covered by the Data Protection Act. You must not, whilst employed or after you leave employment, disclose that information to an unauthorised person.

You are encouraged, however, to raise any concerns you have with the care of patients or clients or any other aspect of the way the tPCT conducts its operations or services, with appropriate persons, usually your manager, and make use of the tPCT s Whistleblowing Policy, which can be found on the tPCT s Healthnet site or from the Workforce Development Directorate or your Trade Union.”

#### **4.10 Professional Guidance**

As well as an obligation to the Trust, many staff are also bound by the Codes of Conduct of their respective professional bodies and should refer to their respective organisations for details of their guidelines.

### **5. Handling Confidential Information**

The term “Confidential Information” applies to any person-identifiable data that relates to living individuals such as patients or staff who can be identified either:

- from that data; or
- from that data and other information that is in the possession of or is likely to come into the possession of the data controller

Person-identifiable information is considered to be one or a combination of any of the following types of information held either manually or on a computerised system:

**Surname - Forename - Initials**

**Address - Postcode - Date of Birth**

**Other Personal Dates - Gender - NHS Number**

**Hospital Number - ePEX Number - Payroll Number**

**National Insurance Number - Ethnic Group - Occupation**

Confidentiality and the security of personal information are generally achieved by the application of common sense. However, there are some common ‘problem areas’ that need specific attention and these are outlined below.

## **5.1 Post**

A large volume of information is passed into, out of and around the NHS by post. There are internal post runs, as well as using the Royal Mail for external post. This post often contains large amounts of very sensitive and confidential information. The following guidelines are designed to enable you to choose the most appropriate way of sending things via the post.

- Always mark letters that contain confidential information, ‘with Private & Confidential’ and if necessary, ‘Addressee Only’.
- Address confidential letters to specific individuals or job titles; do not use blanket departments.
- Check that you have the correct address on the envelope
- Be very careful when using window envelopes, ensure that personal information will not be visible through the window, if the letter moves within the envelope.
- Do not use internal/transit envelopes for personal information, as these can easily be opened and resealed.

- For highly sensitive information, consider the use of double enveloping and always use a return address label

- **See also; Return Address Protocol for Mental Health Services (Appendix A)**

## **5.2 Fax Machines (see Safe Haven Policy)**

Whilst fax machines are a speedy and convenient method of communication, the issue of the security of sending information via fax machines has been seriously questioned. They are not considered a fully secure means of transmission, and when communications include confidential information, precautions should be taken when using them.

A fax policy was produced by the South & West Devon Health Community (SWDHC) Caldicott Guardian Group, and was approved by the Plymouth Community Services NHS Trust Board in May 2000. This policy has now been reviewed and revised by the SWDHC Caldicott Guardian Group and has been redistributed to all members of Plymouth Primary Care Trust. Below is a summary of that policy, with its salient points. It provides details of when fax machines can, and when they cannot, be used and the procedures that should be followed if they are used. If you want to view the whole full policy, please speak to your line manager. However, if you need any advice or assistance about its operation, please contact either the Caldicott Guardian or the Information Security Officer.

### **5.2.1 Can I Use a Fax Machine**

When considering the use of fax for transmitting patient identifiable information, the following questions detailed below should be considered, before using it:

- Do I really need to use a fax?
- Is it really that urgent?
- Will normal mail or courier be too slow?

If any of the answers to the above questions are No, then the fax machine should not be used to send that information. However, clearly there are certain circumstances when the use of a fax for transmitting patient identifiable information is acceptable. Below are the justifications, which are acceptable:

- **Harm** - In an emergency, where delay would cause harm to a patient or, where the potential risk to the patient is greater than the risk of disclosure.

**No alternative** - If alternative more secure means, such as post, are not available. **There are agreed concessions where fax may be used** - The use of a fax for patient identifiable information is not condoned except in the following defined circumstances:

- Cancer Care Urgent Referrals
- Ambulance transport
- Urgent transmissions from secondary care bodies to GP's
- Urgent Mental Health Services referrals /communications.

- Urgent Inter –Practice Referrals
- Out of Hours Reports for 09.00 Deadline

Whichever reason is used to justify the use of a fax machine, the principle of only transferring the absolute minimum amount of patient identifiable data necessary, is to be adhered to. If the use of a fax machine is deemed necessary, you should always:

- Follow Trust procedure
- Double check you have the correct number
- Dial carefully
- Use a cover sheet
- Telephone before and after sending
- Monitor the transmission

However, there are circumstances when a fax should **never** be used. These are:

**Sensitive patient information** - Information concerning HIV status, venereal disease, drug abuse, psychiatric history (except in limited circumstances where allowed by concessions), incriminating evidence etc. should never be transmitted using a fax machine.

**Computer-based fax systems** - These systems may not be inherently secure, and should not be used to transfer patient identifiable information.

**For routine matters** - Fax machines should never be used for non-urgent routine correspondence containing patient identifiable information.

**When other methods of transmission will do** - If the information will get to the recipient quickly enough by another method, such as post, then a fax machine should not be used.

### 5.3 Email (see email Policy)

Similar to faxes, emails are a very speedy way of transmitting information and also similar to faxes, they can be intercepted. Because of this, the email system should never be used to transmit patient information unless the delay in sending it by any other method would cause harm to an individual or others, or where the potential risk to the individual is greater than the risk of disclosure.

Non-patient personal information (such as staff details) should only be emailed to other NHS organisations. Under no circumstances should you be sending confidential personal information by e-mail to organisations outside of the National Health Service.

If using email to send confidential information, the following steps must be taken:

- Do not put any confidential information in either the subject heading or the first two lines of the email - these includes peoples name, address, treatment details, etc, as these elements can be read without opening the email
- Mark the email as confidential and urgent
- Select the person to whom you are sending the email from the Global Address List (ensures use of NHSNet Messaging protocol)
- Ensure you have the tracking options selected when sending the email - this will enable you to know when the message has been delivered and read

#### **5.4 Telephone (see Telecommunications policy)**

Below is a summary of the main points to bear in mind in relation to confidentiality and the use of the telephone:

- Detailed clinical information should not be given to anyone over the telephone.
- Requests for information from patients, relatives or other sources should not be dealt with by telephone, such requests should be submitted in writing.
- Ensure that you are happy the person on the other end, is who they say they are. If you have any doubt, ring them back to verify their authenticity; using the published telephone number you have on file for them.
- Make sure that any information you give out over the phone is accurate, and that the person is entitled to know it and that you have the right to disclose it.
- Be careful when laying a telephone receiver down, it acts as a microphone and the caller can hear what is being said in the background
- Any Press Enquiries should be transferred immediately to The Director of Operations or the Communications Manager on

#### **5.5 Computer Use**

An ever-increasing amount of personal information is now being stored on computer systems. It is therefore extremely important that these systems are managed appropriately to ensure the security of the data held on them.

The security and confidentiality of information on the Trust's systems relies on the security of passwords. Users must only log on to systems using their own authorised username and password.

The following points should be noted in relation to password security:

- The sharing of passwords is prohibited - never disclose your password to anyone, not even a friend/colleague, manager or the IT Department
- Your password must never be written down
- Select a password that is easy for you to remember, but will not be easy to guess
- Your password should be changed regularly
- Your password should be changed immediately if you suspect it has become known to others
- Your password must be unique at each change
- Always select passwords that are at least 8 characters long and mix non-alpha with alpha characters

There are also some general housekeeping rules that should be followed in relation to the security of information held on computer systems:

- Screen savers should be activated to commence five minutes after the computer becomes idle
- All staff must always “log out” or “lock” their terminal/PC when they leave the office /building - the PC can be locked through the activation of a screensaver
- Person-identifiable data must never be left visible on an unattended terminal/PC screen
- Where possible, equipment should be sited so that screens and printer outputs are not visible from the outside or from casual passers-by
- All important information should be backed up and kept in a separate, secure and if possible, fireproof area (if you save your information to a network drive this is backed up centrally by the IM&T Department)

## **5.6 Disposal**

Take care when disposing of waste containing confidential information, and ensure it is done carried out appropriately. Confidential paper waste should be shredded, and then disposed of. Take care when shredding, particularly with a vertical shredder, where it is still possible to read the information after it has been through the shredder.

Remember that once you delete a file on a computer disk, it does not mean that the file has completely disappeared. It is possible to rescue fragments, and even whole files, even after they have been deleted. If re-using floppy disks, all old data must be cleaned off, and then the disk should then be reformatted before use. If any disks are damaged, or contain data that needs to be completely removed they should be destroyed, by splitting them open and cutting up the inner recording surface.

Compact Discs need to be destroyed by breakage or combustion.

(See Equipment relocation/disposal procedure)

## **5.7 Daily Routines**

On a day-to-day basis many staff will regularly come into contact with information that must remain confidential. If you are required to access personal or corporate data as part of your work, it is your responsibility to ensure that you never disclose this information to anyone who is not directly concerned with that work and that the information is not read or handled by anyone who has no reason to do so. This applies to both the office and clinical environment and the following points should be noted:

- Confidential papers should be handled appropriately, i.e. locked away when not in use
- The operation of a clean desk policy is encouraged - a desk swamped in paper is a potential information (and fire) hazard
- Keep all desks, filing and other cabinets that contain confidential information locked
- Keys to drawers/cabinets containing confidential information should be kept secure
- If you suspect/discover that any confidential data has been lost you should inform your line manager immediately
- You should never look up or read information about a patient or member of staff unless you are directly involved in their care or administration
- Never disclose confidential information in front of visitors
- Ask for the patient's/employees permission before providing any information to their family or friends
- If whiteboards are used in patient/administration areas for patient/staff information these should not be in the public view
- Patient charts, when left at the foot of the bed, should be left facing inwards so they are not visible to anyone walking into or past the patients room. In some instances, certain members of staff may, in the course of their day-to-day work, need to carry with them or take home confidential information. When this is the case, the following guidelines should be adhered to: -
- Data containing person-identifiable information should not be taken off site without prior authorisation from your line manager

- Any information used at home should be made as secure as it is within the workplace
- Do not leave your briefcase, laptop or medical records visible in your car - keep them in the boot whilst in transit

## **6. Disclosure of Information**

### **6.1 Access to Health Records**

Patients have the right to see, and receive a copy of, any information we hold about them in their Health Record - this is known as the right of 'subject access'. This right is contained within two Acts of Parliament:-

**The Data Protection Act 1998** which covers access to records of living individuals; and

**The Access to Health Records Act** that only covers access to records of deceased patients. The Freedom of Information Act 2000 does not cover deceased patients.

#### **6.1.1 Who Can Apply for Access to Health Records?**

The people who can seek access to health records under the Data Protection Act are:

- The patient
  - Persons authorised in writing on behalf of the patient
  - Persons with parental responsibility for a child patient
  - Persons appointed by the Court to act on behalf of the patient
- Persons providing a function of the Mental Health Act Commission or the Mental Health Review Tribunal.

Whereas the people who can seek access to the records under the Access to Health Records Act are:

- Personal representative of a deceased patient, or any person with a claim arising out of that patient's death.

#### **6.1.2 Can Any Information Be Withheld From the Patient?**

Under the Data Protection Act 1998 the patient or their representative has the right of access to any information contained within their health record, except where:

- A Health Professional considers that giving access to that information would cause serious harm to the physical or mental health or condition of the patient or any other person.

- Any information, which identifies a third party, where that third party is not a health professional and has not, consented to the disclosure. (Note, a GP is classed as a Health Professional)
- Where the applicant is acting as a representative of the patient, who is capable of understanding the request for access, but where that applicant is not considered to be acting with the patient's permission.
- Where the patient is not capable of understanding the request for access, and it is considered that the release of information would not be in the best interests of the patient.

Any information, which is restricted by law from disclosure under other Acts of Parliament, which include:

- Human Fertilisation & Embryology Act 1990
  - Human Fertilisation & Embryology (Disclosure of Information Act) 1992
- NHS (Venereal Diseases) Regulations 1974
- NHS Trust (Venereal Diseases) Regulations 1991
- The Abortion Regulations 1991

Under the Access to Health Records Act the patient's representative has a right of access to all records kept on or after the 1<sup>st</sup> November 1991, or any records before that date if they are relevant in explaining records on or after the 1<sup>st</sup> November 1991. However, all the exceptions noted above for the Data Protection Act equally apply to the Access to Health Records Act, and there is an additional exception, which is:

- Access is not given to the patient's representative, where that patient has explicitly requested that no access be given to their records after their death.

### **6.1.3 The Process to Follow**

Applications to access records can be made through either be informal or formal applications:

#### **Informal Applications -**

These are verbal applications made directly to the health professionals treating the patient, where the patient's or their representative's only want to view the notes, but not have a copy of them nor take notes. These requests are not formal applications under the Data Protection Act, and may be responded to by either:

- Handing the patient the notes for inspection under supervision by a Trust employee, remembering and complying with the aspects of withholding access noted overleaf.
- A Health Professional going through the notes together with the patient, remembering and complying with the aspects of withholding access noted overleaf.

Please note that if the applicant would like a copy of the notes, in part or in full, they must follow the formal application procedure detailed below.

### **Formal Applications under the Data Protection Act or the Access to Health Records Act -**

Formal applications must be made in writing to the Trust and should be sent to The Complaints and Legal Co-ordinator in the main administration block at Mount Gould. The application should include:

- Patient's name (& requestor name if different)
- Patient's address (& requestor name if different)
- Patient's date of birth
- Contact number for requestor if available

These applications are dealt with by a single centralised point within the organization. These requests have to be responded to within the legally prescribed time-scale of forty days, and usually culminate in providing a copy of the notes to the applicants. If any part of the record is abbreviated or with contains detailed medical terminology, this will need to be explained to the applicant.

The Acts make provision for charges to be made for access to records. Plymouth Primary Care Trust has made the following decisions on this issue:

- Currently charges will be only made for direct access by the patient, their relatives or parents requesting access to children's records when pages requiring photocopying exceed certain levels.
- Where a solicitor is acting on behalf of a patient, a charge will be applied to cover the time, care and attention of copying and posting the records.

## **6.2 Other Disclosures**

If you are approached in another manner, other than through the Access to Health Records procedure noted above, and are asked to disclose health records, you must not do anything without carefully considering your position. You are only entitled to disclose confidential personal information under three circumstances:

- With the consent of the individual concerned.
- Where there are legal obligations, forcing you to disclose, for example the such as notification of an infectious disease.
- Where disclosure can be justified as being in the public interest – as the safety of either an individual or group of people, will be placed at significant risk of harm if the disclosure is not made.

The first two of these circumstances are fairly straightforward, however the final circumstance is very delicate; the issues need to be weighed up very carefully before

making a decision to disclosure under these circumstances. If you have any doubts or concerns, seek advice from one of the sources identified in Section 8 before making the disclosure.

### **6.3 Access to Personnel Records**

The Human Resources Department creates, collects and maintains information about employees, contacts and other individuals that is classed as personal data. This data is used to fulfil employment contracts, to monitor sickness and performance and to administer and plan the Trust's business.

For the purpose of this document, an employee can be defined as any current, past or prospective individual who has entered into, or intends to enter into, a contract of employment, service or apprenticeship with the Trust. This includes contractors operating on the Trust's premises, agency staff and students undergoing work experience.

As with patients, employees also have the right to see and receive a copy of the information the Trust holds about them in line with the subject access regulations of the Data Protection Act 1998.

#### **6.3.1 Who Can Apply For Access to Personnel Records?**

The people who can seek access to personnel records under the Data Protection Act are:

- The employee themselves
- Persons authorised in writing on behalf of the employee

#### **6.3.2 Can Any Information Be Withheld From Employees?**

Under the Data Protection Act the employee or their representative has the right of access to any information contained within their personnel record, except in the following circumstances:

- When compliance with the data access request would lead to the identification of another individual, unless that individual has consented to the disclosure of the data or it is reasonable in the circumstances to disclose the information without such consent
- Employers are not required to provide copies of references which they have given in respect of an employee or ex-employee.
- When provision of the data would involve disproportionate effort on the part of the employer (e.g. manual information held in a remote archive solely for statutory purposes)

- Personal data held for the purposes of management planning or forecasting need not be disclosed as part of a subject access request if this would prejudice the conduct of the employers business
- Information relating to the employer's intentions towards an employee or in respect of negotiations with the employee does not have to be disclosed if provision of the information would prejudice the negotiations or the conduct of the business of the Trust

### **6.3.3 Are Employees Entitled to See References Written About Them?**

As stated in the above exemptions, an employee has no right to gain access from their current employer to a reference given, in confidence, by that employer. They do however, have a right to see references given about them by a third party (including their previous employer) and held on their current employer's files – but only if that third party individual is not identified, or is not identifiable, within the reference itself.

### **6.3.4 The Process to Follow**

Applications to access personnel records can be made through either informal or formal applications:

#### **Informal Applications -**

These are verbal applications made directly to the Personnel Department, where the employee or their representative only wants to view the records, but not have a copy of them nor take notes. These requests are not formal applications under the Data Protection Act, and may be responded to either by:

- Handing the member of staff the records for inspection under supervision by the Recruitment, Retention and HR Systems Manager, remembering and complying with the aspects of withholding access noted overleaf
- The Recruitment, Retention and HR Systems Manager going through the records together with the member of staff, remembering and complying with the aspects of withholding access noted overleaf.

Please note that if the applicant would like a copy of the notes, in part or in full, they must follow the formal application procedure detailed below.

#### **Formal Applications under the Data Protection Act -**

Formal applications must be made in writing to the Trust (including by electronic means) should be sent to the Recruitment, Retention and HR systems Manager, including:

- Employee's name (& requestor's name if different)

- Employee's address (& requestor's address if different)
- Employee's date of birth
- Contact number for requestor if available

These applications are dealt with by the Personnel Department. These requests have to be responded to within the legally prescribed time-scale of 40 days, and usually culminate in providing a copy of the records to the applicants. If any of the records are abbreviated or contain specific terminology, these will need to be explained to the applicant.

The Data Protection Act 1998 makes provision for charges to be made for access to records up to a maximum of £10.

## **7. Breach of Confidentiality Policy**

If you are aware of any breach of confidentiality, which has occurred, or is about to occur, you should contact the Information Security Officer immediately, or failing that, one of the other Trust sources of advice mentioned below. For further details on this process, please look at the Information Security Procedure on Reporting Security Incidents.

Any breach of these guidelines may lead to disciplinary action, as noted in the clause in all staff's terms and conditions and possibly criminal proceedings.

## **8. Trust Sources of Advice & Information**

If you need any further advice on the operation or interpretation of these guidelines, or require some help on any aspect of confidentiality or disclosure of records, please contact any of the following people who will be able to help you, (please note that whilst the names listed here are correct at the current time of publication of this document, it is possible they are liable to change):

- Caldicott Guardian, Medical Director, Trust HQ: Telephone 315358
- Information Security Officer, ITTC: Telephone
- Complaints & Legal Co-ordinator, Telephone 314180
- Mental Health Act Manager, Telephone 763143

Information on the Trust's policies and procedures can also be found on the Trust's website:

<http://80.194.73.68/PlymouthNHS/ppct/PublicationScheme/Contents/tabid/480/plymouthnhs/ppct/PublicationScheme/Class9PoliciesandProcedures/tabid/354/Default.aspx>

There is also a plethora of information regarding the security and confidentiality of data available on the Internet. Some of the more relevant links can be seen below:

- <http://www.dataprotection.gov.uk> – Office of the Data Protection Commissioner
- <http://www.legislation.hmso.gov.uk> – HMSO publish all Acts of Parliament since 1986
- <http://www.doh.gov.uk/confiden/> - Patient Confidentiality & Caldicott Guardians
- <http://www.gmc-uk.org/standard/good/good.htm> – General Medical Council – Protecting & Providing

Patient Information & Seeking Patients' Consent: The Ethical Considerations

- <http://www.mrc.ac.uk/ethics> – Medical Research Council – The Ethics of Using Personal Information in medical Research

The key references used within this document are listed below for your information:

- Access To Health Records Act 1990
- Access To Medical Reports Act 1988
- Data Protection Act 1998
- Protecting & Using Patient Information – A Manual For Caldicott Guardians, NHS Executive
- Transferring Patient Identifiable Data – Faxing Policy, South & West Devon Health Community Caldicott Guardian Group
- The Mental Capacity Act 2005

**The Lead Director approves this document and any attached appendices.**

**Signed: -** .....

**Date: -** .....

## Return Address Protocol for the Mental Health Service

Plymouth Teaching Primary Care Trust sends out patient sensitive information via the postal service on a daily basis, whilst all measures are taken to ensure the postal address is correct, errors do occur and patient's details are not always correct on the information systems. With this in mind it is necessary to instigate a process whereby any undeliverable post is returned to the Trust, without the confidentiality of the patient being breached.

A further issue has been brought to the attention of Plymouth Teaching Primary Care Trust following a complaint regarding a return address label identifying the services, which the post originated from. It can be appreciated those patients who are receiving correspondence from the Mental Health Services, may not wish it to be known to other persons who may for example share the same postal address.

The purpose of this paper is to identify a system by which patient sensitive correspondence can be returned to Plymouth Teaching Primary Care Trust in a way that does not identify the sender as being a mental health service.

The majority of our services do not have a mental health service identifiable name, and for these it is proposed to use the postal address only.

Three proposed systems have been devised to take into account the name of units/services and the type of accommodation occupied, and are as follows:

- 1) **Full Postal Address** – for those units/services which are stand alone/single users of an address which is not identifiable as a Mental Health Service, i.e. Syrena House would be Plymouth Teaching Primary Care Trust, Syrena House, 284 Dean Cross Road, Plymstock, Plymouth, PL9 7AZ
- 2) **Partial Postal Address** – for those services with a Mental Health Service identifiable name or address, who are the sole users of a building, it is proposed to use Plymouth Teaching Primary Care Trust and post code i.e. Glenbourne Unit would be Plymouth Teaching Primary Care Trust, Plymouth, PL6 AF
- 3) **Team Identifiable System** – for those buildings which accommodate more than one service/team, it will be necessary for the services/teams involved to identify a means to ensure the return mail is returned to the correct team, ensuring patient confidentiality is not broken. Each team would need to be allocated a letter, e.g. Team A, Team B, and the full postal address ensuring that no Mental Health Service identifiable information was used, i.e. Assertive Outreach Services would be Team A, Plymouth Teaching Primary Care Trust, Riverview, Mount Gould Hospital, Mount Gould Road, Plymouth, PL4 7QD and Home treatment Team would be Team B at the same address.

It is essential that all teams occupying the same building reach an agreement on a central delivery point for the return mail, which can then be passed on to

the correct team, i.e. all mail will be returned to Glenbourne reception who will have the list of teams and will place in appropriate pigeon hole.

It is proposed the following units/services use the full postal address system:

- Syrena House
- Gables
- Community Forensic team
- 140 Mount Gould Road
- Elmview, Plympton Hospital (do not use **Mental Health Centre**)
- Pinewood Ward
- Oakdale Ward
- Insight Team

The following units/services will use the partial address system:

- Lee Mill Unit (NB: must stipulate Plymouth Teaching Primary Care Trust as 2 properties share same postcode)

The following units/services to team identifiable system with full address:

- Avon House
- Riverview
- Westbourne Unit

The following units/services to Team Identifiable system with partial address:

- Glenbourne Unit

As an additional security measure, the return address labels should be placed over the sealed edge of envelope to prevent tampering.