

OLDER ADULTS' ACCEPTABILITY OF PHYSICAL ACTIVITY

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List of Publications included in this PhD

Devereux-Fitzgerald, A., Powell, R., Dewhurst, A., & French, D.P. (2016). The acceptability of physical activity interventions to older adults: A systematic review and meta-synthesis. *Social Science & Medicine*, 158, 14-23.

Devereux-Fitzgerald, A., Powell, R., & French, D.P. (2017). Conflating time and energy: Views from older adults in lower socioeconomic status areas on physical activity. *Journal of Aging and Physical Activity*, DOI: [10.1123/japa.2017-0283](https://doi.org/10.1123/japa.2017-0283)

Devereux-Fitzgerald, A., McGowan, L., Powell, R., & French, D.P. (2018). Making physical activity interventions acceptable to older people. In S. R. Nyman et al. (Eds.), *The Palgrave Handbook of Ageing and Physical Activity Promotion* (pp. 291-311). Cham, Switzerland: Palgrave Macmillan. DOI: https://doi.org/10.1007/978-3-319-71291-8_15

Articles in preparation included in this PhD

Devereux-Fitzgerald, A., Powell, R., & French, D.P. (in preparation). The Acceptability of Physical Activity in Lower Socioeconomic Status Areas: Views from Older Adults and Providers of Physical Activity Services.

Declaration

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

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The author Angela Devereux-Fitzgerald has a BSc (Hons) 1st Class in Psychology from the University of Southampton. She also has an MSc (Distinction) in Health Psychology from the University of Southampton where she also worked as a research assistant.

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Abstract

Engagement in recommended levels of physical activity decreases dramatically with age, despite many health and social benefits. Effective implementation of physical activity services for older adults requires that such provision is acceptable to them. Older adults living in deprived areas, where lack of resources can result in unmet basic needs, are twice as likely to be inactive as those in more affluent areas, suggesting lower levels of acceptability of leisure time physical activity. Older adults with lower socioeconomic status also experience greater barriers to physical activity yet are often omitted from research.

Acceptability is often conceptualised as the level of tolerance required to undertake health behaviours in order to gain future health-related benefits. As many older adults may view physical activity as irrelevant, a waste of limited resources, or a luxury that only the well, or well-off, can indulge in, an alternative approach may be more fitting. The term 'acceptability' can also be used to denote how attractive health behaviours are perceived to be to the target audience, and whether or not they are actively sought out. When viewed through this lens, physical activity may be seen as an enjoyable way to spend time connecting with others, whilst still reaping the many benefits for health and wellbeing.

This PhD aimed to address the gap in knowledge on the role acceptability of physical activity plays in the engagement in physical activity by older adults and to explore the impact of socioeconomic factors on such acceptability. A meta-synthesis was conducted to identify underlying reasons older adults have for wanting to engage in physical activity (or not). Few data were found from low socioeconomic status areas. The impact of providers views on acceptability were rarely considered in the literature. A multi-perspective interview study was therefore conducted within low socioeconomic status areas to explore acceptability of physical activity in this context. Views on what made physical activity acceptable to older adults (with reasons for such acceptability) were elicited both from older adults in low socioeconomic status areas and from providers of physical activity programmes in these locations. This study resulted in two papers, one published paper on the conflation of time and energy from the older adults' perspective, and one paper (in preparation) on the wider multi-perspective views of older adults and providers on the acceptability of physical activity. A published book chapter giving an overview of how to implement these findings to make physical activity interventions more acceptable to older adults completes this research.

Focusing on fun and enjoyment rather than long-term health outcomes within physical activity services does appear more acceptable to many older adults. Actively encouraging socialising by providing time and space around and within physical activity increases the value to many and may be particularly important in deprived areas where there may be limited other opportunities for socialising. Providers may need to think outside their remit or work collaboratively with those from other sectors to achieve this multi-functional physical activity/social provision in order to encourage older adults in deprived areas into what could otherwise be an unfamiliar concept, leisure time physical activity. Encouraging socialising within physical activity can be an effective use of limited resources, increasing acceptability of physical activity as a by-product of satisfying highly valued social needs.

Introduction to Studies and Thesis Structure

The aim of this PhD is to address the gap in knowledge on the role acceptability of physical activity plays in the engagement in physical activity by older adults and to explore the impact of socioeconomic factors on such acceptability. Specific objectives of the thesis are to: 1) identify underlying reasons older adults have for wanting to engage in physical activity (or not); 2) identifying forms of physical activity most acceptable to older adults and reasons for this; 3) exploring factors of older adults' acceptability of physical activity within lower socioeconomic status areas; and 4) eliciting the views on older adults' acceptability from providers of physical activity programmes in low socioeconomic status areas.

Rationale for Submitting in Alternative Format

The rationale for submitting this thesis in alternative format is that the student has been successfully submitting scientific research papers and a book chapter since the early stages of this PhD. Papers addressing the first and third objectives above have been published in peer-reviewed journals (Social Science and Medicine and The Journal of Aging and Physical Activity respectively). A multi-perspective paper addressing the second and fourth objectives is in preparation for publication (target journal Social Science and Medicine). An overview of factors of older adults' acceptability of physical activity has been published as a book chapter in The Palgrave Handbook of Ageing and Physical Activity Promotion. This book chapter brings out the implications for practice of the earlier findings of this PhD and aims to inform development of acceptable physical activity interventions for older adults. Due to the progress made in the publication of research papers throughout this PhD it was deemed to be appropriate and efficient to submit the thesis in alternative format. The

candidate, Angela Devereux-Fitzgerald undertook the conception and design of all the studies in this PhD and wrote the first drafts of all the journal articles and book chapter. The supervisors of this PhD, Prof David French and Dr Rachael Powell provided feedback on all work contained within this thesis. The candidate collected all data and conducted the data analysis under supervision. Co-author on the meta-synthesis paper, Anne Dewhurst, assisted with screening and quality appraisal during the systematic review. Co-author on the book chapter, Laura McGowan, assisted with redrafting the manuscript during the editing process. The supervisory team was involved with refining the data analysis, redrafting the articles and book chapter and approving the final versions before submission for publication.

Thesis Structure

The first study (Chapter 2) was a systematic review and thematic synthesis of qualitative literature on physical activity interventions (14 papers covering 12 studies) with non-clinical, independently living older adults, ≥ 65 years. The synthesis showed that enjoyment and perceived value were key factors of acceptability of physical activity for older adults across a wide variety of contexts. Enjoyment encompassed fun and social interaction, as well as intrinsic enjoyment of physical activity itself. Perceived value was related to understanding the physical, mental and social benefits which engaging in physical activity could produce. Higher perceived value removed barriers such as competing priorities. Lower perceived value was more apparent when doubts about capabilities or the need for physical activity in later life were voiced. First-hand experience of valued short-term functional and psychosocial outcomes, and relating such experiences to being more active, increased the perceived value of physical activity. The delivery approach of physical activity trainers

directly impacted this experience, which in turn impacted enjoyment and perceived value. There were few data from adults living in low socioeconomic status areas within the meta-synthesis. These findings suggest that focusing on fun and social interaction in physical activity provision, together with increasing awareness of short-term benefits such as increased mobility and feelings of wellbeing, may be more acceptable and relevant to the general older adult population.

Study two was a multi-perspective interview study conducted within lower socioeconomic areas of Manchester, UK where deprivation scores for older adults are considerably higher than the English mean. Thematic analysis was applied using principles of the framework approach. Nineteen older adults aged from 67 to 94 years (15 female, 4 male) from a wide range of deprived areas across the city were interviewed. Purposive sampling was used with both active ($n=8$) and inactive ($n=11$) older adults sought. To gain further insight on acceptability of physical activity within this population, eight trainers and/or providers of physical activity services to older adults from voluntary, charity and local government sectors within such areas were also interviewed. Papers two and three (Chapters 3 and 4 respectively) report on the findings of this study.

Chapter 3 gives an in-depth analysis of the impact that conflation of time and energy can have on engagement in physical activity amongst older adults within lower socioeconomic status areas. The conflation of time and energy was apparent when getting ready for, getting to and engaging in the physical activity itself. This was compounded by a lack of personal resources, such as own transport, and environmental resources, such as local facilities, resulting in greater expenditure of time and energy required simply to attend activities in more deprived areas.

Furthermore, extra time was required within and around activities so as not to feel rushed or unable to go at one's own pace, both of which were deemed contrary to acceptability, yet this time was often curtailed due to transport difficulties. A reduced window of time and low acceptability of multiple activities per day, whether physical or not, was evident. Socialising whilst being physically active seemed to enable older adults to do more whilst also increasing the enjoyment of physical activity. Basing physical activities locally and focusing on creating social bonds within and around such activities could offset the greater actual and perceived time and energy expenditure required for engagement in deprived areas.

Chapter 4 goes on to combine the trainer/provider perspectives on older adults' acceptability of physical activity with the older adults' results. The findings suggest that increasing ease of engaging may be achieved through use of the familiar, whether this be with places, music, movements, or people. Also having a good fit with older adults' sense of identity is important for acceptability, but that this sense of identity may be changeable due to, or even at odds with, their own changing needs. Adaptable provision of physical activity can be helped through strong social bonds within the group, as peer support is apparent and highly valued, often ensuring continued engagement even with changes in ability. Parity of provision is needed to offset the perception of low value older adults felt in relation to their socioeconomic status and a multi-functional approach may provide this within limited resources.

Chapter 5 gives an overview of the basic factors of older adults' acceptability of physical activity which aims to inform the development and delivery of future physical activity interventions. This is a published chapter in *The Palgrave Handbook of Ageing and Physical Activity Promotion*.

Chapter 6 presents a general discussion aiming to synthesise the results of each of the papers contained within this PhD, explaining the significant contributions to the literature and further implications for practice. Directions to take in future research to better inform delivery of acceptable physical activity programmes to older adults are suggested.

CHAPTER ONE

Literature Review

The following literature review will explore physical activity, looking at physical activity definitions and guidelines on recommended target levels, as well as current reported levels of physical activity in the older adult population. A brief theoretical background to behaviour change and an overview of factors and techniques related to changing health behaviours in older adults will follow. Theories and concepts of acceptability, the impact of acceptability and feasibility on interventions, and possible ways of increasing acceptability will be reviewed. The need for specific physical activity interventions for older adults will be introduced, looking at cognitive, emotional, physical and psychosocial factors. Issues affecting behaviour change research with an older adult population will also be explored.

As progress is made in medicine, people are living longer. However, this can result in an older adult population dealing with the effects of co-morbid chronic illnesses which may impact on their actual or perceived ability to engage in or maintain physical activity (Brawley, Rejeski & King, 2003). The UK population currently stands at 65.6 million with 18% (approximately 11.8 million) aged 65 or over (Office for National Statistics, 2017). The number of older adults has been predicted to increase to 19 million by 2050 (House of Commons Library (HOCL), 2010). Although life expectancy on the whole has increased, *healthy* life expectancy has not increased at the same rate (HOCL, 2010).

Research into ways to improve the health of this group is imperative not only to minimise costs of such morbidity on public funding, but also to increase healthy life expectancy at a similar rate to population growth. One effective way of improving health is to increase levels of physical activity (Rejeski & Mihalko, 2001).

PHYSICAL ACTIVITY

Physical Activity Definitions

The accepted definition of physical activity is “...any bodily movement produced by skeletal muscles that results in energy expenditure” (Caspersen, Powell, & Christenson, 1985, p.126). Exercise is defined as physical activity (as above) but with “planned, structured and repetitive bodily movement [where] an objective is to improve or maintain physical fitness” Caspersen et al. (1985 p.127). The UK Department of Health (DoH) includes all forms of everyday activities, recreation and sport in its definition of physical activity (see Figure 1 below).

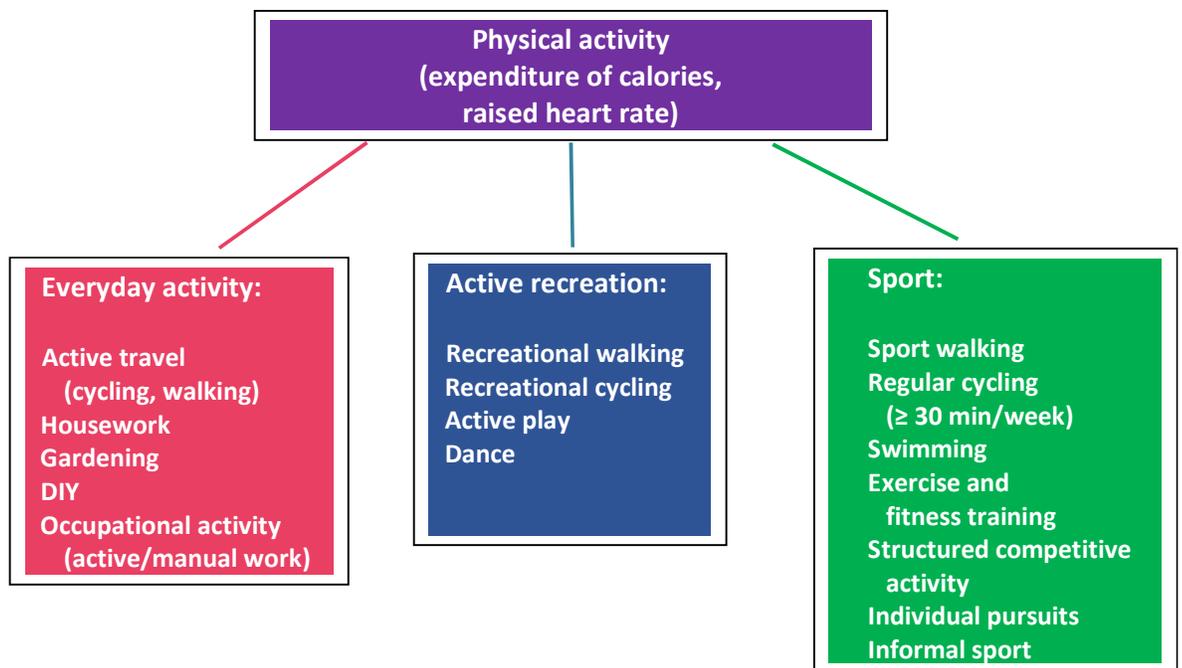


Figure 1. Physical Activity Definition Diagram (DoH, 2011)

The FITT principle is widely used when discussing levels of physical activity (Power & Clifford, 2013). The acronym denotes: *Frequency* (how often an activity is performed); *Intensity* (the level of effort put into the activity); *Time* (the duration of the

activity); and *Type* (the type of activity undertaken). *Frequency* and *Time* are both straightforward concepts and are dealt with clearly in the section to follow on current guidelines. An explanation of *Intensity* and a breakdown of the various *Types* of physical activity are given below.

An understanding of the intensity of performance is key to reaching the recommended target levels of physical activity. There are three levels of intensity: Light, Moderate and Vigorous. Light intensity refers to everyday, baseline levels of activity, where heart rate and breathing are not increased (e.g. standing or slow walking) (US Department of Health and Human Services (HHS), 2008). Moderate intensity physical activity raises heart rate and respiration somewhat but it is still comfortable to carry on a conversation (NHS Choices, 2013). Vigorous intensity physical activity involves working at maximum effort, becoming breathless and having difficulty talking (NHS Choices, 2013). Light intensity activities do not count towards the health-enhancing recommended levels but are still important. In addition to breaking up sedentary periods, they also help to foster an attitude of acceptability towards physical activity: “Encouraging baseline activities helps build a culture where physical activity in general is the social norm” (HHS, 2008 p.3).

Physical activity can be categorised into three main types: aerobic, muscle-strengthening, and weight-bearing, although two other types are pertinent to older adults: balance training and flexibility training (HHS, 2008). Aerobic activity is also known as endurance training or cardio, the latter referring to this type of activity placing increased demand on the cardiovascular and cardiopulmonary systems (heart and lungs) in order to obtain more oxygen and resulting in increased respiration and heart rate. It uses the body’s larger muscle groups over a sustained period of time (e.g.

running, swimming, brisk walking, cycling) (HHS, 2008).

Muscle-strengthening or resistance activities involve using isolated muscle(s) to hold against or move an applied force of weights (e.g. dumbbells, gym machines) or other resistance equipment (e.g. elastic bands), or even the body's own weight (e.g. press ups) (HHS, 2008). Rather than being measured in time spent on the task, muscle-strengthening activities are measured in repetitions, or reps, which are a complete movement and return to the starting position (e.g. lifting a dumbbell towards you and lowering it again = 1 rep). Repetitions are grouped into sets, often between 8-12 reps per set, or to the point when another repetition would be a struggle; the greater the number of sets performed, the greater the muscle-strengthening benefits (NHS Choices, 2013).

Weight-bearing or bone-strengthening activities involve moving the whole body against gravity, thereby producing a force on the bones which promotes bone growth and strength (HHS, 2008). Examples of weight-bearing activity are walking, golf, dancing, running, jumping jacks, skipping, squats, lunges, and any weight-lifting done whilst standing. Both aerobic and muscle-strengthening activities can also be weight-bearing but there are instances where this is not the case. For example, swimming is aerobic, but the weight-bearing element is negated by the buoyancy of the water and so it does not improve bone strength. Similarly, abdominal crunches may improve muscle strength but the body is supported on the floor and so weight-bearing against gravity is not a factor.

Sedentary behaviour is a group of extremely low energy expenditure behaviours engaged in whilst still awake and primarily involving sitting (Biddle, 2010). Such behaviours include watching television, reading, using a computer, as well as

sitting whilst socialising and travelling (British Heart Foundation National Centre (BHFNC), 2012). Sedentary behaviour is not the same as low overall physical activity. An individual could be regularly active, even meeting or exceeding the physical activity guidelines, but also have long periods of sedentary behaviour (e.g. spending 30 min a day on moderate exercise but spending several hours watching television or working on a computer). Conversely, a person may not engage in regular periods of physical activity but not exhibit prolonged sedentary behaviour either (e.g. never sitting for more than an hour at a time between periods of physical activity, however light). Regular sedentarism has been associated with increased risk of heart disease and type 2 diabetes and, although more research is needed, may also increase risk of some cancers, obesity and depression (BHFNC, 2012).

Benefits of physical activity

Physical inactivity is implicated in many chronic diseases, including heart disease, type 2 diabetes and some cancers, which can lead to functional impairment, disability or death (NHS Information Centre, 2009). Physical inactivity is the fourth highest worldwide risk factor for mortality after high blood pressure, tobacco use and high blood sugar, ranking above obesity (the fifth highest risk factor) (WHO, 2010a). In the United States, poor diet and physical inactivity are second only to tobacco use as the actual cause of death, with the death rates rising by over 33% from 1990 (300,000) to 2000 (400,000) (Mokdad, Marks, Stroup & Gerberding, 2004).

Increasing physical activity in the largely sedentary population of older adults can lower their risk of chronic illness and mortality (e.g. reduced incidence of type 2 diabetes, reduced incidence of some cancers, lower levels of coronary heart disease and stroke) as well as resulting in improvements in quality of life (Rejeski & Mihalko,

2001), improvements in mood, self-esteem and maintenance of ability to carry out activities of daily living (DoH, 2011). Activities of daily living are the basic self-care tasks such as bathing, toileting, dressing, grooming and eating, as well as more instrumental functions such as housework and shopping. Furthermore, physical activity has been shown to help maintain cognitive function and reduce the risk of dementia, a major obstacle to retaining independence for older adults (DoH, 2011).

For older adults at risk of falls (e.g. those who have previously fallen or who have trouble walking) balance training is a safe and effective way of increasing confidence and ability to be safely physically active (HHS, 2008). Although there are specific programs in balance training (see Power & Clifford, 2013), activities such as tai chi, yoga and dance are also beneficial (DoH, 2011). Regular stretching can keep muscles supple and joints flexible, thereby retaining function, and allows for gradual transition from sedentary to active behaviours (HHS, 2008).

Physical Activity Guidelines

Early recommendations for regular physical activity were quite demanding. The American College of Sports Medicine (ACSM), one of the first to specify levels and amounts of physical activity, advised individuals to exercise three to five days per week, for 20-45 minutes but at 70-90% of maximum heart rate (ACSM, 1975). By 2000 these recommendations had been revised regarding both duration and intensity to a more achievable 20 minutes at 40-85% of maximum heart rate, albeit 7 days a week (ACSM, 2000). The possible impact of these recommendations on the older adult community is discussed later in the chapter.

The current UK guidelines recommend that older adults (65+ years) participate in 150 minutes (2½ hours) of moderate intensity physical activity, or 75 minutes (1¼

hours) of vigorous intensity physical activity, (or a combination of the two) per week in bouts of 10 minutes or more. It is also recommended that they engage in muscle-strengthening activities on all major muscle groups (for 8-12 reps) on at least two days a week (DoH, 2011). An additional recommendation is for older adults at risk of falls to include physical activities which will improve their balance and coordination on at least two days a week. Muscle-strengthening and balance training can not only assist in maintenance of performing basic activities (e.g. walking up steps, rising from chair), but also are known to lower the risk of falls (DoH, 2011).

One way of achieving the recommended moderate intensity activity is to undertake 30 minutes of physical activity on 5 days of the week (DoH, 2011), which if the other two days are used for the muscle-strengthening activities, would result in being active every day. However, this is merely a suggested route to achieving the recommended activity levels and frequent smaller increments of activity (in bouts of 10 minutes or more) throughout the day may be more achievable for those who are newly active (DoH, 2011). Also, this approach could assist in breaking up sedentary periods, rather than doing the physical activity in one go and then being sedentary for the rest of the day.

The above are *minimum* recommendations for *healthy* older adults and those who already meet these levels are encouraged to do more e.g. by engaging in vigorous intensity activity, in order to gain further health benefits. However, it is acknowledged that not all older adults will necessarily be able to achieve the recommended levels due to functional impairments or reduced physical fitness from long term sedentarism and for those the message from the UK Department of Health is clear that any increase in physical activity can be beneficial. "Some physical activity is better than none, and

more physical activity provides greater health benefits.” (DoH, 2011 p.7).

Physical Activity Levels in the Older Adult Population

Unfortunately, despite clear evidence as to the benefits of regular moderate physical activity for older adults (Rejeski & Mihalko, 2001), the reality is that occurrence of such physical activity steadily decreases as age increases. Figure 2 shows the findings of the Health Survey for England 2012 (HSE 2012) (Scholes & Mindell, 2013) for rates of older adults (65+ years) not meeting either the aerobic or muscle-strengthening recommendations. The rates of the young old (65-74 years: Male, 40%; Female, 45%) are comparable with the older middle age group of 55-64 year olds (Male, 44%; Female 43% - not shown on the graph). However, the graph shows that the rates of inactivity increase dramatically for 75-85 year olds (Male, 55%; Female 78%) and 85+ year olds (Male, 87%; Female 92%). This increase in inactivity is particularly apparent for women (Scholes & Mindell, 2013).

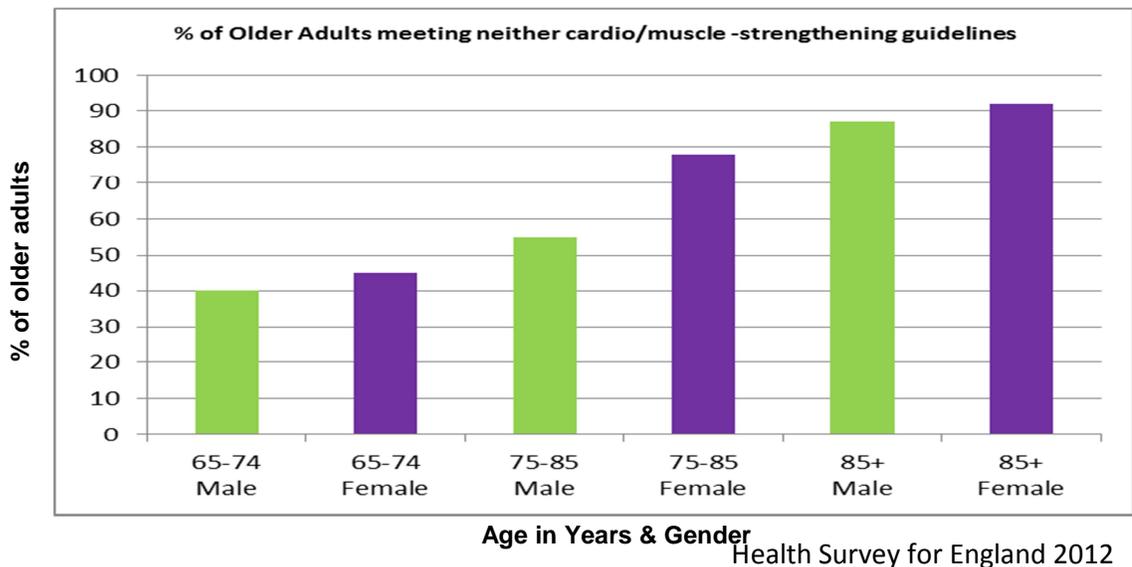


Figure 2. Percentage of English adults ≥65 years old not meeting any aerobic or muscle-strengthening physical activity recommendations by Gender and Age Group (Scholes & Mindell, 2013)

The previous Health Survey for England 2008 showed higher rates of physical inactivity for older adults (more than 80% of 65-74 year olds and more than 90% of 75+ year olds failing to meet recommended physical activity guidelines) (NHS Information Centre, 2009). The HSE 2012 takes into account the updated UK guidelines (DoH, 2011) which allow for smaller increments of physical activity to be counted as well as a wider range of activities (Scholes & Mindell, 2013). This could account for the apparent increase in reported activity levels since 2008, but it should be noted that as all data is from self-reports, these could be over or underestimated.

Sedentary behaviour also increases with age, with 65-74 year olds and 75+ year olds having the second highest and highest rates respectively, with the latter spending around 10 waking hours engaging in sedentary activities (BHFNC, 2012). Physical activity interventions which encourage breaking sedentary habits as well as increasing overall physical activity may therefore be of most benefit to the older adult population.

THEORIES OF BEHAVIOUR

In order to increase physical activity we need behaviour change interventions. For these interventions to be optimally devised, they should be based on psychological theories of behaviour change. Theories identify possible causal relationships between behaviours and other factors which can then be targeted by interventions. Changing such factors will, theoretically, change behaviours. The structure of a theoretical framework may help predict what will be effective but also assists with understanding why an intervention is not effective (Michie & Prestwich, 2010).

There are a number of psychological theories on behaviour but this brief

overview will address only those predominantly found in the literature on changing levels of physical activity and issues facing older adults.

Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB; Ajzen, 1991) (based on the earlier Theory of Reasoned Action (TRA), (Fishbein & Ajzen, 1975) states that intention to perform a behaviour and the perception of control over performing a behaviour, known as Perceived Behavioural Control (PBC), are the best predictors of behaviour. PBC is the belief based on past behaviour about whether or not one can carry out a behaviour, taking into account internal/external factors, e.g. abilities/barriers. Intention is seen to be the motivation required to perform a behaviour. Stronger intentions and higher perceptions of control over the behaviour lead to a greater probability that the behaviour will be performed. The amount of actual control an individual has over performing a behaviour also influences PBC on both intention and behaviour (Conner & Sparks, 2005). According to the TPB, intention is produced by three factors: Attitude towards the behaviour (positive or negative evaluations of a behaviour and beliefs about the outcome of performing it); Subjective Norms (perception and pressure of social norms and whether a person is motivated to comply); and PBC. Some limitations of the model have been noted, for instance some factors are better predictors of certain behaviours (e.g. Attitude is the strongest predictor for dieting, but PBC is a stronger predictor than Subjective Norms for physical activity) (Conner & Sparks, 2005). French et al., (2005) noted that there is a lack of affective influences noted in the TPB, although attitude has both affective components (related to emotional drives to perform a behaviour) and instrumental components (related to cognitions about the benefits of performing a behaviour). French et al.

found that only employing instrumental attitudes towards performance outcomes as a predictor of behaviour was not sufficient to gauge affective attitudes, which had predictive qualities in their own right. This is especially relevant to physical activity research, as how people feel about the benefits of physical activity can vary greatly with how they feel about actually performing it (French et al., 2005). Overall, the TPB is a good model for identifying predictors of behaviour (Conner & Sparks, 2005), and if used in conjunction with measures of affective attitude, may provide some useful insight into physical activity behaviour.

Transtheoretical Model

The Transtheoretical Model (TTM) (Prochaska & DiClemente, 1983) aims to illustrate the different stages passed through whilst changing behaviour: Precontemplation (not seriously thinking about change); Contemplation (thinking about changing behaviour in next 6 months but not next 30 days); Preparation (planning to change behaviour in next 30 days and making small changes); Action (engaging in new behaviour up to 6 months); Maintenance (continuing to engage in changed behaviour beyond 6 months). Each stage must be completed before moving on to the next, although the model allows for backwards and forwards movement between the stages (Sutton, 2005). According to the TTM, different perspectives are held by individuals in different stages. In cross-sectional studies on physical activity those in precontemplation focused more on the costs of exercise whilst those in maintenance focused on the benefits (Marcus, Rakowski & Rossi, 1992), and precontemplators viewed physical activity advice as less positive (although not less credible) than those in the maintenance stage (Vandelanotte & De Bourdeaudhuij, 2003). However, the arbitrary nature of the stages (e.g. on day 30 you move from

contemplation to preparation) only serves to label people without identifying processes to change behaviour (West, 2005; Sniehotta & Augner, 2010). Interventions based on these stages may then waste resources trying to move people from one arbitrary stage to the next (e.g. from precontemplation to contemplation) rather than on changing actual behaviour (Sniehotta & Augner, 2010). As the TTM implies that interventions should be matched to the stages of participants (Sutton, 2005) there is a risk of not targeting those who could benefit from an intervention simply because such an arbitrary label says they are not in the relevant stage (West, 2005).

Social Cognitive Theory

According to Social Cognitive Theory (SCT) (Bandura, 1977) self-efficacy and outcome expectations are the main intra-psychic predictors of human behaviour, although the model also emphasises the role of the psychosocial environment in producing behaviour. Self-efficacy is the belief by an individual that they are capable of carrying out a behaviour whereas outcome expectancy is the belief that engaging in a specific behaviour will result in a specific outcome (Bandura, 1977). Individuals may well believe that a certain health behaviour change will work (outcome expectancy) but not believe that they have the necessary skills to perform the behaviour (self-efficacy). Self-efficacy can be influenced in four main ways: mastery (success), vicarious learning (or social modelling), social persuasion (verbal encouragement), and somatic and emotional states (fatigue, pain, stress levels, mood) (Bandura, 1998).

A positive psychosocial environment is important for enhancing mood and relieving stress. It also provides social support from family and friends to perform certain (healthy) behaviours over others. Perceived environmental barriers and facilitators of healthy behaviour can impact on engaging in such behaviours. Positive

social models directly increase self-efficacy through vicarious learning, as seeing peers perform allows an individual to evaluate that they too would be competent at such a task (Bandura, 1998). Allowing self-efficacy to be built up through social persuasion could be particularly relevant to older adults and physical activity. Setting up situations where the individual is more likely to succeed promotes mastery. When they measure themselves against their own previous performance, alongside verbal persuasion, self-efficacy is allowed to grow rather than being overwhelmed with perceived unmanageable goals at the outset (Bandura, 1998).

The concept of self-efficacy itself seems to be a key factor and is central to many other behaviour change theories as well as Social Cognitive Theory (e.g. TPB, Protection Motivation Theory, Health Action Process Approach) (Armitage & Conner, 2000). There is much support for self-efficacy predicting initiation of physical activity in older adults, although support for its prediction of maintenance of physical activity is mixed (see Rhodes et al., 1999). Issues with older adults and self-efficacy seem to arise through errors in self-appraisal of capabilities. Focusing on aspects of biological decline without taking into account the increased experience and knowledge which may well offset such decline, or measuring themselves against younger (or fitter) adults instead of their peers, can result in lower perceptions of self-efficacy (Bandura, 1994).

Motivational and Volitional Action Phases

Rather than time bound stages as in the TTM, the idea of motivational and volitional action phases based on a particular mindset is proposed by Heckhausen and Gollwitzer (1987). The four consecutive phases are: Preactional motivational (identifying and selecting the goal); Preactional volitional (planning); Actional volitional

(performing behaviour); Post-actional motivational (evaluating results of behaviour). During the preactional motivational phase an individual weighs up the costs, benefits and value of performing a given behaviour and their own self-efficacy. But it is through specific goal-oriented planning of when, where and how a behaviour will be performed, that intention transforms into action and movement from the preactional to actional volitional phases is achieved. Gollwitzer (1999) terms these plans 'implementation intentions', also known as 'if-then' planning. Not all intentions to act are followed through and this is known as the intention-behaviour gap. The use of implementation intentions is thought to be able to reduce the gap from intention to initiation of behaviour whether the obstacles to the behaviour are reluctance, memory problems or recognition of opportunities (Gollwitzer & Sheeran, 2006). The post-actional motivational phase proposes that a different mindset is in place when maintaining a behaviour compared with initiating a behaviour and this has been supported by a number of studies (see Van Stralen, De Vries, Mudde, Bolman & Lechner, 2009).

Self-Determination Theory

According to Self-Determination Theory humans have three fundamental basic psychological needs of Autonomy, Relatedness and Competence which are "...essential for ongoing psychological growth, integrity, and well-being" (Deci & Ryan, 2000, p. 229). When there is conflict between these needs or the needs are not being met, this decreases psychological well-being. As good mood, or high psychological well-being, is a correlate of both initiation and maintenance of physical activity in older adults (Van Stralen, et al., 2009) then understanding possible causes of conflict between these

needs could be useful in increasing psychological well-being and assist with engagement in physical activity.

Deci and Ryan (2000) posit that we are motivated to initiate behaviours in order to optimally balance the three needs of Autonomy (free will to make one's own choices in life), Relatedness (connection or interaction with others), and Competence (skill and mastery in tasks). Limitations in older age, whether physical or cognitive, can create barriers to these needs being met or create conflicts between them, which in turn can have a negative impact on health. For example, lowered competence in activities of daily living can lead to a loss of Autonomy through dependence on carers (need of Autonomy not being met). Or an individual who fights to retain their Autonomy despite decreased Competence creates a psychological conflict which also has negative health outcomes (e.g. no longer being physically able to cook for oneself regularly, but refusing help and so becoming malnourished). Regular moderate physical activity can help directly with the maintenance of Competence in many areas such as activities of daily living (DoH, 2011). This maintenance of Competence may also result in maintenance of Autonomy (Deci & Ryan, 2000) thereby reducing conflict. Therefore engagement in physical activity can help to maintain psychological well-being both directly and indirectly.

Socioemotional Selectivity Theory

Although not a theory of behaviour change, Socioemotional Selectivity Theory (SST; Carstensen, Isaacowitz, & Charles, 1999) is related to older adults and decision making, and is therefore relevant to this study. SST suggests that the subjective availability of time left in one's lifespan is directly related to goal-seeking behaviour and the choice of company in such goal-seeking. The three assumptions of SST are:

that human beings have evolved to form social attachments, with social interaction being core to survival; that the anticipation of the realisation of goals drives goal-seeking behaviour; and that multiple, often opposing, goals force selections to be made (Carstensen et al., 1999). With less time left to live, there is increased selectivity towards meaningful goals or activities as well as relationships. If the benefits of a goal or activity are not apparent in the present or are deemed less meaningful, then selection is unlikely.

Not all social interaction is deemed beneficial in SST. Older adults may opt to maintain only closer social relationships and actively terminate extraneous further removed social relationships, as these no longer meet their social goals (Löckenhoff & Carstensen, 2004). Although generally older adults may not be open to forming new social bonds due to this pruning of social relationships, SST does state that older adults could be open to new social relationships with individuals or groups who are seeking similar goals to themselves, e.g. a physical activity group targeted specifically at older adults. This could be particularly important to those who do not have a supportive social network. According to SST those nearing the end of life, whether through natural aging or through life-limiting illnesses, display different motivational patterns than those with more time left to live, and are more concerned with maintaining emotional balance in the present than in risking this balance by processing possible negative information (Löckenhoff & Carstensen, 2004). This positivity bias may impact behaviour change interventions, particularly if negative risk-related health information is part of the intervention, resulting in older adults selecting less threatening goals.

FACTORS AND TOOLS OF BEHAVIOUR CHANGE

Factors Related to Physical Activity in Older Adults

Correlates and predictors are factors which are associated with behaviour and determinants are factors which are shown to cause behaviour (Bauman, Reis, Sallis, Wells, Loose & Martin, 2012), although these labels are often used ambiguously in the literature. Correlates are discovered through cross-sectional design studies, whereas predictors are discovered through longitudinal design. Neither show a causal relationship but longitudinal studies can show the sequence of associated factors and behaviour. In order to identify causal factors, or determinants, experimental studies such as randomized controlled trials are needed (Bauman et al., 2012). Factors can be either modifiable (e.g. attitude, perception, social support) or non-modifiable (e.g. gender, age, ethnicity). These are often grouped into categories: biological (e.g. age, weight); demographic (e.g. socio-economic status); social/cultural (e.g. social norms); psychosocial (e.g. intentions, planning, self-efficacy) (BHFNC, 2012; Bauman et al., 2012). Modifiable factors are the targets of intervention to change health-related behaviours and so knowledge of these within a specific group is key to changing their behaviour.

Although much research has been carried out to discover possible factors which influence levels of physical activity in children and the general adult population, a relatively small amount of research has been undertaken to determine the same in older adults (e.g. Koeneman, Verheijden, Chinapaw & Hopman-Rock, 2011; Van Stralen et al., 2009). Reviews of such research have been conducted in order to gain a better understanding of the modifiable factors which can be targeted by BCTs in future interventions. Some reviews which have cited older adults as the target population

have included largely cross-sectional studies thereby only being able to identify correlates making it difficult to find causal factors (e.g. Rhodes et al., 1999) or only included women, making it difficult to generalise to the wider older adult population (e.g. Plonczynski, 2003). Identification of correlates can be useful in that they highlight areas for future research, but they do not provide strong evidence for designing optimal interventions. Two reviews of longitudinal studies relevant to this research are noted below.

Koeneman et al. (2011) looked at the determinants of physical activity and exercise which they define as “regular physical activity (PA: unstructured activities incorporated in daily life) and participation in exercise (EX: structured and planned activities)” p. 142. The results were somewhat inconclusive regarding physical activity alone, as only male gender and younger age were found to be associated with physical activity. Insufficient evidence was found for most determinants when physical activity and exercise were combined, although moderate evidence was found for higher levels of baseline activity and lower BMI being associated with higher prevalence of physical activity. However, on looking at exercise alone, general physical functioning, prior exercise adherence, change of exercise self-efficacy and self-reported beneficial health or physical functioning outcomes were positively associated with higher incidence of exercise. Chronic conditions/diseases and depression were negatively associated with higher incidence of exercise. Koeneman et al. conducted rigorous quality checks of the studies included and weighted their findings accordingly. However, the arbitrary nature of old age being defined as 55+ years and the inclusion of studies with participants as young as 40 years, make their findings hard to generalise to an older

adult population of 65+ years, the age denoted by the World Health Organisation and the UK Department of Health as referring to older adults (WHO, 2010a; DoH, 2011).

Van Stralen et al. (2009) looked at the initiation and maintenance of physical activity in older adults and their findings are summarized in Table 1. Van Stralen et al. defined determinants of physical activity initiation as behavioural changes being enacted up to six months from baseline, and determinants of physical activity maintenance as behaviour changes in evidence for more than six months after baseline. These definitions are in line with the TTM (Prochaska & DiClemente, 1983), although there is a lack of evidence to support such specificity. Physical activity itself was not defined but it was noted that the recommendation at the time of the review was for older adults to be “moderately physically active at least five days a week for a minimum of 30 minutes a day.” P. 147. Similar issues to those noted above about the Koeneman et al. (2011) paper arise in the review by Van Stralen et al. with participants as young as 40 years and use of an average mean age of 50 years. Also, the use of the same sample populations for several of the studies included in the Van Stralen et al. review could have confounded some results. For example, the finding that older adults preferred home-based exercise programmes to class-based programmes was based on results of six studies, but five of these six used the same sample, so unsurprisingly their findings were in agreement leading to a stronger association, and so should be treated with caution.

Table 1.

Predictors of Physical Activity in Older Adults (Van Stralen et al., 2009)

	Initiation – Positive	Initiation – Negative	Maintenance – Positive	Maintenance – Negative
Personal & Behavioural Determinants	Good physical health Being physically fit High PA level at baseline	Smoking	Good physical health Physical fitness Positive mental health Exercise habits High PA level at baseline	No. of Life Events during programme Being overweight Smoking
Psychological Determinants:				
<i>Pre-Motivational</i>			Exercise knowledge prior to programme	
<i>Motivational</i>	Self-efficacy PBC Outcome expectations Perceived benefits Enjoyment Intention Motivational readiness to change Good Mood		Self-efficacy PBC Realisation of expectations Perceived benefits Enjoyment Intention Motivational readiness to change Good mood Low stress Sense of control over PA	Perceived barriers
<i>Post-Motivational</i>	Goal setting Implementation intentions Action planning Action control		Coping planning	
Social Determinants	Social support Social modelling (male only) Good social network Social norms		Social support (sports/group) Good social network Social norms	Social support (healthcare prof)
Environmental Determinants	Neighbourhood safety/satisfaction Perceived access to PA facilities Programme format		Neighbourhood safety/satisfaction Perceived access to PA facilities Dog ownership Programme format Programme quality	

Key: PA = Physical Activity; PBC = Perceived Behavioural Control

No association was found for having functional limitations and initiating physical activity or between risk perceptions and initiating physical activity (Van

Stralen et al., 2009). This is perhaps contrary to expected reasons for lower levels of physical activity in the older adult population, where lower functionality or fear of possible pain or injury from engaging in physical activity could be posited as a basis for the current reported activity levels. Nor was a relationship found between perceived barriers and initiation, although perceived barriers were negatively associated with physical activity maintenance. More perceived barriers may have become apparent as physical activity was undertaken, whereas prior to initiation less knowledge of the impact of the behaviour resulted in fewer perceived barriers. Also, increased perception of barriers may have arisen in order to avoid a behaviour which the older adults found unacceptable on trying it (and were previously unaware that they would feel like this if they did not have prior experience of the behaviour in their current physical state).

Social support was found to be associated with both initiation and maintenance, but the source of support was crucial for the latter. Support from health care providers was negatively associated with maintaining physical activity whereas support from sports instructors, sports partners and group members was positively associated with maintaining physical activity (Van Stralen et al., 2009). This could suggest that older adults find the medicalisation of physical activity unacceptable, perhaps because of implied negative connotations by health professionals e.g. focus on risks to health if they do not meet recommendations.

Van Stralen et al.'s (2009) identification of post-motivational determinants helps to inform about factors which can be utilised in bridging the intention-behaviour gap. The intention-behaviour gap refers to the reality that not all health behaviour intentions result in healthy actions being taken and bridging this gap is an important

step towards more effective interventions (Sniehotta, Scholz & Schwarzer, 2005). Also, the fact that determinants of both intention and maintenance were looked at is valuable. Interventions which only promote initiation may not help maintenance of physical activity levels over time. The above reviews suggest that the most pertinent theoretical constructs to be taken into consideration when devising an intervention for older adults are those of self-efficacy and the changing motivational and volitional phases apparent throughout the process of engaging in physical activity.

Behaviour Change Techniques

Although theories can suggest what to target in behaviour change interventions, they do not propose how this can be achieved. Behaviour change techniques (BCTs) are the tools of the intervention itself. BCTs have been defined as: “an observable, replicable, and irreducible component of an intervention designed to alter or redirect causal processes that regulate behaviour, that is, a technique is proposed to be an “active ingredient”” (Michie, et al. 2013, p. 82). There are many different factors involved in increasing positive and reducing negative health behaviours, such as setting goals, identifying barriers, self-monitoring, and use of feedback. BCTs are the explicitly denoted tools which consist of these factors, e.g. Action Planning: detailed planning of what the target behaviour consists of including when and where it will take place; Set Graded Tasks: breaking down the target behaviour into smaller, achievable tasks to enable small successes which can be built on to achieve the behaviour (Michie, Ashford, Sniehotta, Dombrowski, Bishop, & French, 2011).

In order to enable researchers to compare research findings and to increase replicability and generalisability of studies, a common language for the content of

interventions is required. The development of taxonomies of BCTs achieves this by providing a common set of labels which enable researchers to more readily describe the contents of their interventions and are useful in reviews to identify the active mechanisms eliciting behaviour change within studies. As taxonomies clearly state the label and a definition of the BCT for clarification, they also allow practitioners to replicate the delivery of successful interventions (see Abraham & Michie, 2008; Michie et al., 2011; Michie et al., 2013).

Behaviour Change Techniques and Older Adults

The needs, capabilities and motivations of any given target population should be considered when designing interventions as well as population specific issues which may arise around the target behaviour. Specific BCTs may be more effective than others with different populations, e.g. some BCTs are better than others for increasing physical activity in obese adults than in average weight adults (Olander, Fletcher, Williams, Atkinson, Turner & French, 2013). It has been shown that complex target populations require tailored interventions to take into account the multiple issues being faced e.g. obese children and their families (Stewart, Reilly & Hughes, 2009; Watson et al. 2011). As older adults are a complex and diverse population, physical activity interventions may need to be modified to better suit this age group. There is some evidence that interventions to increase physical activity which are targeted specifically to older adults are more efficacious than those aimed at the general adult population but used with older adults (Kassavou, Turner & French, 2013).

A recent systematic review aimed to identify effective BCTs to increase self-efficacy and physical activity in older adults (≥ 60 years old) (French, Olander, Chisholm & McSharry, 2014). French et al. found that BCTs which utilised self-regulatory

functions or planning resulted in smaller increases in self-efficacy and physical activity when present in interventions compared with interventions which did not include such BCTs. This is in contrast with the findings of reviews looking at physical activity and healthy eating in adults ≥ 18 years old (see Michie, Abraham, Whittington, McAteer & Gupta, 2009). This suggests that BCTs for use in the general adult population are not necessarily optimal for use with older adults. There are many possible reasons for such results. Age-related cognitive decline could render the more complex BCTs used in planning or goal setting too difficult to use. There may be avoidance by older adults of possible negative feedback on performance in line with the Socioemotional Selectivity Theory (Löckenhoff & Carstensen, 2004). The BCTs being used may simply not be relevant to an older adult population, for instance the planning aspects may deal primarily with fitting physical activity into a busy work schedule, or the feedback may be related to increasing performance levels (French et al., 2014). All of these issues could impact on the acceptability of an intervention, and therefore the uptake of physical activity, and will be looked at in more detail below.

THE CONCEPT OF ACCEPTABILITY

Theories of Acceptability

When this PhD was started there was very little published work on acceptability, and none in the field of Health Psychology. Some theories of acceptability were however in existence in other domains such as: conflict management: a behavioural theory of arbitrator acceptability (Posthuma & Dworkin, 2000); environmentalism: the value-belief-norm theory (VBN) (Stern, Dietz, Abel, Guagnano & Kalof, 1999); and information technology: a unified theory of acceptance

and use of technology (UTAUT) (Venkatesh, Morris, Davis & Davis, 2003). Although these theories draw in part on behaviour change theories (e.g. UTAUT encompasses factors of TRA/TPB and SCT) none of these in their current form are applicable to the acceptability of physical activity in older adults as they do not take into account the needs of that population.

Yardley et al. (2016) produced work looking at effective engagement with digital behaviour change interventions, a concept which is aligned with acceptability. They define effective engagement as a sufficient level of engagement to achieve the intended health outcomes of the intervention rather than just increased levels of usage of the technology. They note the importance of iterative development and comprehensive evaluation of interventions, including qualitative research with all stakeholders and co-design, in order to increase effective engagement. They also note the need for further research with those from lower socioeconomic backgrounds. However, establishing acceptability of the use of a digital delivery system for a behaviour change intervention does not denote acceptability of the actual behaviour itself. Engaging in physical activity is a complex pattern of behaviour which can be seen as effortful and/or enjoyable as well as being a health-related behaviour, which the work of Yardley et al., does not seem to encompass.

The work of Sekhon, Cartwright and Francis (2017) offers a theoretical framework of acceptability for healthcare interventions consisting of: affective attitude, burden, perceived effectiveness, ethicality, intervention coherence, opportunity costs, and self-efficacy. Their definition of acceptability is based on perceived health-related appropriateness of the intervention combined with perceived or actual emotional and cognitive reactions to it. Whilst useful for health behaviour

change interventions in clinical settings, again it loses its relevance in relation to physical activity, as this is both a health-related behaviour and a pleasurable pastime for many and so needs to be treated differently.

Acceptability and Feasibility

As noted in the MRC Framework (MRC Health Services and Public Health Research Board, (MRC) 2000; 2008), an iterative process of development, feedback and evaluation is necessary when developing health interventions. This ensures that practice is being informed by evidence rather than just theory and that the intervention is a feasible route to achieving the proposed health behaviours in the target audience. “A key consideration will be that ultimately interventions have to be feasible...” (MRC, 2000, p.13).

In order for an intervention to be feasible, it must be acceptable to the target population. Previously the concept of acceptability within the MRC Framework was mostly concerned with acceptability of an intervention on a methodological, professional or political basis (MRC, 2000). However, the new guidance on the MRC Framework acknowledges the importance of acceptability by the target population and states “Evaluations are often undermined by problems of acceptability...” (MRC, 2008, p.10).

Acceptability, Older Adults and Physical Activity Interventions

Minimal work has been done on acceptability of physical activity interventions specifically within the older adult population. Previous qualitative or mixed-method studies have included older adults in physical activity intervention evaluations (e.g. Fukuoka, Lindgren & Jong, 2012), but without any age stratification reported in the results it is impossible to ascertain issues of acceptability specifically relevant to the

older adult population. Another feasibility study (Rabin, Pinto, Dunsiger, Nash & Trask, 2009) only gave a minimum age for participants and reported the mean age (adults over 21 years, mean age 52.5 years), so it was unclear whether older adults views were included. Acceptability of mode of delivery (e.g. use of technology) has been looked at in studies which included older adults (Fukuoka et al., 2012; Vandelanotte & De Bourdeaudhuij, 2003; Kerr et al., 2008) but not the acceptability of the physical activity or behaviour change interventions themselves.

The value placed on physical activity by the older adult population may have some bearing on its acceptability. Older adults who could identify more reasons for being active and were aware of and accepted the benefits of being physically active as they aged, were found to be more active than those who identified fewer reasons for staying active (Burton, Lewin & Boldy, 2013). Without experimental studies, it is impossible to say whether the higher value placed on physical activity in this study is a cause of maintaining that activity or a result of it. However, gaining insight into the experiences of older adults currently or recently involved in a physical activity intervention may be more relevant rather than just eliciting general views about physical activity from older adults. Utilisation of qualitative experience of interventions is encouraged by the MRC Framework (2008) in order to increase feasibility and acceptability.

Increasing Acceptability

A more positive approach to physical activity when dealing with older adults may increase acceptability of physical activity interventions through decreasing the need to process negative information (Löckenhoff & Carstensen, 2004). For example, dealing with the benefits rather than the risks, and focusing on immediate gains such

as social interaction rather than future health gains. The latter may be particularly important to older adults with little or no social network, as social support is acknowledged to have a positive impact on physical and mental health (Uchino, 2006). To overcome the 'pruning' of social relationships discussed in the SST, it may be prudent to accentuate the common goals of social networks such as walking groups or exercise programmes, as this could increase the acceptability of forming new social bonds. It has been shown that good social networks are predictors of maintenance of physical activity in older adults (Van Stralen et al., 2009).

Raising awareness of what constitutes the recommended level of physical activity to an older population (i.e. incorporating examples of relevant and manageable physical activities) may help dispel misunderstandings and increase acceptability of engaging in physical activity in the older adult population. As Bandura notes "People tend to avoid activities and situations they believe exceed their coping capabilities, but they readily undertake challenging activities and select social environments they judge themselves capable of handling" (Bandura, 1989, p. 1178).

Another aspect affecting acceptability of interventions is whether socioeconomic and cultural issues have been taken into account when devising interventions rather than rolling out a 'one-size-fits-all' approach. Ensuring that views are elicited from a diverse range of participants within the target population (e.g. active, sedentary, wide age range, healthy, managing chronic illness, different ethnicities, living alone, differing household incomes) at the planning stage and during the feedback cycle could produce a more widely acceptable end product or range of end products for different groups. Indeed, the value of information obtained this way should not be underestimated when devising interventions: "Community members'

awareness of social processes that influence health within their communities and of ways to influence those processes are not always readily apparent to researchers and practitioners. This knowledge, however, can be critical to the success of an intervention.” (Schulz, Krieger & Galea, 2002, p. 289). Seeking to utilise such knowledge alongside empirical evidence and theory is in accordance with the MRC Framework “...drawing on existing evidence and theory, supplemented if necessary by new primary research, for example interviews with ‘stakeholders’, i.e. those targeted by the intervention, or involved in its development or delivery” (MRC, 2008).

THE NEED FOR PHYSICAL ACTIVITY INTERVENTIONS DESIGNED FOR OLDER ADULTS

As the older adult population is largely sedentary any increase in physical activity will have health benefits for them. Whether or not this is the main motivating factor for older adults themselves to engage in physical activity, it is a motivating factor in devising such interventions. The health improvements which could be achieved would not only benefit older adults, but could also benefit their families as they would be more likely to retain their independence and potentially be better able to actively participate in family life. A further reaching benefit of increasing physical activity in older adults is the reduction in social care and NHS resources utilised in caring for dependent and chronically ill older adults, through increasing *healthy* life expectancy.

In order to achieve an optimal intervention to increase physical activity within the older adult population, various factors need to be taken into account so that the needs of older adults are being addressed. Having an older adult co-designer involved in the development of such an intervention is in line with the guidance given in the

MRC Framework (MRC, 2008) and could provide crucial insight into the impact of needs not being met, and the difference when they are met. Possible cognitive, emotional, physical and psychosocial factors which could impact on the feasibility and acceptability of a physical activity intervention for older adults are discussed below.

Cognitive Decline in Older Adults

Age-related cognitive decline can occur due to neuronal changes in the frontal lobes and the hippocampus, the areas of the brain associated with intellectual functions (or executive control) and memory (Stuart-Hamilton, 1994). It is suggested that such cognitive decline may cause older adults difficulty in processing some of the more complex components of BCTs and as such, simpler models may be necessary to increase acceptability of behaviour change interventions within this population (French, et al., 2014). It has been shown that even when older adults are able to cognitively perform at the same level as younger adults, that their brain is working harder (i.e. more areas of the brain are being utilised) (Charness, 2008). Reducing cognitive complexity of interventions may therefore free up more mental resources, making them less of a strain. One way to do this could be to utilise less complex BCTs in interventions which may result in older adults completing interventions with less difficulty and therefore perceiving the intervention as more acceptable.

Research has shown that regular exercise has a positive impact on the deleterious effects of aging on the brain (Gow et al., 2013). Some age-related cognitive decline is inevitable, but findings of a recent study suggest that those who have poor executive function will have reduced levels of physical activity over time (Daly, McMinn & Allan, 2015). This may be due to the need for executive function abilities in self-regulatory behaviours such as physical activity which call for an increase

in effort (and therefore cost) in the short term with delayed rewards (Hall, Fong, Epp & Elias, 2008). Therefore, it must be remembered that those older adults who are currently sedentary (i.e. the majority of the older adult population), may well have already experienced a greater decrease in their cognitive capability than their active counterparts and that physical activity interventions may need to take this into account.

Positivity Bias in Older Adults

Physical activity recommendations and information are often worded rather negatively, e.g. to warn of the risks of sedentary behaviour, or to highlight benefits of becoming physically active as a future lowering of risk (DoH, 2011). Delivery of crucial information in such a manner to older adults could be unintentionally alienating the very population it seeks to help, according to the positivity bias outlined above in the SST, as processing negative information may be detrimental to their emotional state and so is avoided (Löckenhoff & Carstensen, 2004). Negative connotations in interventions or in BCTs could also have a similar effect. For instance, mention of 'relapse' or 'coping' could imply failure or problems that need to be coped with and such BCTs as "relapse prevention/coping planning" have been shown to result in lower self-efficacy and physical activity effect sizes (French et al., 2014).

Also, the use of feedback in BCTs whether about own performance levels or normative feedback may be rejected as threatening information if it does not conform with an individual's self-serving concept (Sherman, Nelson & Steele, 2000). Older adults may overestimate the amount of physical activity they are doing and, based on this information, inaccurately predict that they will find it relatively easy to achieve the recommended levels. When the feedback indicates that they are not doing as much as

they thought, or it is harder than they envisaged achieving the physical activity recommendations, it could be interpreted negatively. This could be particularly pertinent to older adults as their self-concept may not change at the same rate as their capabilities (Stuart-Hamilton, 1994), making evidence of their actual abilities particularly threatening. Also use of BCTs which are more relevant to older adults and which take into account predictors such as enjoyment, good mood and social support, rather than competitive performance levels or time management (French et al., 2014) may be more acceptable to older adults.

Physical Perceptions and Capabilities

The focus on structured vigorous exercise in early official guidelines (see ACSM, 1975) may have led to misperceptions by the general public that only such exercise resulted in health benefits (Pate et al., 1995). Fitness campaigns of the early 1980s encouraged people to 'Feel the Burn' and warned 'No Pain, No Gain'. Indeed physical activities of daily living, such as walking as part of daily travel or recreations such as dancing, were excluded from many earlier physical activity behaviour change studies (e.g. Norman & Smith, 1995).

Times have moved on and the research and health communities now acknowledge that incorporating all types of moderate physical activity into our daily lives, and numerous shorter bouts of physical activity throughout the day, can enable a person to reach the levels of physical activity recommended by the UK Department of Health (DoH, 2011). Also, these same guidelines acknowledge that some older adults may have reduced capabilities due to frailty or co-morbidity of chronic conditions and that they may need to work at a lower intensity or frequency, but that health benefits can still be had from increasing physical activity and reducing sedentary behaviour

(DoH, 2011). Effective dissemination of the current guidelines on increasing *moderate* activity and that activities of daily living can count towards attaining the recommended levels could help to break down the possible misperceptions held by some (Pate et al., 1995), particularly as those who were in their prime at the time of fitness campaigns based on previous guidelines are now members of our older adult community. Misconceptions regarding the moderate level needed to achieve such benefits (e.g. believing only vigorous exercise counts or conversely that baseline activities are sufficient for health benefits) can create barriers to individuals participating in physical activity (Brawley et al., 2003). By providing physical activity interventions designed with older adults' needs in mind, barriers such as these may be broken down. As all information could be tailored so it is relevant to their needs, they would not have to sift through to find salient data, so avoiding confusion.

Physical activity behaviours targeted by interventions which are aimed at the general adult population may not be as acceptable to older adults, yet this is not always taken into consideration. Interventions involving vigorous physical activity, rather than less taxing behaviours such as walking, may be less acceptable due to the stark contrast involved in going from sedentary to vigorously active (Koeneman et al., 2011; Morris & Hardman, 1997).

Psychosocial factors

Older adults may be more inclined to participate in physical activities which are moderate in level, simple to carry out and cheap and convenient to access (King, 2001). Walking fulfils these criteria and may also be more acceptable to older adults as, if performed in a group, it can increase sustained social interaction, so avoiding social isolation (Morris & Hardman, 1997). Indeed, the social aspect of engaging in physical

activity has been shown as a key motivator for older adults to take up organised physical activity (Beidenweg et al., 2013) particularly so for women (King, 2001). However, currently inactive older adults perceived that they would slow others down in group physical activities (Costello, Kafchinski, Vrazel & Sullivan, 2011), which suggests that not all older adults would necessarily find group activities acceptable. A socially supportive environment for behaviour change has however been associated with maintenance of physical activity, as have high self-efficacy and expectations being met (Kassavou et al., 2013).

Brawley et al. (2003) ask whether we as a society reinforce the sedentary nature of the older adult population through cultural norms and expectations that older adults will become more physically inactive (e.g. health workers not enquiring about levels of physical activity in older patients) or being overly protective of older adults who are trying to maintain levels of physical activity if that does not fit with a certain schema. Chair based exercises are often promoted for older adults and although necessary for the frailer population, may not be acceptable to a large proportion of able bodied older adults (e.g. if this does not fit with their self-image). Also, there is a possibility that older adults could be primed by such expectations, and others' stereotypical attitudes towards them, to view themselves as less capable than they actually are. Priming with (mostly negative) words related to elderly stereotypes has been shown to slow down walking speed in young adults (Bargh, Chen & Burrows, 1996). Eliciting information from an older adult population about their actual experiences of others' beliefs about their capabilities and the impact this has on their beliefs and/or actions regarding physical activity could help increase physical activity levels if misperceptions are dispelled both individually and eventually societally.

Issues in physical activity interventions with older adults

The needs of older adults engaging in physical activity may be more complex than those of a younger population (Brawley et al., 2003). There are a number of factors which need to be considered when aiming a behaviour change intervention at a specific population. In the case of older adults and an intervention to increase physical activity, such issues as possible frailty and diminished sensory input (e.g. sight problems, proprioception or balance problems) (Charness, 2008) need to be accommodated. Difficulty with complex cognitive function, loss of muscle mass and chronic medical conditions (e.g. arthritis, high blood pressure) also need to be considered (Chase, 2013). The wide variation in needs across the older adult population necessitates careful consideration of the intended target population for the intervention, as they may be a sub-group of the general older adult population. Co-designing interventions with the target older adult population may assist with incorporating their relevant issues.

There are also less explicit issues which may present themselves in the older adult population, such as the psychological impact of ageing, the effect of the change in status from employed to retired, the possible change from healthy to frail, or dealing with co-morbid illnesses. Indeed, engaging in physical activity may be avoided in order to not face the reality of declining capabilities as they do not fit with self-image. Older adults who may have been regularly physically active whilst younger may not wish to engage in more sedate activities suited to their current capabilities as these highlight the aging process to them. Avoiding any form of physical activity could therefore allow denial of losses due to aging. Addressing such issues may remove these hidden barriers. Research in this field needs to be conducted in such a manner

to consider these age-related issues, rather than assuming that older adults needs can be accounted for in the same way as the general adult population.

Older adults in deprived neighbourhoods would benefit greatly from increased physical activity as their lower socioeconomic status already negatively impacts their health and well-being (WHO, 2010b). However, they may have further needs to be considered when designing a physical activity intervention, such as neighbourhood safety or lack of appropriate facilities. For example, a simple walking intervention designed for the general adult population which seems effective during the piloting phase could fail when rolled out in lower socioeconomic status neighbourhoods if there is a fear of crime when walking in the area, or of falling due to badly maintained footpaths, or not being able to take rest breaks due to a lack of benches. Therefore, an awareness of the added barriers that older adults in lower socioeconomic areas face is an important issue in acceptability.

As noted previously, self-report measures of physical activity can result in inaccurate reported levels of physical activity and one cause of this may be unrealistic optimism. It has been shown that older adults perceive their level of physical activity as not only greater than it is in reality but also greater in relation to their peers, particularly if they are in good health (Wilcox & King, 2000). Therefore, challenging an individual's perceptions of how active they actually are could be useful in a generally sedentary population, although this should be done carefully so as not to be threatening. For example, self-monitoring physical activity by using a pedometer for an accurate step count can provide instant feedback and a 'wake-up' call as to how sedentary or active a person actually is. In a review of 26 studies using pedometers to measure physical activity, Bravata et al. (2007) found that pedometer use alone did

not increase physical activity beyond baseline, but when used in conjunction with specific goal setting and monitoring (e.g. step goals and diary), did result in significant increases. Only 5 of the 26 studies had participants with a mean age of 60 years or older and so it is difficult to generalise these findings to an older adult population. The results of Bravata et al. (2007) suggest that the goal setting itself is the motivating factor with the pedometer supporting the monitoring of such goals, which may be problematic in the older adult population if goal setting is less acceptable to them. However, if this issue is overcome, ongoing use of such a device and the accessible feedback provided may encourage maintenance of behaviour change as the incentive to meet goals is easily monitored (Fukuoka, et al., 2012). More research is needed into the acceptability of such devices and logs within the older adult population.

It should be noted that some activities which may be suitable for many older adults, such as walking, may not necessarily be suitable for the frailer population as they increase exposure to the risk of falls. Aerobic activities such as swimming or cycling on a stationary bike have been suggested as more appropriate activities in such cases (Power & Clifford, 2013). However, it should be taken into account that these require access to equipment and may also require assistance to achieve (e.g. getting changed on wet floor, getting in/out of pool or on/off bike). Also the environments themselves may be more daunting for the frail. As osteoporosis is a factor in the older adult population, and weight-bearing activity has been shown to improve bone mass density (a factor in fractures in osteoporosis) (Bonaiuti et al., 2009), if walking is excluded due to the risk of falls, then different weight-bearing activity (e.g. resistance bands) should be introduced to enable this group to meet the recommended levels.

The present thesis comprises four papers examining acceptability of physical activity in older adults. The initial meta-synthesis explored factors related to acceptability of physical activity interventions for older adults through a thematic synthesis of the qualitative literature on their experiences around such interventions. This generated a model of acceptability of physical activity interventions for older adults, the first of its kind. The meta-synthesis also highlighted the dearth of research on older adults in low socioeconomic status (SES) areas in relation to physical activity. This paper has been published in *Social Science and Medicine*. The second and third papers were drawn from a multi-perspective interview study carried out in low SES areas with active and inactive older adults and those who provided or delivered physical activity in such areas. Paper two provides insight into a novel finding, that the concepts of time and energy are often merged when older adults speak about their efforts to engage in physical activity, and that this conflation is compounded by a lack of resources in low SES areas. This paper has been published in the *Journal of Aging and Physical Activity*. Paper three goes further into the impact of such lack of resources, whilst also bringing the providers' and trainers' perspectives to bear. This paper highlights that knowledge of the issues alone is not enough, that programmes need to be built on relevant research findings, and importantly, that funders are made aware of such findings in order to facilitate acceptable provision. This paper is in preparation for submission to *Social Science and Medicine*. The fourth paper gives an overview of older adults' acceptability of physical activity in relation to developing interventions and successful promotion of physical activity to this population. It notes the differences between the minority clinical population who may engage in physical activity for health reasons and the majority general older adult population who may

have very different motivations which need to be taken into account within interventions and promotion. This has been published as a chapter in The Palgrave Handbook of Ageing and Physical Activity Promotion.

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CHAPTER TWO

The Acceptability of Physical Activity Interventions to Older Adults: A Systematic Review and Meta-Synthesis

Abstract

Rationale: Physical activity can reduce the risk of chronic illnesses, frailty and deterioration of cognitive function in older adults, yet few older adults meet recommended levels of physical activity. To increase engagement in physical activity, there is a need to better understand acceptability of physical activity interventions for this population. **Objective:** This article presents a systematic review and meta-synthesis of qualitative studies of independently living older adults' (≥ 65 years old) experiences of physical activity interventions in non-clinical contexts. **Methods:** A systematic search yielded 2612 papers, of which 14 met inclusion criteria, and were synthesised using Thematic Synthesis. Inductive line-by-line coding led to the derivation of descriptive themes. An overview of the coded text allowed cross-case and within-case comparisons where both patterns and anomalies became apparent, informing the generation of analytical themes. **Findings:** Older adults emphasised fun and enjoyment of social interaction as a motivation to be physically active. Retaining these social bonds could be important for maintenance of physical activity beyond an intervention. Doubts about capabilities or the necessity of moderate physical activity in later life were dispelled through experience of valued short-term functional and psychosocial outcomes. Relating these positive outcomes to being more active increased the perceived value of physical activity. Increased awareness of own capabilities within physical activity interventions translated into older adults being more physically active in other areas of their lives. Focusing on the role of physical activity in improving long-term health is unlikely to encourage participation of many older adults. **Conclusions:** To increase engagement, interventions should focus on physical activity as a fun, sociable, achievable pastime for older adults with relevant short-term benefits.

Introduction

Physical inactivity is the fourth highest risk factor for mortality worldwide after high blood pressure, tobacco use and high blood sugar, ranking above obesity (World Health Organisation (WHO), 2010a). It is implicated in many illnesses, including cardiovascular diseases, type 2 diabetes and some cancers, which can lead to impairment, disability or death (WHO, 2010a). Guidelines recommend that older adults (65+ years) engage in at least 150 minutes moderate (or 75 minutes vigorous) physical activity per week, and muscle-strengthening activities on at least two days a week (WHO, 2010a). However, the global trend is that older adults engage in less physical activity than younger adults and that this gap increases with age (Hallal et al., 2012). The 2012 Health Survey for England shows that only 7% of females and 13% of males aged 65 and older reported meeting all the recommended physical activity guidelines (Scholes & Mindell, 2013).

With the population over the age of 65 years increasing, it is imperative to find ways to increase healthy life expectancy to reduce the impact of morbidity on public funding and to improve the quality of this extended life (McPhee et al., 2016). Increasing physical activity in older adults can result in large increases in health benefits, improved mood, improved self-esteem and quality of life (Rejeski & Mihalko, 2001). Furthermore, physical activity has been shown to help maintain physical and cognitive function, thereby reducing the risk of falls and dementia, both major obstacles to retaining independence (UK Department of Health, 2011).

The low levels of participation in physical activity in older adults suggest that their wants and needs are not being met in the provision or promotion of physical activity. There is some evidence that behaviour change techniques (BCTs) for use in the general adult population may not be optimal for use with older adults. For

example, reviews examining BCTs for increasing physical activity in the general adult population found interventions including self-regulation techniques such as goal-setting (Michie, Abraham, Whittington, McAteer & Gupta, 2009) and action planning (Williams & French, 2011) to be effective. In contrast, interventions including BCTs to prompt these self-regulatory functions resulted in smaller increases in self-efficacy and physical activity in older adults than interventions that do not include these components (French, Olander, Chisholm & McSharry, 2014). French et al (2014) suggest this may be due to decreased executive function in older age resulting in more effort being required to plan or control behaviour, or alternatively that the content of the BCTs may not seem relevant to many older adults (e.g. planning physical activity around full-time work/childcare). Furthermore, the specific type of physical activity itself may be key, as some interventions such as walking groups have proven more efficacious in promoting physical activity for older adults than for the general adult population (Kassavou, Turner & French, 2013). This may be due to the relative ease of walking and the social aspects of group activities.

Qualitative evaluation of the experience of interventions is encouraged by the MRC Framework for Developing and Evaluating Complex Interventions (2008) in order to increase feasibility and acceptability. The value of qualitative evidence in systematic reviews is increasingly recognized in relation to informing health policy and practice (Noyes, Popay, Pearson, Hannes & Booth, 2008). Meta-synthesis is a useful approach to optimise learning from existing qualitative studies as it breaks down individual study findings, analyses patterns and relationships between studies, and develops insights by interpreting the whole in light of these patterns.

One recent meta-synthesis of 132 studies identified barriers and facilitators to older adults engaging in physical activity (Franco et al., 2015). Six themes were produced: social influences, physical limitations, competing priorities, access difficulties, personal benefits, motivation and beliefs. This informs us of the specific issues older adults experience around participating in physical activity. However, this review is less helpful in identifying how to translate this into effective interventions because of the surface approach taken in aggregating study findings. Without deeper analysis of the origin or impact of issues and ways to address them, a large gap remains in the knowledge base of what can be done to engage older adults in physical activity. Further, the inclusion of clinical and non-clinical populations within the review does not consider the impact that different contexts can have on motivation to participate in physical activity (e.g. recovery or prevention versus pleasure) as well as different barriers to be overcome (e.g. lack of autonomy in long-term care) and may obscure patterns that would otherwise be more apparent.

The present review is the first in-depth meta-synthesis considering factors of acceptability in non-clinical older adults. As such, it allows for a deeper investigation of the psychological barriers faced by older adults without viewing the issue through the lens of a medical condition which may add specific drivers/barriers to engaging in physical activity that others without such a condition do not relate to. This study aimed to establish what the consolidation of existing qualitative evidence on non-clinical older adults' experiences of interventions to increase physical activity could tell us about factors of acceptability within this population. This allowed us to provide new insights from a broader range of older adults than could be feasibly accessed through primary qualitative research. By increasing understanding of what makes

interventions to increase physical activity for general health and wellbeing acceptable, this study could have far reaching applicability for building resilience across the wider older adult population, rather than reacting after the fact to issues of frailty or rehabilitation.

Method

Inclusion criteria. The research protocol for this study is included in Appendix A. Inclusion and exclusion criteria are as follows: (a) qualitative or mixed methods studies with a qualitative component reporting experiences of any intervention to increase physical activity whether in a randomised control trial or not; (b) all participants 65 years or older in line with the World Health Organisation's definition of older adult in relation to physical activity (WHO, 2010a); (c) all participants independently dwelling in the community, (d) paper written in English. Papers were excluded if: (a) there was no physical activity intervention; (b) the physical activity intervention was for condition specific prevention, rehabilitation or disease management; (c) there was no qualitative report of experiences of intervention.

Literature searching. The following databases were searched for both published and unpublished literature: Amed, Cinahl, PsycInfo and Ovid Medline (R) (see Appendix B for full search terms and fields used). The systematic literature search identified 2611 potential papers after duplicates were removed via Endnote. The first author screened the titles and abstracts of these papers, excluding any obviously irrelevant papers (see Appendix C for the full text screening form). Of the 339 papers screened at full text 166 were excluded by the first author on basic criteria of language, age, and residence where this information was unavailable in the abstracts. Of the remaining 173 full text papers, 98 were independently double screened by a co-

author with a kappa rating of .89, whilst the rest were discussed within the research team to ensure that the final selection of studies into the review was undertaken by more than one author (Higgins & Deeks, 2008). Backward and forward searches of included papers revealed a further paper. A total of 14 papers reporting 12 independent studies were included (see Figure 1 overleaf). None of the authors had connections to any of the studies in the included papers. Ethical approval was not required as this was a synthesis of existing qualitative studies.

Quality appraisal. The Critical Appraisal Skills Programme (CASP) Qualitative Checklist (CASP, 2013) was used independently by two reviewers to assess the quality of the included papers, as it was devised for health-related qualitative research. Appraising qualitative studies determines the trustworthiness of the papers to be included in a systematic review (Dixon-Woods et al., 2004) and enabled identification of papers with stronger methodology and reporting to be given more weight within the synthesis. Studies were rated on their value provided in furthering understanding in the field, as well as on the methodology and reporting (see Table 1).

Data extraction and synthesis. This study employed Thematic Synthesis (Thomas & Harden, 2008), a three-step approach developed within the arena of public health and health promotion to address questions of efficacy and acceptability of interventions. The steps are: (1) Coding Text; (2) Developing Descriptive Themes; and (3) Generating Analytical Themes. All text under Findings/Results was extracted for coding onto standardised data extraction forms (see Appendix D), with raw data quotations and author interpretations treated equally as primary data (Thomas & Harden, 2008). The first author immersed herself in the data by reading and re-reading the extracted data. Inductive line-by-line coding of meaning and content was

conducted and a database of the potential descriptive themes was developed. As each subsequent paper was analysed, potential themes were merged or split, or new themes created, as necessary.

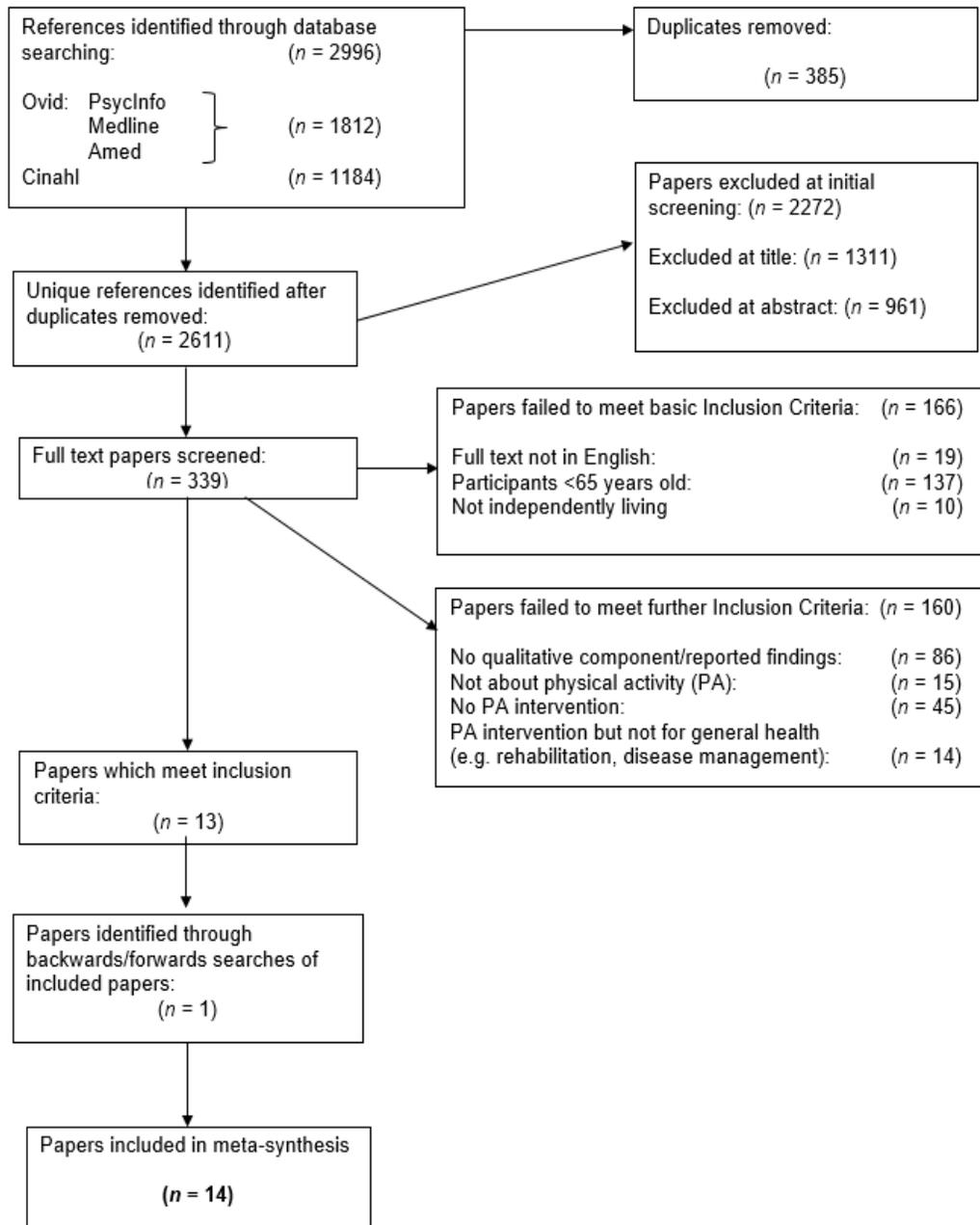


Figure 1. Flow chart outlining the number of articles retrieved, included or excluded throughout the screening process

The descriptive themes and sub-themes were then organised hierarchically, forming a coding manual (provided in Appendix E). Two reviewers applied the coding manual to unannotated copies of the extraction forms to ensure accuracy and validity of the themes (Boyatzis, 1998). The descriptive themes identified what issues were relevant to the older adults' acceptability of physical activity. To generate the analytical themes the studies were looked at as a whole in relation to the research question, and the barriers and facilitators inferred by the descriptive themes and sub-themes (see Appendix F). All coded data from each study were entered into a spreadsheet allowing comparisons of the content of descriptive themes between and within studies to produce a more coherent and deeper interpretation of the data. This exploration of patterns and anomalies allowed development of the analytical themes in an iterative cycle until they were apparent across all studies in the synthesis, sufficiently explained all descriptive themes, and answered the research question. (See Appendix G for the analytical themes with example excerpts from all studies).

Results

The 14 papers included in the meta-synthesis covered 12 studies across 5 countries: USA (7), Australia (3), UK (2), Canada (1), and Chile (1). Six studies reported on interventions as part of individually controlled trials. The remaining six interventions were set up for the study with no control group, or as part of cluster trials where participants would not be allocated to a control condition. In seven studies, the interventions involved some form of strength/resistance training, either on its own or in combination with other physical activities. One study used only yoga and another only tai chi, whilst three were physical activity promotion interventions using existing community-based physical activities (see Table 1 overleaf).

Table 1. Summary of Review Papers

Paper [CASP Rating]	Country	Title	Sample	Data Collection & Analysis	Intervention	Length of Study
Beaudreau (2008) [Low]	USA	Qualitative variables associated with older adults' compliances in a Tai Chi group	n = 12 (10F/2M) 65-88 years old	Focus Groups: 30 mins After each session Unspecified analysis	Tai-Chi 60 min class	2xpw/ 5 wks
Dionigi (2007) ^a [High]	Australia	Resistance training and older adults' beliefs about psychological benefits: The importance of self-efficacy and social interaction	n = 10 (6F/4M) 65-72 years old	Semi-structured interviews: 45min -2hrs Pre/During/Post Thematic analysis	Progressive resistance training programme (90 min sessions), university gym, own supervisor	2xpw/ 12 wks
Dionigi & Cannon (2009) ^a [High]	Australia	Older adults' perceived changes in physical self-worth associated with resistance training	n = 9 (6F/3M) 65-72 years old	Semi-structured interviews: 45min-2hr Pre/During/Post Cross-case analysis	Progressive resistance training programme (90 min sessions), university gym, own supervisor	2xpw/ 12 wks
Fox et al. (2007) ^b [High]	UK	Physical activity and mental well-being in older people participating in the Better Ageing Project	n = 24 (F/M not stated) 70+ years Completed (17) Dropped out (4) Control Group (3)	Semi structured interviews: 30-50 mins On completion Interpretive phenomenological analysis	Aerobic/strengthening /tai chi 2 x 60-90 min group classes, individual attention plus 1 x home-based training	3xpw/ 1 yr
Garmendia et al. (2013) [Medium]	Chile	Adherence to a physical activity intervention among older adults in a post-transitional middle-income country	n = 36 (F/M not stated) 65-67.9 years Adherent F/M and Non-adherent F/M	Semi structured interviews On completion Content analysis	Progressive resistance exercise (60 min classes) Revised at 6 mths: includes activities such as dance	2xpw/ 2 yrs
Gillis et al. (2002) [Medium]	USA	Participants' evaluations of components of a physical activity promotion program for seniors (CHAMPS II)	n = 20 (10F/10M) 67-82 years old Minimal PA increase; Moderate PA increase; Substantial PA increase	Focus Groups: 90 mins F/M On completion Content analysis	CHAMPS II: encouraging engagement in existing class-based PA in underactive OAs. Fitness tests, activity logs, personal/tele support, workshops, newsletters	1 yr

Table 1. (Continued)

Paper [CASP Rating]	Country	Title	Sample	Data Collection & Analysis	Intervention	Length of Study
Grossman & Stewart (2003) [Medium]	USA	“You aren’t going to get better by just sitting around”: Physical activity perceptions, motivations and barriers in adults 75 years of age or older.	<i>n</i> = 33 (18F/15M) 75+ years Wait list control group after completion of intervention	Semi-structured interview 60 mins On completion Unspecified analysis	CHAMPS: encouraging engagement in existing class-based PA in underactive OAs. Monthly newsletters; PA directory; personal attention; information meeting	1 yr
Henwood et al. (2011) [High]	Australia	Exercise in later life: the older adults’ perspective about resistance training	<i>n</i> = 18 (8F/10M) 65-81 years G1: present PA intervention G2: previous PA intervention G3: future PA intervention	Focus groups: 120 mins Separate groups: G1, G2, & G3 Unspecified analysis	High intensity resistance training using machines	G1 2xpw/ 20 wks G2 2xpw/ 8 wks G3 n/a
Hildebrand & Neufeld (2009) [Medium]	USA	Recruiting older adults into a physical activity promotion program: Active Living Every Day (ALED) offered in a naturally occurring retirement community	<i>n</i> = 50 (42F/8M) 65-93 years ALED – 25 Declined ALED - 25	Interviews 2 weeks into program and again on completion Unspecified analysis	Small multi- component group sessions, 90 mins applying Transtheoretical Model (TTM)	1xpw/ 12 wks
Patel et al. (2011) [Medium]	USA	Perceptions of a community-based yoga intervention for older adults	<i>n</i> = 12 (12F/0M) 65-89 years	Focus groups Baseline, Completion and 1 year post intervention Grounded Theory	Iyengar yoga – 60 mins Daily practice encouraged	1xpw/ 12 wks
Schneider et al. (2003) [Medium]	USA	Exercise training program for older adults: Incentives and disincentives for participation	<i>n</i> = 209 (147F/62M) 78-95 yrs Participating in PA intervention (150) (Intensive or Home Group) Declined (59)	Semi-structured telephone interviews: 5-15 mins On completion of intervention orientation session Content analysis	Intensive Group: Strength, flexibility/endurance class, University. Home Group: Balance/flexibility plus monthly University group class.	3xpw/ 9 mths

Table 1. (Continued)

Paper	Country	Title	Sample	Data Collection & Analysis	Intervention	Length of Study
[CASP Rating]						
Sharon et al. (1997) [High]	USA	Older adults' experiences of a strength training program	<i>n</i> = 24 (F/M not stated) 65+ years	Focus groups: 60 mins F only (<i>n</i> = 10) M only (<i>n</i> = 7) Mixed (<i>n</i> = 7) 6 months after completion Thematic analysis using framework approach	Strength training (machines) and flexibility (group). Individual programme updated every 2 weeks. Hospital gym	3xpw/ 16 wks
Sims-Gould et al. (2012) [High]	Canada	Timing, experience, benefits and barriers: Older women's uptake and adherence to an exercise program	<i>n</i> = 84 (84F/0M) 65-75 years	10 Focus groups: 40-80 mins 4 groups re uptake 4-5 months after completion 6 groups re adherence 16-17 months after completion Framework analysis	Resistance training (RT) or balance and tone (BAT). Two sites – research centre and community centre	1 yr 3 groups: RT 1xpw RT 2xpw BAT (unspecified)
Stathi et al. (2010) ^b [High]	UK	Processes associated with participation and adherence to a 12-month exercise programme for adults aged 70 and older	<i>n</i> = 21 (14F/7M) 70+ years	Semi-structured interviews 30-50 mins Interpretive qualitative analysis	Aerobic/strengthening /tai chi 2 x 60-90 min group classes with individual attention plus 1 x home-based training 40-60 mins resistance bands and 20-40 mins brisk walk Diary monitoring	3xpw/ 1 yr

Notes: CASP = Critical Appraisal Skills Programme qualitative checklist; F= female; M= Male; PA = physical activity; OAs = older adults; CHAMPS = Community Healthy Activities Model Program for Seniors; G = group; xpw = times per week; RT = resistance training; BAT = balance and tone

CASP Rating: More Yes responses on CASP = higher rating: Low = <3; Medium = 4-6; High = 7+

^a Diongi & Cannon (2009) same participant pool as Diongi (2007) less 1 injured participant

^b Fox et al. (2007) and Stathi et al. (2010) same participant pool

The meta-synthesis produced six descriptive themes: Attitude toward physical activity; Value of social interaction; Understanding older adults' needs; Feeling good; Managing expectations; Keep at it. From these, four inter-related analytical themes were identified: the Role of Perceived Value; Enjoyment is Key; Impact of Experience; Delivery is as Important as Content (see Figure 2).

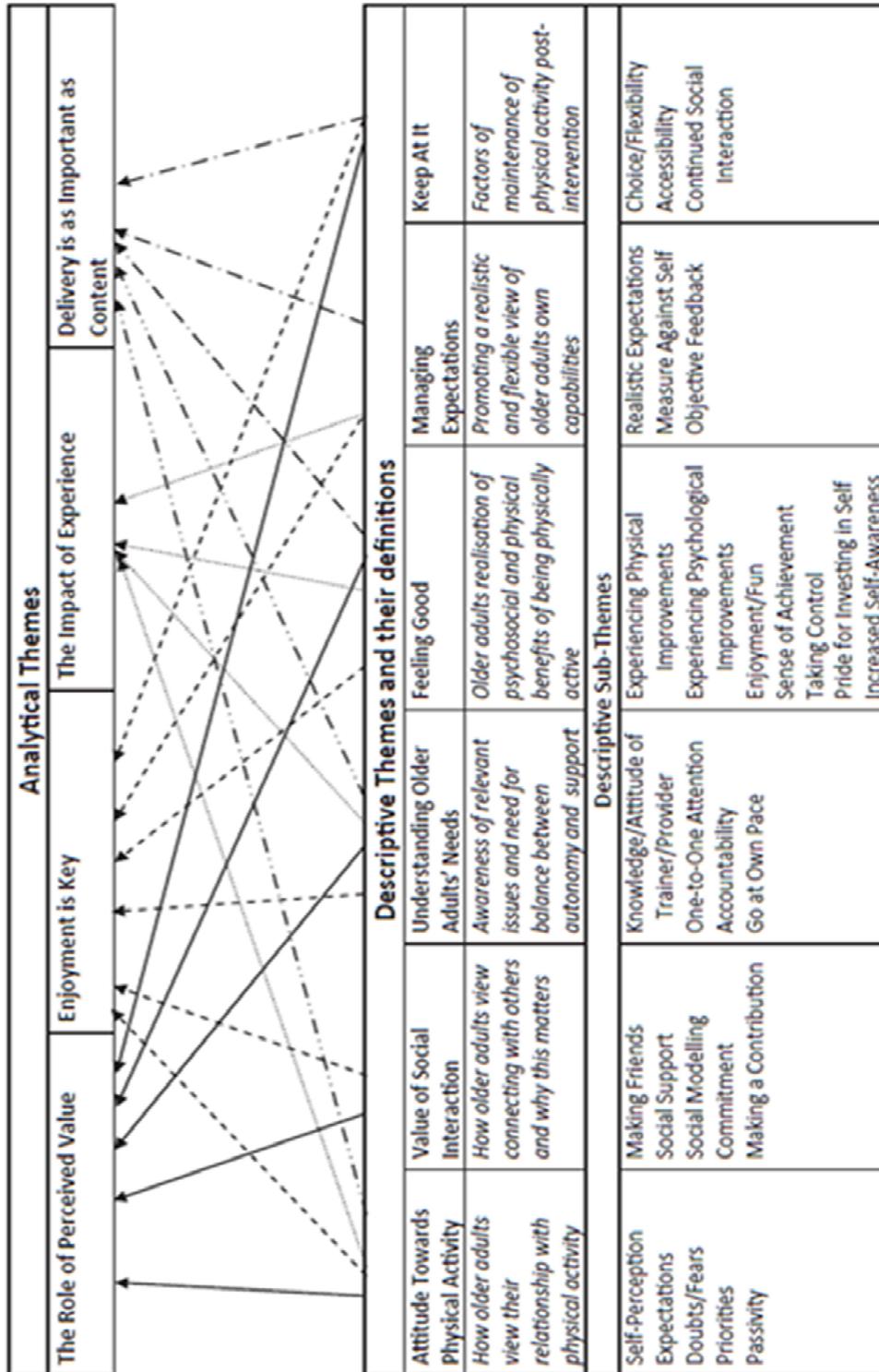


Figure 2. Relationship between analytical themes and the descriptive themes they are derived from

These themes illustrate factors affecting acceptability of physical activity interventions for older adults. Author quotes reported in the results are denoted with

[A] after the quote, all other quotes are from participants in the primary studies. Age and gender of participants is not given as this information was absent from quotes in many studies.

The Role of Perceived Value

The perceived value older adults placed on engaging in physical activity largely affected the acceptability of such behaviour. Older adults' understanding of benefits which could result from engagement directly affected this value. Appreciation of physical health benefits was apparent across most studies to some degree, particularly: maintaining or improving functional ability "I joined as I have arthritis and I heard that yoga is good for arthritis" (Patel et al, 2011) and prevention: "It also means that later on I may not need surgery or drugs" (Dionigi, 2007). Whilst many older adults appreciated the mental health benefits of engaging in physical activities: "I'm sure if I stayed here, and didn't take any exercise, my mental state would be very poor" (Fox et al, 2007), there was no evidence of awareness of the cognitive protective benefits.

Some participants seemed to have lower perceived value of physical activity due to doubts about their capabilities, or fear of causing themselves harm, particularly if they were unfamiliar with it: "With my arthritis and a bad hip, and a bad heart, I just don't know how much I can take" (Schneider et al., 2003). There were also doubts whether there was any point in engaging in physical activity in older age: "also [I doubted] whether it [resistance training] would be any good to me at my age" (Dionigi & Cannon, 2009). Doubts about the need for physical activity were also apparent in those who felt they were healthy enough: "Really, because I must have been doing something right or I wouldn't be in such good health" (Schneider et al., 2003). Others

felt that low levels of day-to-day activity was enough for older adults, suggesting a low perceived value of older adults engaging in physical activity as an activity in itself:

“Tasks of daily living were frequently thought to be sufficient activity to gain physical activity benefits” [A] (Grossman & Stewart, 2003).

Maintaining independence through taking control of one’s own health seemed to increase the perceived value of engaging in physical activity: “So it’s terribly important that I look after myself so I don’t become a burden to my children” (Henwood et al., 2011). The desire to remain an active family member also played a part in the perceived value of engaging in physical activity: “It seems to be people have children later than they did when we were young. As did our son. So as a grandparent to look after these young things you become responsible for lifting them” (Henwood et al., 2011).

Perceived value of engaging in physical activity was also impacted by associations with trusted organisations: “You suspect they have worthwhile activities” (Hildebrand & Neufeld, 2009) or interactions with health professionals: “I joined because of my doctor” (Gillis et al., 2002). Medical supervision seemed to increase value through increasing the perceived safety of the intervention, particularly for those who had doubts about physical activity being suitable for them. However, the perceived value within the intervention did not always translate into maintenance of physical activity after the study: “I would like to have that same kind of commitment to the new exercise classes but I don’t ...I don’t absolutely have to go to the other exercise classes in the same way” (Sims-Gould et al., 2012). It is important therefore to ensure that the increase in perceived value is preserved or transferred to

community-based engagement in physical activity when the study ends, in the context of older adults' lives and their other commitments.

Different levels of priority were given to competing commitments depending on the level of perceived value bestowed upon them: "...you place a higher priority on being a grandmother, that's what I think" (Garmendia et al., 2013). The level of perceived value given to physical activity could explain why some will manage to incorporate physical activity into their lives, even when they would rather not: "I find it hard to fit in physical activity. I don't like not to do any, because I value my health....so I do some exercise, but it's a chore really, I don't find...I particularly want to do it" (Sims-Gould, 2012). For some, upholding an obligation was highly valued and so incorporating a sense of obligation into their physical activity routine increased the likelihood of their engagement: "I don't fear much at this old age so only obligation will get me moving and that's why I joined this [exercise program]" (Sims-Gould et al., 2012).

Enjoyment is Key

Many participants found physical activity fun: "I think we enjoyed everything about it you know and various little things cropped up at different times which could make you laugh" (Fox et al., 2007). Enjoyment of social interaction was apparent, particularly for those who found solo activities boring: "Definitely the class one was better because of the other people there as well" (Stathi et al, 2010). Anticipated enjoyment of social interaction was a motivator: "I thought it would be a chance to make some friends" (Hildebrand & Neufeld, 2009). Becoming more integrated into their local community was raised, as well as belonging in a broader sense: "I'm enjoying it....I think it makes you feel as though you're part of the world" (Dionigi,

2007). This was particularly noticeable in light of changes to lifestyle or to offset a loss: “I had retired and I didn’t like it very much. It was quite an adjustment, I went into a deep depression.... So I saw the ad and I thought, this is going to help me...” (Sims-Gould et al., 2012). Another factor for those who expressed enjoyment was the pleasure of engaging in something novel instead of perhaps what they were expected to be doing: “Something new for “the Golden’s” to do together instead of just playing Bingo” (Patel et al., 2011).

Intrinsic enjoyment of a wide range of physical activities was apparent for both men and women across all ages: “It feels good to stretch and perform movements” (Beaudreau, 2006). However, participants who had declined recruitment to a physical activity intervention after an induction appeared to enjoy physical activity less: “Oh, I think it’s dull” (Schneider et al., 2003). Gender differences were apparent regarding enjoyment of different components of physical activity interventions. Men seemed to particularly enjoy a more competitive atmosphere with generally more vigorous activities than women (Sharon et al., 1997; Gillis et al., 2002), although one study did find that older men also wanted “help to find ways to make exercise more enjoyable and fun” (Gillis et al., 2002). Women seemed to find moderate, sociable activities optimally enjoyable and acceptable, even wishing for assistance to create a buddy system.

Enjoyment of related psychosocial outcomes was commonplace across the studies with many reporting increased confidence and reduced anxiety: “I’m more contented with my own self” (Fox et al., 2007). Increased feelings of well-being were often experienced immediately after engaging in physical activity: “...you finish feeling

quite invigorated, though tired . . . it's positive . . . you feel your whole body is alive!" (Dionigi, 2007).

The Impact of Experience

Positive physical activity experiences increased the perceived value of physical activity: "It has become something which we want to incorporate in our lives, and it's made us much more conscious of the merits of exercising and the outcomes that one can get" (Dionigi, 2007). Pleasant surprise at their own achievements was noted: "...you felt like, 'Look what I'm doing!'" (Sharon et al., 1997). The increase in self-efficacy from first-hand experience increased the value of activities previously perceived as unachievable:

"First I thought I will not be able to do yoga, as I could not sit on the floor and could not get up, but now, I can easily sit on the floor on the mat and am able to get up on my own without any help" (Patel et al., 2011).

Initial misgivings about novel activities (e.g. perceiving a gym as "a torture chamber" (Dionigi, 2007)) gave way to enjoyment after personal instruction and experiencing the benefits: "Oh, I love it! I feel better... I'm going to do it forever" (Dionigi, 2007).

Providing opportunities for older adults to safely experience novel physical activities appeared to increase self-efficacy. This then transferred to activities in daily life via objective feedback on performance (e.g. how much weight lifted in strength training) which backed up subjective experience of outcomes (e.g. increased ability to perform daily tasks):

"normally I lift two pavers and I noticed the other day I was carrying a bucket with four in it... So I know that I can lift more at the gym, so therefore my brain says, "Well I can lift more here" [at home]" (Dionigi, 2007).

Acknowledging the role physical activity played in improved function or resilience to injury was an important factor in increased awareness of the effect of inactivity (rather than just aging): “I had a bung shoulder for 30 years. I didn’t know whether I’d be able to do it or what! But now, well you know, within two weeks of starting it [the shoulder] was on the way to repair” (Henwood et al, 2011). Increased energy was also an important effect which seemed to surprise some participants: “I mean normally I make a cup of tea, get the paper, sit and read it from cover to cover and put off doing anything as long as possible. Now I race around, eager to get here” (Henwood et al., 2011).

For some, perceived value could be increased so greatly through first-hand experience that physical activity was carried out even when enjoyment and psychosocial benefits were absent:

“I have joined the gym in my own right. It is a bit lonely, last week I was on my own but it is good because it continues this terrific strengthening of my legs that came from the programme. I do not enjoy it, and I do not feel good after it for some reason or other, always have that feeling low. Do not know why, does not exhilarate me, maybe because when the instructor was there, I had someone to motivate me and other people around. When you go to big place all by yourself, it is a bit miserable. Still persevere because it is good and keeps the old legs mobile” (Stathi et al., 2010).

This highlights the importance of the social element of physical activity for older adults, and a focus on building and retaining the social bonds may help overcome such issues when an intervention ends. Unsurprisingly in light of the above, many older adults wish to remain in the familiar setting that the intervention took place in, rather

than seek out a new physical activity environment, which could explain why an effective study may not translate into real-world increases in physical activity levels: “If they were prepared to keep the classes on here, we would come indefinitely. We shall certainly volunteer if they need anything for the future” (Stathi et al., 2010).

Delivery is as Important as Content

How a physical activity intervention was delivered affected the experience older adults have of engaging in physical activity, which in turn affected both the value and enjoyment of such engagement. It was important that the person delivering the activity was seen to have sufficient training to allow older adults to take part without fear, particularly if they had a health condition: “I wondered if I’d be supervised well enough that with my osteoporosis and my fractures that I wouldn’t get into anything that might give me another fracture” (Schneider et al., 2011).

Sensory or cognitive impairments may cause barriers to older adults engaging in physical activity: “One third of the sample mentioned failing eyesight and poor hearing as interfering with physical activity, including walking” [A] (Grossman & Stewart, 2003). An understanding of the impact of such impairments is also necessary for acceptable delivery of a physical activity programme for older adults: “her repeating is good” (Beaudreau, 2006). Components of interventions used for self-report of behaviour, such as activity logs or diaries, were often seen as onerous or unpleasant: “I think maybe the logs are the least pleasant, but maybe the most important thing. I know somebody who dropped out said they hated doing those logs” (Gillis et al., 2002). If such tools are perceived as onerous generally, the burden may be even greater for those with cognitive impairment.

Older adults found incremental program increases which gradually raised their self-efficacy highly acceptable. This collaborative approach empowered older adults to engage in physical activity on their own terms, whilst safely challenging self-limiting expectations:

“They were very careful not to overstretch us, certainly at the beginning. Everything was on the basis of “don’t do more than you feel you can do”. Then gradually, they increased the pressure on us to do more and feel that we should go on until we felt that’s enough. So gradually, we were building up the strength to lift, to pull, and to push more” (Stathi et al., 2010).

Another important aspect of delivery was accessibility. For many older adults the closer to home a physical activity took place, the more acceptable it would be, although there could still be obstacles: “poor sidewalks presented a problem for them. Roots, curbs, overgrown shrubs, and dog leashes were of concern” [A] (Grossman & Stewart, 2003). Keeping costs to a minimum was important as many older adults have limited incomes: “I don’t have any money and she told me that there would be no charge. Anybody would take that offer” (Schneider et al, 2003). Many older adults had a variety of caring, working, volunteering, social and medical routines impacting on their availability: “Because of the increased time we need to get ready in the morning with foot care, diabetes routine, and compression hose, it takes 2 to 2½ hours to get anywhere” (Hildebrand & Neufeld, 2009). There may be a need for greater instrumental support to get older adults to initially engage in physical activity:

“...we’ve always thought it was something we should be doing. We haven’t quite known how to go about it, we haven’t sought guidance, this [program]

has given guidance of what to do, how to do it, and all the detail, and provided us with the facility” (Dionigi, 2007).

One paper reporting on a physical activity recruitment intervention found that proactive face-to-face strategies such as recruitment drives with immediate sign-up opportunities, individual discussions and personal invitations were far more effective than reactive strategies such as fliers and newsletters: “I signed up because you were here and we talked about it. I think that if I had gotten bulletins in the mail I may not have signed up” (Hildebrand & Neufeld, 2009). This suggests that when older adults are given the time and opportunity to discuss their individual needs and seek reassurance, that increased engagement in physical activity can be facilitated.

Discussion

The aim of the present review was to identify the factors of acceptability of physical activity interventions in the non-clinical older adult population. The review found that older adults are often motivated to engage in physical activity as a way to increase their social connections, particularly at transitional times in life such as retirement. Promoting fun rather than just health and fostering social interaction within interventions can lead to older adults’ enjoyment of physical activity programmes, distinct from intrinsic enjoyment of physical activity itself. Implementing interventions in existing community-based programmes allows retention of social bonds post-intervention and removes transitional barriers. The perceived value of physical activity is increased by encouraging awareness that personally relevant psychosocial and physical benefits being experienced are a direct result of becoming more active. A programme delivered by trusted professionals with some one-to-one attention and collaboratively agreed incremental increases to safely challenge any self-

limiting expectations is highly acceptable to older adults. Increased confidence in their capabilities within physical activity interventions often translates into increased physical activity in other areas of older adults' lives.

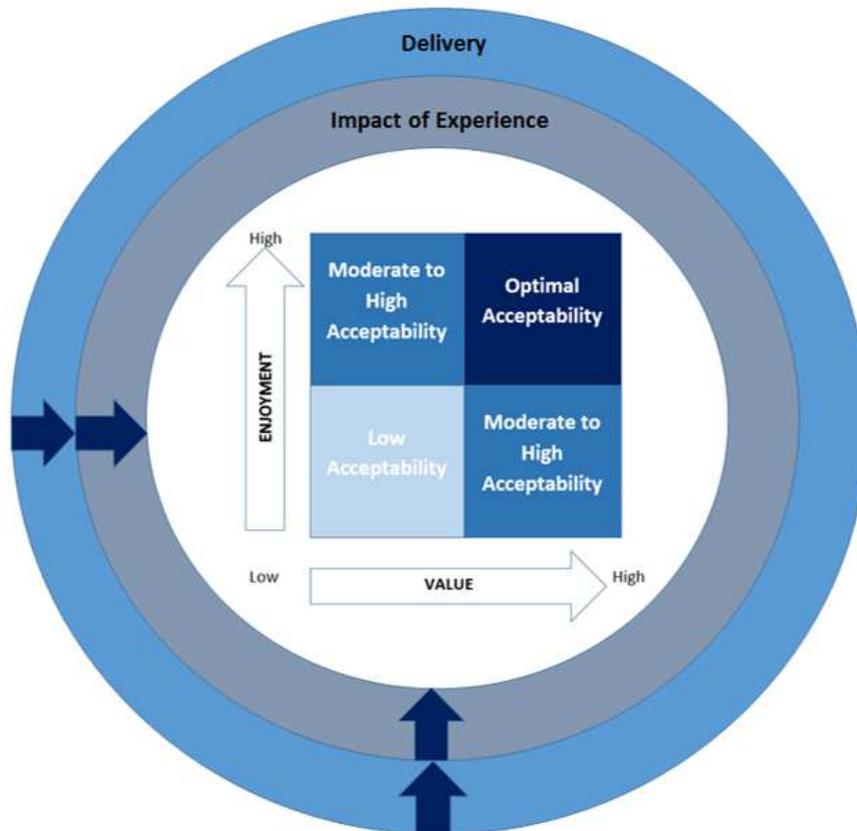


Figure 3. Interplay between factors of acceptability of physical interventions for older adults

This review also shows how optimally acceptable physical activity interventions can be designed and delivered through modelling the dynamic relationship between these factors. The model generated from the findings suggests that acceptability hinges on the perception of enjoyment that can be had from being more active, and the perceived value of being more active (see Figure 3). Enjoyment is separate to perceived value as it was seen as a distinct motivating factor both for engagement and

maintenance of physical activity. Enjoyment and perceived value are affected by the first-hand experiences older adults have of engaging in physical activity. Those promoting or delivering the intervention directly impact on older adults' experience of physical activity and consequently the enjoyment and value they perceive from being physically active. Increasing enjoyment and/or perceived value of being more physically active increases the acceptability of engaging in physical activity.

This review suggests that a health-based message may not be optimal for the non-clinical older adult population when it comes to increasing their physical activity levels. Although for some, health is indeed a motivation, many older adults who are aware of the health benefits of being physically active still do not value physical activity enough to engage in it. Therefore, simply providing information on health benefits as suggested by Franco et al. (2015) would not appear to be an effective route to increase physical activity levels. However, there appears to be a lack of knowledge on the protective cognitive effects of physical activity and so this information may be useful, particularly for those who do not perceive themselves to be in need of physical health benefits. Some older adults place a low value on structured physical activity, believing that their daily living tasks deem them active enough (Grossman & Stewart, 2003). This may be influenced by a lack of intrinsic enjoyment of physical activity (Schneider, Eveker, Bronder, Meiner & Binder, 2003) and so other routes to engage older adults are also necessary. In agreement with Franco et al. (2015), this study shows the importance of social interaction for older adults, but it goes further in suggesting that fun and social interaction should perhaps be the focus of physical activity interventions for non-clinical older adults, as this may be more acceptable and relevant to them and they will still reap the health benefits.

Small functional and psychosocial improvements can go unnoticed if attention is not drawn to them (Grant, 2008) or be seen as the outcome of something other than increased activity (Dionigi & Cannon, 2009). This review shows that increasing awareness of personally relevant benefits may help to increase acceptability of physical activity. This may be due to being able to identify a greater number of reasons for being active, as it has been suggested that this is related to higher levels of physical activity in older adults (Burton, Lewin & Boldy, 2013). Illness prevention is often couched in terms of risk, yet if individuals do not feel at risk of conditions which are helped by being more active, or that there is no point in becoming active in older age (Dionigi & Cannon, 2009), then they may be less inclined to increase their physical activity levels. Looking beyond health, fear, and risk allows for a wider range of older adults to be targeted more effectively.

Strengths and limitations. Using rigorous and systematic methods ensured a broad range of concepts were captured and allows replication of the searches. As the aim of a meta-synthesis is to explain why a phenomenon is occurring, purposive sampling in an attempt to reach conceptual saturation is employed, rather than the exhaustive searching used for a meta-analysis, where reduction of bias is key (Thomas & Harden, 2008). However, a systematic and explicit search strategy was employed together with quality appraisal of the included studies in line with standard qualitative practice (Noyes et al., 2008). Whilst the nature of qualitative research has limitations of generalisability, a meta-synthesis gives a depth of understanding across more diverse populations, thereby giving a wider reach than could be achieved in a primary qualitative study. Only including adults aged over 65 years ensures that the findings are wholly relevant to the older adult population. Only including studies reported in

English from predominantly developed world countries may have resulted in a narrow view of cultural factors of acceptability. Only including studies where experiences of a specific physical activity intervention was apparent ensures that the older adults were speaking from their own recent experiences, however only four studies included data from non-adherent or declining participants and so there may be further factors of acceptability related to these groups which have not been considered.

Some included studies gave vague methodological information or conducted basic analysis (as noted in Table 1). Most did not report consideration of the impact of the researcher/participant relationship. Most studies omitted participant socioeconomic status (SES) data, although many referred to physical activities associated with more affluent demographics (e.g. golf, tennis). The lack of SES data is a limitation as low SES status infers more barriers and greater health impacts from inactivity (WHO, 2010b) and establishing factors of acceptability within this demographic is important. The majority of the studies looked at structured gym or class-based physical activity, and not easily accessible lifestyle or recreational activities such as walking, cycling or dancing. Little to no information was given on the BCTs used within the studies or what the older adults' experiences of them was. Although some mentioned feedback and activity logs, it is not clear whether these were being used to inform behaviour change or merely measure it. As a result, there were insufficient data in this study to inform acceptability of BCTs related to physical activity for older adults.

Implications for interventions. Enjoyment of social interaction was central to most of the studies and when absent, was keenly felt. High enjoyment of social outcomes overrode apathy toward physical activity, denoting an important promotion

factor beyond extolling the health benefits of physical activity. The social bonds formed also appeared to strengthen the perceived obligation towards the group, a motivating factor in itself. Encouraging social interaction within programmes and promoting the social aspect may be particularly beneficial for isolated individuals or those experiencing a transition, such as retirement or bereavement. Using existing community-based physical activity programmes to implement interventions rather than research/medical facilities allows the social bonds, and therefore the motivation, to be retained and could encourage maintenance after the intervention ends. This also allows older adults to continue their behaviour in a familiar setting, removing transitional barriers of orienting to new schedules, people, equipment, terminology and any obstacles that this may entail.

Future physical activity interventions should promote a wide range of fun and accessible physical activities to older adults, as with greater choice they are more likely to find something they enjoy and/or value. Proactive strategies such as face-to-face recruitment where trusted, knowledgeable professionals can give advice (e.g. at taster sessions) may help to dispel misconceptions about capabilities and allow older adults to feel safe enough to take part, particularly for novel physical activities or after changes in ability. Association with reputable institutions instils trust and increases value, so collaboration between research, medical, physical activity professionals and respected entities, e.g. charities relevant to the target population, may increase acceptability.

Including objective feedback on performance (e.g. steps taken, weight lifted) and helping older adults to relate this to their everyday physical outcomes (e.g. improved function, better sleep), may increase the value of engaging in physical

activity in those who do not find it intrinsically enjoyable. Noting when aspects of function and strength are regained can help to correctly attribute their loss to inactivity rather than age itself, again dispelling misconceptions.

Furthermore, relating maintenance or improvement of physical function to valued issues such as independence, or being able to safely and actively look after grandchildren may help to increase motivation to engage in physical activity as these are perhaps more personally relevant than numbers on a medical measure. Highlighting such relationships may also increase the level of priority given to physical activity, and reduce the perception of family duties as competing commitments.

A collaborative and incremental approach to increasing physical activity levels or intensity seems more acceptable to older adults. Older adults should be encouraged to go at their own pace, but should also be supported to increase intensity or duration when they are able to do more. This is important, as they may have self-limiting expectations which need to be addressed but which need handling sensitively.

Implications for research. There is a need for primary research on the acceptability of physical activity for older adults in low SES environments to ensure that possible factors of acceptability specific to this demographic are not overlooked. Low SES older adults would particularly benefit from increased physical activity and are less likely to engage in leisure time physical activity (Hallal et al., 2012). Investigating why older adults perceive themselves as active when they are not, or believe that their daily living tasks are sufficient for health benefits, may help to identify strategies to address the low value placed on engaging in physical activity. Establishing whether there is a social component to this, such as friends, family and even health professionals compounding these beliefs, would also be pertinent. More qualitative

research is needed into older adults' experiences of using BCTs within physical activity interventions to establish how to optimize acceptability. This would be aided by clearer reporting of use of BCTs within studies.

Conclusion

Perceived value and enjoyment are key factors relating to older adults' acceptability of physical activity interventions. Social interaction seems fundamental to enjoyment for many whereas functional and psychosocial benefits seem to outweigh long-term health benefits for older adults in terms of value of physical activity. First-hand experience allows older adults to judge for themselves the personal benefits they can obtain from engaging in physical activity and a tailored collaborative approach to increasing engagement in physical activity may be more effective within the older adult population. Delivery and support both during and after an intervention can affect this experience and therefore impact on the perceived value and enjoyment of engaging in physical activity.

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CHAPTER THREE

Conflating Time and Energy: Views from Older Adults in Lower Socioeconomic Status Areas on Physical Activity

Abstract

Perceptions of time and energy and their role in physical activity engagement were examined in older adults living in lower SES areas. Semi-structured interviews were conducted with 19 participants aged 67-94 years. A thematic framework analysis identified four themes: Time is Energy (older adults conflate time and energy in relation to physical activity); Reduced Day (engaging in activities outside a certain timeframe is deemed unacceptable); Being Given Enough Time (need for time to socialise and go at own pace); and Seasonal Impact (seasonal differences affecting access). Enjoyment appears to mitigate the perceived energy drain and increase the capacity for physical activities for many. Conflation of time and energy may explain observed discrepancies between older adults' actual and perceived available time. Having locally-based physical activities means less time/energy is required to attend, leaving more resources for physical activity itself. A limited availability of resources in lower SES areas is therefore problematic.

Introduction

Up to 87% of males and 92% of females over the age of 65 years in England do not meet current guidelines of 150 minutes of moderate physical activity and two sessions of strength training per week (Scholes & Mindell, 2013). This is despite evidence of multiple physical, psychological and social benefits of physical activity for older adults, such as lowered risk of chronic illness and mortality, improved mood, increased quality of life, and maintenance of cognitive and physical function leading to retention of independence (Rejeski & Mihalko, 2001; UK Department of Health, 2011).

Those living in a deprived or lower socioeconomic status (SES) area are twice as likely to be inactive as those in higher SES areas (Public Health England, 2014).

Deprivation has been defined as a lack of resources resulting in unmet basic needs, measured across several socioeconomic factors e.g. income, employment, health, education, housing, access to local services, local environment, safety and crime (Department for Communities and Local Government (DCLG), 2011). Individual SES is commonly measured on factors such as education, occupation and income. Low individual SES throughout the life course has been shown as a determinant of low physical activity in older adults (Hillsdon, Lawlor, Ebrahim, & Morris, 2008).

In addition to individual SES factors, living in a more socioeconomically deprived area in older age is also an independent risk factor of lower physical activity levels for older people, regardless of previous individual SES (Hillsdon et al., 2008). The disparity in physical activity levels for older adults according to deprivation of the area in which they live has been explained as being due to both environmental aspects (e.g. lack of safe, pleasant amenities) and social aspects (e.g. feeling of not fitting in) of more deprived areas (Annear, Cushman & Gidlow, 2009). Budgetary constraints

impacting provision of physical activity programmes in deprived areas may decrease opportunities for engagement in physical activity by older adults in such areas (King, 2001). It has also been proposed that lower levels of physical activity may have more to do with individual characteristics of those living in deprived areas, such as being older, having lower physical function, higher body mass index and a reduced tendency to leave the home (Fox et al., 2011).

Alongside deprivation, low perceived available time and feelings of being rushed appear to impact negatively on physical activity levels. This effect worsens the longer the lack of resources is experienced (Venn & Strazdins, 2017). Some older adults believe they may have more time and energy to engage in physical activity when anticipating retirement (McDonald, O'Brien, White & Sniehotta, 2015). However, for many older adults this perception does not hold through into actual retirement, with lack of time still a commonly cited barrier to engaging in physical activity in older age, whether directly stated (e.g. Justine, Azizan, Hassan, Salleh, & Manaf, 2013) or in reference to competing priorities (Franco et al., 2015; McGowan, Devereux-Fitzgerald, Powell & French, 2017). Whilst some older adults continue to work or have caring commitments, many do not, and therefore it begs consideration whether older adults are experiencing an actual lack of time, or whether something else is triggering this perception.

Physical activity promotion for older adults is often focused on health risks or long-term health outcomes (e.g. Public Health England, 2014; UK Department of Health, 2011). However, interventions to encourage physical activity in older adults using information on risks or consequences of behaviour to encourage physical activity lack efficacy (O'Brien et al., 2015). This may be due to older adults perceiving such risk

related-health information as negative or not salient (McGowan et al., 2017). The lack of efficacy of previous physical activity interventions may be explained by Socioemotional Selectivity Theory (SST) in which “the perception of time plays a fundamental role in the selection and pursuit of social goals” (Carstensen, Isaacowitz, & Charles, 1999, p. 165) with those having less time (e.g. reduced lifespan in older age) protecting this valued resource by focusing more on emotionally satisfying goals. To maintain emotional balance, and not waste time, older adults may therefore be more motivated to ignore negative information (Löckenhoff & Carstensen, 2004). Focusing on negative health risks in physical activity promotion may also be damaging to self-identity in older age, as it emphasises decline as an inevitable part of ageing (Phoenix & Orr, 2015).

A more promising approach to physical activity promotion relates to the observation that older adults experience numerous types of enjoyment around physical activity: social interaction, intrinsic fun, sense of achievement, increased confidence (Devereux-Fitzgerald, Powell, Dewhurst & French, 2016); structure/routine, sense of purpose, pleasure of total immersion in an activity (Phoenix & Orr, 2014). Csikszentmihalyi (1990) sees enjoyment as pleasure coupled with a sense of achievement, which leads one to an optimal flow state. When in this flow state, enjoyment appears to impact on perception of time, (e.g. perceiving only minutes to have passed when hours have, or vice versa), in line with the saying ‘time flies when you are having fun’. The importance of enjoyment was discussed in two recent meta-syntheses of qualitative studies, where physical activity was deemed more acceptable and relevant to older adults when perceived as enjoyable and social (Devereux-

Fitzgerald et al., 2016; McGowan et al., 2017). By contrast, most interventions to date have not targeted these factors (French, Olander, Chisholm, & McSharry, 2014).

A key limitation of the primary qualitative studies identified in the meta-syntheses on acceptability of physical activity in older adults is that there is little data from older adults within low SES environments. To develop interventions or services that are engaging to older adults within low SES populations, we need to ascertain which factors affect older adults' acceptability of physical activity in such areas. To address this issue, we have undertaken a multi-perspective research project on acceptability of physical activity to older adults living within lower SES areas. The aim of this project was to explore factors relating to acceptability from the perspectives of those older adults living in lower SES areas, trainers/group leaders delivering physical activities within these areas, and physical activity providers who organise such activities. The present paper focuses on a set of findings discovered in older adults' interviews during the larger research project which merited further analysis in its own right: the conflation of time and energy relating to their engagement in physical activity. Although previous research has looked at the impact perceived time can have on being physically active (e.g. Venn & Strazdins, 2017; Justine et al., 2013), such research has considered time at face value. The aim of the present paper was to address this lack of in-depth analysis by exploring different perceptions of time and energy around physical activity in older adults, and any factors which impacted these perceptions in lower SES environments.

Method

Participants. Adults were eligible if aged 65 years or older, lived independently in identified lower SES areas, had sufficient English language skills to be interviewed and who could walk continuously for 10 minutes unassisted by another person. Participants were recruited from council wards (local government areas) of Manchester (UK) that scored in the highest 50% across the city in terms of deprivation specifically for older adults. Actual ward deprivation figures ranged from 38.5% -54.8% of older adults living in poverty, compared to the English national average of 18.1% (DCLG, 2011). Deprivation figures were based on factors including income, crime risk, access to local amenities, and living environment (DCLG, 2011). Purposive sampling was used to ensure a broad variation in the sample in terms of residential area, age and activity levels (see Table 1) and allowed for a wider range of views to be gathered than random sampling may have produced. After initial interviews, males and immigrant participants were particularly sought, as these proved less accessible at initial recruitment drives.

Procedure. Institutional ethical approval was granted (see Appendix H). Recruitment was publicised via local government and research newsletters, libraries, age-related charities, and a snowballing approach. The first author attended coffee mornings, library groups, physical activity sessions and craft groups for older adults, to discuss the research with them and promote recruitment. Eligibility was established using short screening questions regarding walking ability and residence and information about the study was sent to potential participants (see Appendix I for the participant information sheet). The first author then conducted private face-to-face interviews, at a time and place convenient to participants, with no financial

remuneration beyond travel expenses. Informed consent was taken in person at the start of the interview session. A pre-interview questionnaire was completed with participants for demographic and background data (see Appendix J). Data from previous interviews were considered when undertaking subsequent interviews so that emerging topics could be addressed. Interviews lasted between 31 and 77 minutes (median 54 minutes) and were audio-recorded.

Materials. The pre-interview questionnaire captured demographic data, perceived fall risk and self-reported physical activity levels (based on amount of time regularly spent per week on physical activities the participants categorised as light, moderate or vigorous). Participants were deemed active if they met the recommended guideline of 150 minutes of moderate physical activity per week, and inactive for those not meeting this guideline. The interview schedule (see Appendix K) included topics on how participants felt about physical activity, how they would describe themselves in terms of physical activity levels, how they would feel about increasing physical activity, what they did/did not enjoy about physical activity, benefits or concerns around physical activity, local physical activity provision, and how physical activity had/could become an acceptable part of older adults' lives (see supplementary material).

Analysis: Data were analysed using Thematic Analysis (Braun & Clarke, 2006) utilising indexing and matrix principles of the Framework Approach (Ritchie & Spencer, 1994) to permit a comprehensive analysis with transparent, accessible organization of the data. Interviews were transcribed verbatim, read and re-read to achieve familiarisation, and relevant topics were identified in relation to the research question. Initial codes were systematically generated and collated into a hierarchical thematic

framework of potential themes and sub-themes, with both latent and explicit themes being explored. All instances of themes were re-considered, with themes merged or split as necessary. The data were indexed and framework matrices were constructed to enable thematic and case-based analysis, and to assist with identification of linkage between same or different phenomena (Spencer, Ritchie, O'Connor, Morrell & Ormston, 2014).

Results

Of 25 older adults who expressed interest, 19 participated. Of the six remaining candidates two were ineligible due to residential location, two withdrew due to ill health and two declined to take part without any reason given. The 19 participants (see Table 1) were aged 67-94 years (15 female, 4 male) and represented eight council wards across all areas of the city of Manchester: North Manchester ($n=4$); East Manchester ($n=4$); South Central Manchester ($n=5$); South Manchester ($n=6$). One participant identified as British Pakistani; four as White Irish, and 14 as White British. Two participants were educated to PhD level, five had attended further education, seven completed high school, and five had some high schooling. Of the married participants ($n=7$), two married couples took part (interviewed separately). The non-married participants were widowed ($n=6$), divorced ($n=3$) and single ($n=3$), with ten living alone, whilst the remaining two lived with family members. Three of the participants had full-time caring responsibilities for a family member who lived with them. Some participants had regular weekly care of grandchildren ($n=4$), but the majority reported only social visits with no caring responsibilities ($n=15$). Most participants had no work-related commitments ($n=12$), however seven undertook

voluntary work with a variety of hours per week: 10+hours ($n=2$), 4-6 hours ($n=3$), and 2 hours ($n=2$).

Table 1.
Participant Demographics and Activity Levels

ID	Gender	Age	Own Car	Lives with	Falls Risk	Activity Level	Activity Status
Sam	M	67	N	Alone	N	Meets MPA	Active
Liz	F	74	N	Partner	Y	Meets MPA	Active
Claire	F	67	N	Alone	N	Some MPA	Inactive
Kath	F	77	N	Alone	Y	Some MPA	Inactive
Sally	F	78	N	Alone	N	Meets MPA/Flex	Active
Sara	F	74	N	Alone	Y	Some MPA	Inactive
Diana	F	71	Y	Partner*	Y	Meets MPA/Flex	Active
Shirley	F	70	Y	Partner	N	Some MPA/Flex	Inactive
Olive	F	70	N	Family	N	Meets MPA/Flex	Active
Ben	M	74	N	Partner*	N	Baseline only	Inactive
Julie	F	72	N	Alone	N	Meets MPA/Flex/Strength	Active
Al	M	77	Y	Partner	Y	Meets MPA/Strength	Active
Grace	F	94	N	Alone	Y	Baseline only	Inactive
Linda	F	68	N	Alone	Y	Baseline only	Inactive
Pam	F	72	N	Partner*	N	Baseline only	Inactive
Mo	F	89	N	Alone	N	Baseline only	Inactive
Kevin	M	71	Y	Partner*	N	Meets MPA/Flex	Active
Susan	F	80	N	Alone	Y	Baseline only	Inactive
Jo	F	69	N	Family	Y	Baseline only	Inactive

Key: F = female; M = Male; Partner* = Married to fellow participant; Y = Yes; N = No; MPA = moderate physical activity; Flex = flexibility; Strength = strength training

Most participants did not have their own transport ($n=15$); the remaining participants ($n=4$) were married and shared use of household cars with their spouse (three cars in total in the sample). Participants were categorized as active ($n=8$) or inactive ($n=11$) based on self-reported physical activity (pre-interview questionnaires). Some participants also met guidelines on flexibility ($n=6$), of whom one was inactive and one was male. One male and one female participant met the recommendations on strength training two days per week. Ten participants did not feel at risk for falls;

the remaining nine did but only in certain circumstances (e.g. without walking stick; in icy/wet weather).

Themes. The thematic analysis produced four themes which illustrate the different perceptions of time for older adults in lower SES areas in relation to physical activity: Time is Energy; Reduced Day; Being Given Enough Time; and Seasonal Impact. Quotes are denoted by italics with participant age, gender and activity status given. Pseudonyms are used to preserve participant anonymity.

Time is Energy

Some participants referred to a lack of time for physical activity, despite most participants having indicated that there was time available in their schedule due to low working or caring commitments: *“It’s having the time, isn’t it [laughs]”* (Shirley, F, 70, inactive). Often time and energy seemed to be conflated, or merged into one concept, particularly when discussing time spent getting to and from activities *“I have to get there, and that’s walking and on buses, you know, I want something easier really, within easy reach”* (Claire, F, 67, inactive). Time and energy were viewed as precious, limited resources which older adults did not wish to waste on physical activity that they found irrelevant or unenjoyable, or on getting to their preferred activity: *“I would tap dance all day, but I don’t feel as if I’d want to walk that far to get TO it [laughing]. I just want to get in there and start doing it. I’m not a walker”* (Olive, F, 70, active). However, when an enjoyable activity was anticipated, this offset the added energy expenditure of getting ready *“You’re up and out, and you don’t care”* (Sally, F, 78, active), making the whole concept more acceptable: *“[then] I enjoy the whole activity of, ‘Right it’s time to get ready now, I’m going to have my shower’ ...knowing I’m going to be doing something that I enjoy”* (Olive, F, 70, active).

Linked to this was the availability of local and individual resources. Most participants did not own cars, but this made a substantial difference in terms of time and energy expenditure for those that did, as they did not have to consider the journey to activities. Those without a car who did not enjoy active travel, were less mobile, or lacked funds, had much higher energy and time expenditure involved in attending activities. This was particularly notable when local venues closed down and previously enjoyed physical activities became unacceptable due to the time and energy required for travel:

“I used to go swimming quite a lot, but they’ve closed the [local] baths, so it means now ...you’ve got to start getting buses to, you know, leisure centres and, so it’s not always easy when you’re older to mess about. I’d have to get two buses from here”
(Claire, F, 67, inactive).

The more active older adults felt they had a higher level of energy *“I don’t FEEL like a pensioner, you know, because I’ve got so much energy and I’m always on the go and I’m always looking for new things to do”* (Olive, F, 70, active). This was viewed as a sign of youth and a direct result of being physically active *“I just feel a bit younger than what I am. Probably it’s because I’m doing all these exercises”* (Julie, F, 72, active).

There was also a fear of losing this energy and vitality through time spent being inactive:

“as a retired person you know it’s very easy to sit here at home and watch the TV... but I don’t do that because I’ve seen other people do that and it leads to all kinds of things. So, I can see the results of not being physically active” (Sam, M, 67, active).

Inactive participants seemed more aware of their energy expenditure, with forms of physical activity they classed as exercise deemed to take more energy

compared with more social physical activities: *“How can I put it, more energy, type of thing, isn’t it, swimming than dancing”* (Shirley, F, 70, inactive). The least active older adults also seemed to perceive a higher energy and time expenditure requirement of light or moderate intensity activities such as walking to the local shop, e.g. perceiving locations to be further away than they were *“it’s about quarter of a mile to the shops, it’s about half a mile to [activity venue]”* (Ben, M, 74, inactive) (actual distances 0.1 mile and 0.3 miles respectively). This may be due to the amount of time it took those with low physical fitness to reach their destination. Health problems could indeed mean that they were expending more energy than a fitter person to engage in basic tasks.

For some, time and energy spent working had been an obstacle to being physically active for leisure, and they relished this freeing up of resources in retirement: *“I become [sic] a new man! I started doing exercise [laughing]. I think the fact that I was retired, the work got in the way of the exercise”* (Kevin, M, 71, active). Some missed the routine of work, while others who had held physically demanding jobs missed being physically active, replacing this energy output in retirement with regular physical activity: *“I’ve done more now since I’ve retired than I’ve ever done in my life”* (Julie, F, 72, active). However, many inactive older adults who previously held active jobs only related physical activity to hard work, or wear and tear. Some even expressed doubts that it could benefit their health, and therefore wasn’t worth spending their limited time and energy on: *“I think at times it is a little bit overstated as far as medical’s [sic] concerned”* (Ben, M, 74, inactive).

Physical activity was perceived as less of a drain on resources when older adults were distracted from the physical aspect of an activity, especially limitations of health

conditions (e.g. pain, breathlessness). Distractions could be: combining physical activity with unrelated everyday tasks: *“even when I’m ironing, I’m [moving] my feet”* (Liz, F, 74, active); having an enjoyable separate purpose: *“Don’t just walk, give them something to do at the same time”* (Olive, F, 70, active); or social enjoyment: *“You forget what’s wrong with you when you’ve got a crowd of people”* (Grace, F, 94, inactive). Older adults reported spending longer engaged in higher energy physical activities when enjoying the company of others than when alone. For example, one participant found he needed to rest after 10 minutes when gardening at home: *“if I do any digging, over exerting myself, for about ten minutes or so, I then have to sit down for a few minutes”* (Ben, M, 74, inactive), whereas with his gardening club this duration was doubled: *“all of us are the same, you know, after twenty minutes or so we’ll all have a sit down”* (Ben, M, 74, inactive). However, some older adults found it was intrinsic enjoyment of the physical activity itself that altered their perception of time: *“I’m very focused when I’m on the machines. It’s fantastic... I say, ‘I am lost at the gym.’ I’m living in the present moment there”* (Al, M, 77, active).

Reduced Day

Low acceptability of multiple activities in one day was apparent for many participants, whether these activities were physical or sedentary: *“when you get older you can only do like one thing in a day”* (Claire, F, 67, inactive). This led to a reduction in perceived availability of time for further activities, perhaps due to time and energy being conflated, and their limited resources being needed for basic chores and getting to the activity, as well as the activity itself:

“by the time you’ve done what you wanted to do here [at home] in the morning, and then we go to the [sedentary activity], and then by the time we come home

we get our tea and so that's the day gone. And when I go for the [physical activity] on a Tuesday and I'm there from about half past nine til maybe half past twelve, and then by the time we come home and have a bit of lunch and there's another day gone" (Ben, M, 74, inactive).

For some, particularly inactive participants, the reduced day seemed to stem from a lack of flexibility towards changing schedules, even to accommodate much loved physical activities, such as this lady's dance class: *"Well it was a bit inconvenient on a Saturday morning, cos I usually do shopping" (Claire, F, 67, inactive).* Weekends seemed to be viewed differently to the rest of the week for many, even in retirement: *"My Saturday is my time" (Kath, F, 77, inactive).* Conversely, some of the active participants were willing to change their schedules to accommodate physical activity *"Some of these [new classes] coincide with our dinner time in the evenings. So that's a matter of moving the dinner time and say, 'We're going'" (Diana, F, 71, active).* Maintaining emotional balance by protecting enjoyed activities in light of limited resources was evident, whether these activities were physical or not: *"I might do something at the expense of something else that I want to do. You've got to get that balance right, where you're happy to do that amount and happy to do that non-exercise bit" (Sam, M, 67, active).*

For those who were open to engaging in multiple activities per day, there was not always enough time to get from one activity to another without their own transport, as activities for older adults also tended to be provided within a reduced window of time: *"But it's so awkward for us. We don't finish till twelve o'clock and they start at one, and you have to get the bus to both places" (Sally, F, 78, active).* Lack

of local amenities and public transport issues also fed into this, as earlier activities which needed to be reached by bus could not be engaged in freely:

“daytime [activities] starts at half nine, quarter to ten, again pensioners we’d have to pay £2 odd for that bus. If it was put at a time where we could get on the half past nine bus, it wouldn’t cost us” (Linda, F, 68, inactive).

More active participants seemed happy to engage in walking as active transport to overcome this, although this was related to an individual’s mobility, enjoyment of walking, and financial situation: *“it costs me £2 to go from here to [local venue] if I go before half past nine in the morning, so I won’t, I just walk [laughing] cos I won’t pay the money”* (Sally, F, 78, active).

Earlier in the day seemed optimal for many non-structured physical activities in order to miss the crowds, especially children, whether cycling in the park: *“It’s the safest time to go because there’s nobody around. It’s not like if you go in the afternoon there’s kids and everything running out in front of you”* (Diana, F, 71, active); or walking around town: *“half ten in the morning I’m usually out [of] there, because it gets crowded in the afternoon. It’s more young people isn’t it”* (Susan, F, 80, inactive).

Active participants noted that older adults were generally in the minority later in the day, as noted by this regular gym user: *“the old people had gone by 4 o’clock or 5 o’clock”* (Al, M, 77, active).

However, some participants wished for more social physical activities in the evenings, such as dancing in local community centres: *“Cos there’s no alcohol involved, you know. That would appeal”* (Diana, F, 71, active). Others were happy to go out at night to evening physical activities or to pubs/social clubs where they could dance, but they tended to have their own transport or money for taxis. Those without such

resources spoke of the difficulties in engaging in activities in the evenings or night times: *“I’d love to go to aqua fit [but] it’s at half eight at night, so everything’s a taxi. Well I don’t have the money to get taxis”* (Linda, F, 68, inactive). Many older adults with limited resources found their day constrained by factors beyond their control rather than by choice, which was not understood by others with more resources: *“they’re saying ‘You should go’ but it’s all people sitting with cars”* (Linda, F, 68, inactive). Daylight was an important consideration, particularly for those with reduced mobility and could explain such reticence in engagement later in the day for some: *“how do I get there and how do I get back. Trying to cross the road in a [mobility] scooter, cos they just don’t care. No, I don’t want to go out at night time and when it goes dark”* (Jo, F, 69, inactive). Others were fearful of crime in their neighbourhood after dark *“you can’t go out in the evening and come back on your own. You’ve got to be careful”* (Julie, F, 72, active), particularly if waiting around for transport *“[it’s a] bit of a rough area up there, if you know what I mean. So, you don’t want to be stood outside”* (Linda, F, 68, inactive).

Being given enough time

The perception of having enough time within physical activities was important for numerous reasons. Perceiving the need to hurry to an activity whether because of stringent timekeeping or complicated personal schedules lowered acceptability: *“I can’t do rushing around. It just gets me all on edge. I just like to be able to take my time at things”* (Claire, F, 67, inactive). Older adults needed to feel at ease within structured physical activities, so that they would still attend if they were running late, rather than miss the class:

“Everybody laughs. There’s no, ‘Be there on time’, or restrictions, and you think ‘Oh, I’m gonna be late’, you don’t think ‘Oh I won’t go’. You go cos you want to go and it’s not gonna interrupt the class or anything” (Sara, F, 74, inactive).

What may be perceived by many as ample time to engage in physical activity does not appear that way to many older adults: *“then you’ve only got from two [pm] til about four [pm] or, you know, to do something and it’s not really enough time”* (Claire, F, 67, inactive). Not feeling they can comfortably engage in physical activity within such a timeframe may be due to many factors: the time and energy expenditure involved in getting ready and travelling to an activity; the need to not feel rushed; the possible foreshortening of their day; low acceptability of multiple tasks per day; and needing time to socialise.

Time and encouragement to socialise around an activity was valued by many. One participant now has twice weekly lunch sessions after class with his exercise classmates: *“Well they said to me ‘Why don’t you just stay? Why do you go home?’”* (Kevin, M, 71, active). A walking group accommodated all members by ensuring even the slowest had time to stop for tea and cake without rushing: *“But [friend] and I were well behind. And we just took our time and caught them up”* (Sally, F, 78, active). Unreliable community transportation (i.e. free door-to-door services for eligible residents) often encroached on physical activities and any possibility of socialising: *“well they never get the chance to socialise after. They always come picking them up too early”* (Claire, F, 67, inactive). Such services seemed notorious for leaving without their pick-up, and several older adults reported leaving their activities before their scheduled finish for fear of being stranded, leaving them standing outside, often alone:

“You’ve got half an hour waiting, whatever the weather, cos if you’re inside, he goes”

(Linda, F, 68, inactive).

Seasonal Impact

Seasonal differences in time and energy perceptions, and the impact these perceptions had on engagement in physical activity, were apparent. Many older adults in low SES neighbourhoods found it easier to access physical activities during the lighter evenings of summer, but not all older adults found the warmer weather conducive to being physically active: *“I wouldn’t over exert in the heat, cos I think that’s silly”* (Pam, F, 72, inactive). Some however felt it took less time and energy to prepare for physical activity in the warmer months:

“Well you’re not waiting in the cold for buses and things like that. You’re not wondering if you put two jerseys on that are too heavy or too thick and you can’t do the Tai Chi. It’s summer you put light things, t-shirts and you’re away. Much easier in the summer to go to these classes” (Sara, F, 74, inactive).

Certain physical activities (e.g. walking, swimming) seemed less appealing in the coldest months for some, and many reported classes and groups taking an extended break around December/January. However, some older adults were disappointed when services were not reinstated more quickly, as one participant noted in May: *“[the walking group] finished like for the winter, and they’ve not got it sorted out yet again”* (Julie, F, 72, active). Making small accommodations in different seasons increased acceptability, such as exercising in a warmer room in winter: *“they would want it cosy and warm in winter”* (Linda, F, 68, inactive) and being understanding of weather-related travel issues: *“it’s got to be very, very relaxed in the winter class, where you can just stroll in if you’re late”* (Sara, F, 74, inactive). The

increased depletion of energy just to get to physical activities was a major concern for many: *“walking in the rain. It takes it out of you”* (Sara, F, 74, inactive); and even the most active struggled: *“normally it takes me 15 minutes and it took me an hour [walking in the snow]. I never attempted it again”* (Sally, F, 78, active).

The impact of closed local facilities in low SES areas was even more keenly felt by those without cars throughout the year. In the summer, those who relied on other older adult friends for transport or company at physical activities were less likely to attend if these friends went away for prolonged periods: *“She goes [abroad] quite a lot you see, so she wasn’t around and I’d say, “If she’s not going, I won’t bother” you know”* (Mo, F, 89, inactive). Whereas in the winter, inclement weather magnified public transport issues: *“that’s a big issue, really, waiting around for buses, especially in the winter if your hair’s wet”* (Claire, F, 67, inactive). Weather seemed less of a barrier for active older adults on direct bus routes or with cars *“I’ve gone in when it’s been snowing and everything and ice”* (Kevin, M, 71, active).

Discussion

This study found that when older adults spoke of ‘not having time’ to be physically active they often seemed to be referring more to the perceived energy expenditure required to engage in physical activity, which included getting ready, and travelling to and from activities. For those who engaged regularly in enjoyed physical activities, anticipation of attending often seemed to offset negative perceptions of such energy expenditure. Lack of local amenities in low SES areas was often compounded by a lack of individual resources, such as own transport or taxi fares. This made engaging in physical activities outside of the home more onerous, and therefore less acceptable, than for those with such resources. This was particularly apparent

during inclement weather, when further energy expenditure was required merely to attend an activity, and on dark nights when fears for safety were an issue. Physical activity in the evening tended therefore to be pursued only by those with their own car or sufficient finances for taxis, despite those without such resources professing an interest. Many, particularly inactive, older adults viewed multiple activities per day as unacceptable. Basic chores were also seen as a drain on time and energy for the less active, leaving them with fewer perceived resources than active older adults. However, losing oneself in a physical activity, whether through intrinsic enjoyment or the enjoyment and distraction of the social nature of the group, seemed to enable even the most inactive to increase their capacity for physical activity. A lack of flexibility and rigidity of thinking was more apparent with some inactive older adults, which meant that activities had to occur on set days or times to be acceptable, even giving up desired physical activities if they fell outside these times. Having a relaxed, sociable atmosphere within organized physical activities encouraged attendance, particularly when tackling weather or transport difficulties. Being encouraged to socialize within and beyond classes or groups was highly valued, and this added to the enjoyment and increased acceptability of regular physical activity for many. However, unreliable transport services severely constrained such socializing, or even completing an activity for some, meaning those without personal resources were again negatively impacted.

Strengths and limitations of study. This study addresses the lack of data in the literature on acceptability of physical activity from older adults living in deprived areas. The study took place in Manchester, a city ranked third highest for deprivation in England (DCLG, 2011). Recruitment focused on areas with higher deprivation

specifically for older adults. Recruitment was primarily achieved by going into communities to talk with older adults about the research. Purposive sampling was used to ensure that active and inactive older adults' views were gathered. Activity levels were derived from data given over multiple questions, using recommended guidelines for activity levels, rather than older adults self-identifying as active or inactive. However, the self-report of this data, with the problems of retrospective reliability and social desirability, is noted as a weakness. The sample consisted mainly of white British and Irish females, so is not fully representative of the wider older adult population. Although males and ethnic minorities were specifically sought, they were difficult to access within the study timeframe. As this study took place within a city, there may be unidentified issues relating to older adults and physical activity within deprived rural areas.

Relationship to literature. Our findings that a perceived lack of time is a substantial barrier to physical activity for older adults in lower SES environments is in line with previous studies in the general adult population (Venn & Strazdins, 2017) and in middle-aged and older adults (Justine et al., 2013; Franco et al., 2015). Further, our findings support those of Venn and Strazdins (2017), in that perceptions of being time poor seemed compounded by a lack of financial resources. However, in contrast to previous studies, our findings suggest that it is not simply time that is a factor for older adults, but rather a combination of time and energy, which were often conflated by participants. This could explain the disparity between perceived and actual free time older adults had in which to be physically active, as they were also referring to their energy levels. Our findings concur with previous work on the impact of reduced amenities in low SES environment on older adults' levels of physical activity (Annear, et

al., 2009; Fox et al., 2011) but expand on this by identifying explanatory factors. Most participants in the current study spoke of issues *attending* physical activities outside the home, with very few older adults commenting on incidental physical activity within the home or neighbourhood. Participants experienced a lack of local and individual resources which increased the time/energy required just to get to a venue. This lowered the acceptability of engaging in physical activity in low SES areas, as many older adults perceived this extra expenditure to be beyond their capabilities. Although some older adults expressed a desire to be more active, few engaged in specific physical activity within the home or local neighbourhood, even though this would remove some of the time/energy barriers. This could suggest that older adults wanted something more than just the physical activity itself, or that they do not conceptualise incidental activities in the home and local neighbourhood as relevant to physical activity. Increased time/energy expenditure also negatively impacted the acceptability of multiple activities in a day, whether physical or not, as the energy required to get to *any* activity was perceived as a substantial drain on limited resources. Those with greater individual resources (e.g. cars/money for transport) experienced reduced expenditure and easier accessibility as most environmental issues such as lack of local amenities, safety, and weather were negated. If time and energy are conflated, by both participants and researchers, interventions may fail to adequately address the factors responsible for older adults' low engagement levels in physical activity.

In line with previous studies (Jallinoja, Pajari & Absetz, 2009; McGowan et al., 2017), many of our inactive participants perceived physical activity only as exercise, or hard work which could deplete energy, rather than something they associated with leisure or pleasure. However, in the current study many older adults who enjoyed

regular physical activities seemed to utilise anticipated pleasure to negate the energy expenditure of getting ready and getting to the venue. This is in line with the findings of Phoenix and Orr (2014) where participation in enjoyable activities can be related beyond the activity itself, to the environment and the habit of it recurring. Our results suggest that having both social and physical needs met within the same time/energy expenditure meant that physical activity was not abandoned in favour of more emotionally satisfying social interaction when faced with limited resources, in agreement with SST (Carstensen et al., 1999). For the majority of our participants, social interaction increased their perceived enjoyment and seemingly increased the ability of even the most inactive to increase the time they were able and willing to be physically active. This alteration in perception of time is in common with Csikszentmihalyi's (1990) flow state which is achieved when individuals are immersed in enjoyable, achievable activities.

Implications for practice. Basing physical activities locally in low SES areas, and aligning them with free fare periods on public transport, could help reduce the time and energy expenditure required to access them. Training is needed within community door-to-door transport services on the importance of giving older adults enough time for completion of activities and socialising, and on providing reliable evening coverage, when barriers are greater. Providing physical activities in neighbouring areas at different times may help accommodate those with less flexible schedules, as well as increasing older adults' social circles, giving them more choice and perhaps increasing the acceptable window of time for activities to take place, so long as they are easily accessed. Physical activity services could be provided throughout the year, with seasonal accommodations made rather than taking a hiatus

(e.g. walking indoors during winter, perhaps at art galleries, shopping centres, etc).

Raising awareness of increased energy through being regularly physically active, rather than focusing on negative health risk information may encourage engagement. Local provision of social physical activities (e.g. dancing, walking groups), promoted as fun, relaxing pastimes, may help to dispel the perception that physical activity needs to be hard work, undertaken at the expense of leisure time.

Implications for research. To establish the role that perceived available energy plays in physical activity engagement in older adults, it needs to be studied separately from time. For instance, longitudinal research could examine differences in perceived energy before, during and after physical activity interventions with older adults (alongside measures of perceived and actual time passed), using both quantitative and qualitative assessments. Becoming aware of the hypothesised increased energy could increase older adults' acceptability of physical activity as first-hand experience has high value to them (Devereux-Fitzgerald et al., 2016). Exploring the acceptability of accumulation of incidental physical activity through everyday activities (e.g. heavy housework, walking to shops) may be useful for those who do not perceive they have the resources to engage in organised external physical activity and are not looking to increase their social interaction. As emotional regulation is a primary goal for older adults according to SST (Carstensen et al., 1999) exploring energy and affect in relation to lower intensity social activities typically preferred by many older adults could be beneficial, as less vigorous physical activity has been related to higher affect and adherence in the general adult population (Ekkekakis, Parfitt & Petruzzello, 2011). The importance of self-efficacy in physical activity is well known, and the perception of having enough time to go at a comfortable pace is integral to this confidence in ability,

however perceived energy also needs to be explored as a possible related factor. As energy is an internal resource, it may be an important self-sufficient factor in maintenance of physical activity for older adults in lower SES areas who have limited external resources (e.g. transport, money). Further investigation into the perception of utilising less resources (e.g. altered time perception) when in a flow state, and whether this also includes energy expenditure, could be pertinent to older adults with limited resources.

Conclusion. Conflation of time and energy may be masking some factors of older adults' acceptability of physical activity. Enjoyment in many forms appears to increase older adults' perceived available time and energy to engage in physical activity, and to offset negative perceptions of it being a drain on limited resources. Increased acceptability of physical activity in low SES areas may be more broadly achieved by reducing older adults' time and energy expenditure to *attend* activities, thereby allowing them enough perceived time and energy to engage in the physical activity itself.

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CHAPTER FOUR

**The Acceptability of Physical Activity in Lower Socioeconomic Status Areas:
Views from Older Adults and Providers of Physical Activity Services**

Abstract

Background: Physical activity can reduce risks of chronic illnesses, frailty, and deterioration of cognitive function. Despite this, the number of older adults engaging in recommended levels of physical activity decreases dramatically with age. Older adults in lower socioeconomic status (SES) areas are less active and experience greater barriers to physical activity, yet are often absent from research studies. The present research aims to elicit issues affecting acceptability of physical activity from older adults and physical activity providers in lower SES areas.

Methods: Semi-structured interviews were conducted with 19 older adults aged 67-94 years, independently living in lower SES areas, and eight trainers/providers of physical activity. An inductive Thematic Analysis was conducted.

Findings: For older adults, familiarity with people, locations, movements and terminology made engagement with physical activity more acceptable. Fostering social integration and group cohesion heightened enjoyment and assisted maintenance. Older adults' perception of not being valued was exacerbated by a lack of resources, lack of parity of provision across areas, and cancelled services. Service providers were hindered by tight budgets and centralization of facilities, but understood the need for local, familiar provision. Providers were also aware of the importance of consistent routines for older adults, as reduced cognitive flexibility around changing plans was common. Facilitating social interaction within physical activity sessions was central to good provision for older adults in low SES areas, increasing acceptability and using fewer resources to fulfill multiple needs.

Discussion: Providers need to focus on a physical activity experience that is familiar, social, consistent, desirable and enjoyed by older adults, so they view it as an acceptable fun, leisure-time activity. Encouraging atmospheres where strong social bonds are created increases enjoyment and maintenance of physical activities. Enhancing attendance may also facilitate long-term provision by helping providers to make the case for funding those services.

Introduction

Physical activity provides multiple benefits for older adults, including lowered risk of chronic illness and mortality, improved mood, increased quality of life, and maintenance of cognitive and physical function (Rejeski & Mihalko, 2001; UK Department of Health (DoH), 2011). However, up to 87% of males and 92% of females over the age of 65 years in England do not meet current guidelines of 150 minutes of moderate physical activity and two sessions of strength training per week (Scholes & Mindell, 2013). People in the most deprived areas are twice as likely to be inactive as those in the least deprived areas (Public Health England (PHE), 2014). Older adults in lower socioeconomic status (SES) areas experience greater barriers to engaging in leisure-time physical activity (King, 2001; Annear, Cushman & Gidlow, 2009), as well as higher levels of impaired mobility (Fox et al., 2011). Despite these factors, older adults in lower SES areas are often absent from qualitative physical activity research studies (Devereux-Fitzgerald, Powell, Dewhurst & French, 2016; McGowan, Devereux-Fitzgerald, Powell & French, 2017).

Acceptability of health behaviours is often conceptualised as the level of tolerance required to undertake health interventions, or the perceived appropriateness of an intervention (see Sekhon, Cartwright & Francis, 2018). However, acceptability of health behaviours can be conceptualised as those perceived as attractive and which are sought out. When viewed through this lens, physical activity may be seen as a pleasurable way to spend time connecting with others, or reconnecting with oneself (Phoenix & Orr, 2015), whilst still reaping the many benefits for health and wellbeing. Utilising this latter approach to the acceptability of physical activity may present less of a threat to older adults' emotional states, as there is less

focus on health-related performance, and therefore possible negative feedback.

According to Socioemotional Selectivity Theory (SST) (Löckenhoff & Carstensen, 2004) there is a positivity bias in older age, with a preference to preserve emotional balance in the present rather than risk this balance by processing negative information.

Older adults find physical activity interventions which are fun or provide social opportunities more acceptable than those undertaken for long-term health benefits (Devereux-Fitzgerald et al., 2016). Perceived low availability of time may restrict older adults' willingness to engage with activities which are not seen as a priority. Some older adults may misconstrue low energy levels for limited time. This is particularly pertinent in low SES areas where a lack of personal and environmental resources can mean that more energy is required simply to attend an activity than in wealthier areas (Devereux-Fitzgerald, Powell & French, 2017). It appears that the lower the resources (both perceived and actual), and the less value or enjoyment gained from being physically active, the lower the acceptability of physical activity to older adults.

Lower levels of physical activity and low socioeconomic status are also linked to social isolation (Pinquart & Sorensen, 2001). The reduced tendency of older adults in low SES areas to leave the home can lead to social isolation and loneliness (Fox et al., 2011). Loneliness has been shown to be an independent risk factor for older adults to be physically inactive, as well as decreasing the probability of maintenance of physical activity in active older adults (Hawkley, Thisted, & Cacioppo, 2009).

Physical activity for older adults may be provided by different sectors, including local government-based leisure services, charities for older adults, health services, or independent voluntary groups, all of whom may have different remits to fulfil.

Delivery approach has been shown to be important for older adults' acceptability of

physical activity (Devereux-Fitzgerald et al., 2016). Training background and class setting can impact a trainer's attitude towards, and expectations of, older adults' abilities (Hawley, Skelton, Campbell & Todd, 2012). Furthermore, individual characteristics of trainers including age, knowledge, experience and training, have been shown to be factors in uptake and maintenance of physical activity in the general older adult population (Fox, Stathi, McKenna & Davis, 2007; Hawley-Hague, Horne, Campbell, Demack, Skelton & Todd, 2013). However, the impact of trainers' attitudes and behaviours around the provision of physical activity to older adults in low SES areas, where greater barriers exist, has not been studied.

To increase acceptability of physical activity services and thereby increase engagement within this population, we need to better understand what older adults find acceptable regarding physical activity. We also need to understand what those who provide and deliver physical activity services (hereinafter referred to as trainers/providers) within low SES locations perceive to be acceptable to older adults. The present in-depth qualitative study investigated the extent to which engaging in physical activity is acceptable to older adults living in lower SES areas and what issues affect this acceptability. It also examined what trainers/providers perceive to be important in ensuring acceptability of activity provision for older adults in lower SES areas. Gaining the perspectives of individuals from both groups allowed for broader and deeper insight than could be obtained by interviewing one group alone, providing triangulation of data from different perspectives on the same topic (Kendall et al., 2009). This research is important to inform future provision on how to increase acceptability of, and therefore engagement with, physical activity services, within the lower SES older adult population.

Method

Design. A cross-sectional multi-perspective semi-structured interview design was used to elicit views and experiences of both older adults and trainers/providers in relation to the acceptability of physical activity services to older adults.

Participants. All participants were recruited from lower SES areas of Manchester, England, an area which itself is deprived relative to much of the rest of the country. Deprivation figures for eligible areas ranged from 38.5% -54.8% of older adults living in poverty (compared to the English national average of 18.1%), where deprivation was based on factors including income, crime risk, access to local amenities, and living environment (DCLG, 2011). Older adults were eligible if they were aged 65 years or older, lived independently in the lower SES areas described, had sufficient English language skills to be interviewed and could walk continuously for 10 minutes unassisted by another person. Trainers, group leaders and providers were eligible if they were over 18 and involved in delivering physical activity classes or services to adults 65 years old and over, in a paid or voluntary capacity, in any of the specified lower SES areas. Purposive sampling was used to ensure variation in the sample in terms of residential area, age and activity levels of older adults and sector, area and type of activity for trainers/providers. Recruitment was publicised via local government and research newsletters, libraries, age-related charities, together with a snowballing approach where further possible participants were identified by those already taking part. The first author attended coffee mornings, library groups, physical activity sessions and craft groups for older adults to enhance recruitment, as face-to-face recruitment regarding physical activity research has been found effective in the older adult population (Hildebrand & Neufeld, 2009).

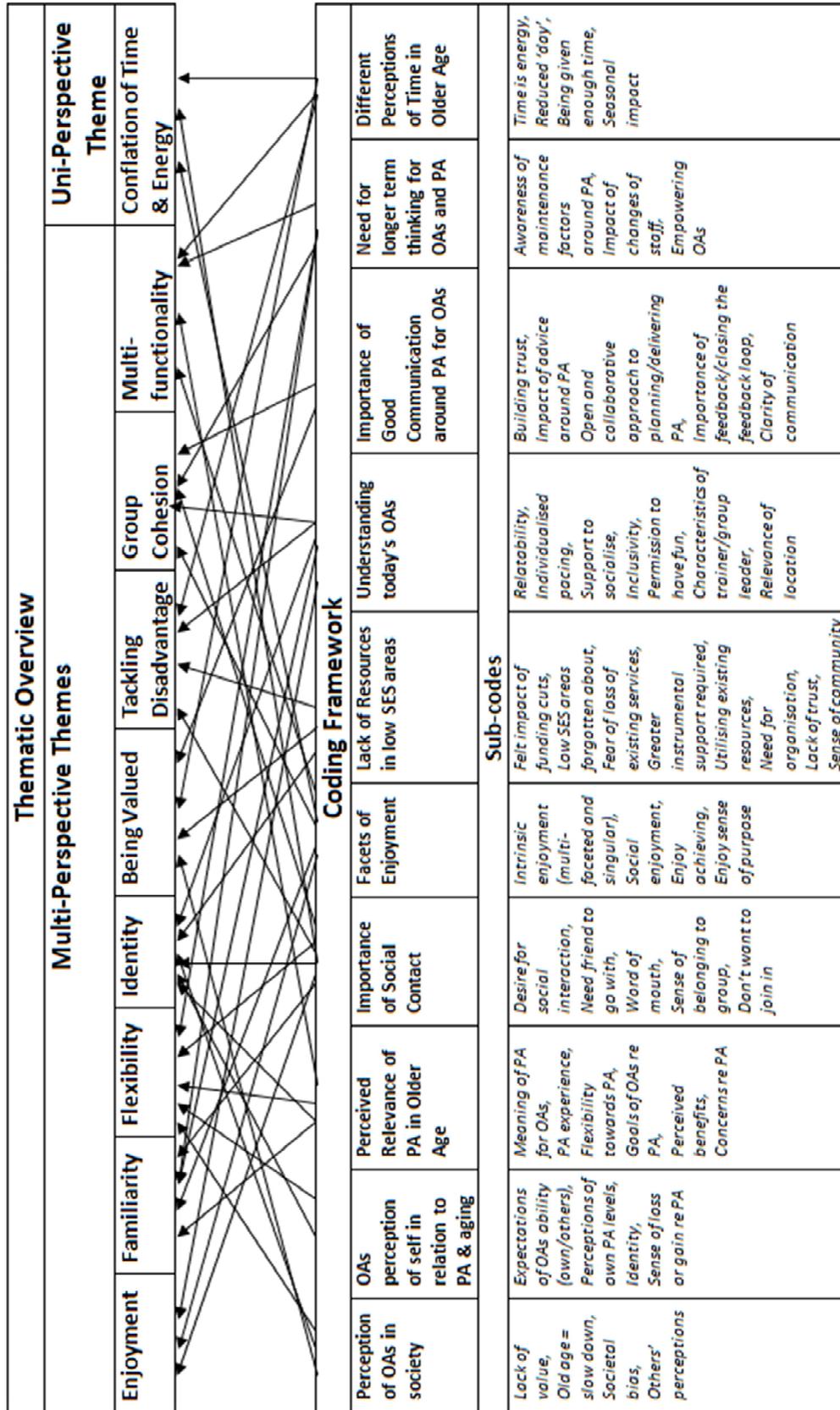
Procedure. Institutional ethical approval was granted (see Appendix H).

Eligibility was established using short screening questions and participant information sheets were sent out (see Appendices I and L). Immediately prior to the interview, a questionnaire was completed with participants for demographic and background data. Face-to-face interviews were conducted by the first author in private at the participant's home or work, or at the author's university. No financial remuneration was provided, beyond travel expenses for those who chose to attend the university. Informed consent was taken in person at the start of the interview session. Data from previous interviews were considered when undertaking subsequent interviews so emerging topics could be addressed. Field notes were taken after interviews to ensure context was retained. Interviews lasted between 31 and 95 minutes (median 61 minutes) and were audio-recorded.

Materials. The older adults' pre-interview questionnaire (see Appendix J) captured age, education level, marital status, residential area, car ownership and ethnicity. Physical activity levels were established based on the amount of time (minutes per week) participants self-reported spending on light, moderate or vigorous physical activities (DoH, 2011). Older adults were deemed active if they met the recommended guideline of 150 minutes of moderate/90 minutes of vigorous physical activity per week, and inactive if they did not meet this guideline. Perceived social isolation was established using the Three-Item Loneliness Scale (Hughes, Waite, Hawkey, & Cacioppo, 2004). The trainers/providers' pre-interview questionnaire (see Appendix M) captured age, gender, work role (e.g. physical activity professional, manager, volunteer), sector delivered in (e.g. health, leisure, care, community) and physical activity type provided.

Semi-structured interviews were facilitated by interview schedules. The older adults' interview schedule (see Appendix K) included how participants felt about physical activity, their physical activity levels, physical activity likes/dislikes, benefits or concerns, and local physical activity provision. The trainers/providers' interview schedule (see Appendix N) included motivation for working with older adults and physical activity, what older adults wanted regarding physical activity, local physical activity provision, barriers for older adults, attendance and feedback received, and experiences of increasing older adults' physical activity engagement.

Analysis: A Thematic Analysis was conducted (Braun & Clarke, 2006), using data management principles of the Framework Approach (Ritchie & Spencer, 1994). This allowed for both thematic and case-based analysis, encouraging breadth and depth in the exploration of the data, whilst facilitating transparent and accessible data management. Interviews were transcribed verbatim, read and re-read to achieve familiarisation, and relevant topics were identified in relation to the research question. Initial codes were systematically generated and collated into a hierarchical coding framework of potential themes and sub-themes (see Appendix O), with both explicit and latent themes being explored. Framework matrices were constructed to enable thematic and case-based analysis. All instances of themes were re-considered, with themes merged or split as necessary. The matrices assisted the analysis through identification of patterns within the data, identifying links between same or different phenomena and any notable absence of such links (Spencer, Ritchie, O'Connor, Morrell & Ormston, 2014). Final themes were elicited from analysis of such patterns (see Figure 1 for a thematic overview and Appendix P for an example theme with excerpts from the coding framework the theme was derived from).



Key: OAs = older adults; PA = physical activity

Figure 1. Thematic overview showing relationship between themes and coding framework

Results

Of 25 older adults who expressed interest, 19 participated. Of the six non-participants two were ineligible due to residential location, two withdrew due to ill health and two declined to take part without any reason given. The 19 older adult participants were aged 67-94 years (15 female, 4 male). One participant identified as British Pakistani, four as White Irish, and 14 as White British. Two participants were educated to PhD level, five completed further education, seven completed secondary school, and five did not complete secondary school. Of the married participants ($n=7$), two married couples took part. The non-married participants were widowed ($n=6$), divorced ($n=3$) and single ($n=3$), with ten living alone, whilst the remaining two lived with family members. Four participants had access to a car (three cars within the sample). Participants were categorized as active ($n=8$) or inactive ($n=11$) based on self-reported physical activity (pre-interview questionnaires). Social isolation was perceived as: Often (1 Inactive); Some (4 Active, 4 Inactive); Hardly (2 Inactive); Not at all (4 Active, 4 Inactive).

All eight physical activity trainers/providers who expressed an interest were interviewed. The eight trainer/provider participants were aged 30-62 years (5 female, 3 male). The physical activities they offered included: walking, Tai Chi, circuit training, dancing, walking football, and seated exercises.

The thematic analysis produced eight themes within three interacting categories which explain how making physical activity easier for older adults to engage with increases its acceptability, how some of these factors can make provision easier for the trainers/providers, and in conjunction assisting with maintenance (Figure 2).

These themes will be written about in the following groupings: a) Ease of Engagement

[Familiarity, Identity, Enjoyment]; Ease of Provision [Tackling Disadvantage, Flexibility, Being Valued]; Ease of Maintenance [Group Cohesion, Multi-functionality]. A further theme explaining differences in perception of time in older age was found in the older adult sample alone and is discussed in detail in Devereux-Fitzgerald et al. (2017).

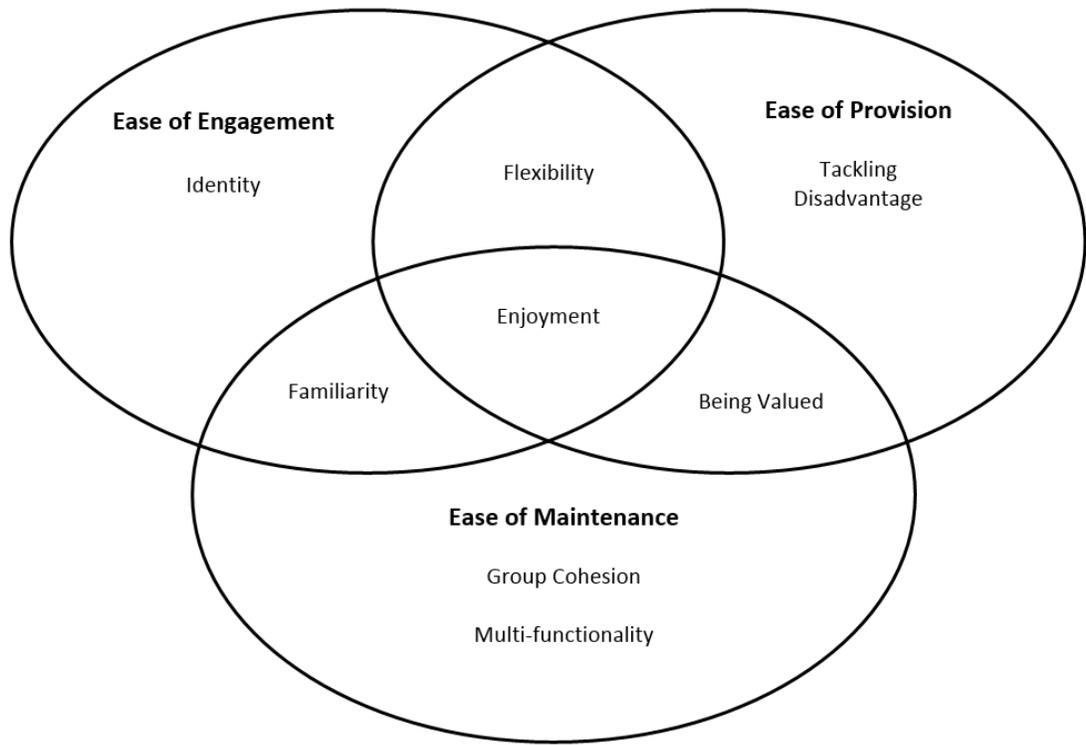


Figure 2. Factors related to acceptability of physical activity services for older adults in low SES areas

Ease of Engagement

Familiarity. The importance of familiarity was evident in many aspects of older adults’ attendance at physical activity services and related to people, venues and the physical activity itself. Social contact with familiar others was a primary driver for many older adults engaging in physical activity: *“cos I’m on my own enough in here*

[home], so I like to be with people I know outside” (Claire, F, 67, Inactive). More isolated older adults feared not fitting in in unfamiliar places: “If I sat there for an hour on my own and nobody came near me... I just couldn’t cope with that. So that’s why I don’t go places” (Jo, F, 69, Inactive).

Familiarity with trainers was also important, both for building a sense of trust and for social interaction: *“whilst older people can be very guarded about new things... once they’re in a comfortable position, you can’t get them to stop [talking]” (Katie, F, 32, Provider, Health/Leisure). There was also a sense of loss when familiar trainers left: “it was really a smack in the teeth when she went. For all of us, not for just me” (Linda, F, 68, Inactive).*

Many older adults spoke of attending local venues due to lack of resources to easily go further afield, but some providers perceived this as reluctance to travel beyond their familiar council area (ward):

“they will go to something that’s very, very near to them. But if you... moved it to a different ward, they wouldn’t want to travel... they just won’t cross over... I don’t know whether it’s because they feel safe in their ward or if... they’re being a traitor?” (Emma, F, 33, Provider, Social/Leisure).

However, from the older adults’ perspective, it seemed more to do with familiarity of the surroundings or the people giving confidence to take part in physical activity: *“knowing people who go to it, that’s the main thing” (Sara, F, 74, Inactive).*

Familiarity with physical activities when younger could lead to an interest in related activities in older age, such as martial arts leading to Tai Chi, or football to walking football. However, some older adults had no previous experience of leisure-time physical activity and required one-to-one assistance to become familiar with the

movements: *“so I have to hold [their arm]. I say, ‘Right, move this part’, ‘Oh right, I see what you mean’ ...and as soon as I let go, they’re at it again”* (Jill, F, 40, Trainer, Leisure).

Allowing older adults to use their own terms helped to familiarise them with new movements and activities: *“things like, ‘Pulling the beer pump’ ...or ‘Washing the car’...it helped them understand the [Tai Chi] movements and as soon as that clicked in, that they renamed them, they could do the movements really comfortably”* (Phil, M, 46, Trainer, Wellbeing/Charity). Introducing aspects of new activities within one class could lead to older adults seeking out this activity itself: *“The [instructor] was doing a little bit of line dancing and I liked it, and I thought ‘Oh I must see if there’s anywhere here”*” (Mo, F, 89, Inactive).

Identity. Sense of identity impacted the services some older adults were willing to engage with. For instance, those who did not see themselves as older avoided physical activities provided by older adult-based services: *“I don’t FEEL like a pensioner... there must be a lot of older people that appreciate these centres because they’re well used, but it’s just not for me”* (Olive, F, 70, Active). However, some older adults would attend any activity, even if they did not identify with it, rather than sit at home alone: *“[the seated exercise] was okay, but it’s just another thing to do really. But I think it’s good for the elderly people”* (Julie, F, 72, Active).

What older adults identified with could on the surface be contradictory, such as saying they disliked walking as an activity, but joining history or nature walks, or this participant who spoke of dancing: *“I’ve never been a dancer in my life... It’s not me. I don’t want to do it”*; [but speaking about belly dancing] *“So I went, and it was a good laugh”* (Linda, F, 68, Inactive). How some older adult identified themselves in relation

to being physically active seemed to differ with age. Some related being physically active as something they did when younger when they had to do physical jobs that they were no longer capable of: *"Oh that was a heavy job... I think I'm past it"* (Susan, F, 80, Inactive). Others thought of structured formal exercise they had undertaken in earlier years, but again did not equate this to something they would do in older age: *"Those days are over I think. I did used to go to the gym quite a lot when I was a younger person, but now... I don't go to gyms and things"* (Sam, M, 67, Active). Others still very much identified as physically active people when asked, but for them the physical aspect seemed to be lost, with more of a sense of busyness apparent in their responses: *"I don't think there's anything more that I could really do, if I think about it"* (Kath, F, 77, Inactive).

Enjoyment. Many types of enjoyment were reported beyond the simple enjoyment of physical activity itself. The anticipation of seeing friends and socializing within and around classes was integral to the enjoyment experienced: *"we enjoy one another's company while we're doing it, so that's the joyful part of it"* (Kevin, M, 71, Active). Enjoyment of nature was apparent for those who were physically active outdoors: *"you're in the fresh air... the greenery and the trees and, you know, the birds whistling"* (Julie, F, 72, Active). Memories triggered by music or dancing from their own era or culture also instilled visible enjoyment in older adults: *"They'll go, 'Oh I remember when I used to dance'... it REALLY lifts them. I can see that they're happy"* (Jill, F, 40, Trainer, Leisure). For others it was experiencing enjoyment of a simple freedom: *"We were allowed to be ourselves. We were given permission to have fun"* (Olive, F, 70, Active). Enjoyment of wellbeing benefits was evident: *"I'm happier when I'm out [walking]"* (Sam, M, 67, Active); and were missed when physical activity was

skipped: *"You don't have the same energy I don't think... If I don't go [swimming], I do miss going"* (Shirley, F, 70, Inactive). Being immersed in physical activity helped older adults enjoy the present: *"I'm very focused when I'm on the [gym] machines. It's fantastic... I'm living in the present moment"* (Al, M, 77, Active).

Anticipated enjoyment of an activity was also pleasurable in its own right but could also help older adults to overcome environmental barriers to attendance: *"They were selling drugs down there... [my friend] said, 'I'm not going down there anymore.' So, I started going... down on the bike on my own... and didn't mind cos I was enjoying it"* (Mo, F, 89, Inactive). Enjoyment of the social aspects of physical activity helped some overlook physical ailments: *"You forget what's wrong with you when you've got a crowd of people"* (Grace, F, 94, Inactive). Conversely, life was not to be wasted on unenjoyable activities: *"you've got to enjoy what you're doing or otherwise don't do it"* (Sally, F, 78, Active). Laughter was often mentioned and could encourage participation even if the activity itself was not to their exact taste: *"But we still did it and we still had a laugh... and that's what you need"* (Julie, F, 72, Active).

As noted by one provider, enjoyment seems key to acceptability and should perhaps be the focus of any physical activity behaviour change or marketing campaign: *"Brand them as something else... people engage because it's social, it's fun, it's friends. The health, the physical activity and everything else is a by-product. That's something that might be our aim, but that's not how we sell it"* (Frank, M, 44, Trainer/Provider, Leisure).

Ease of Provision

Tackling disadvantage. A strong sense of disadvantage around physical activity provision was felt by many older adults within low SES areas, particularly in comparison to higher SES neighbouring areas: *“they’re the ones that’ll get [Tai Chi]. We wouldn’t get it”* (Linda, F, 68, Inactive). Many trainers/providers in low SES areas felt that the lack of resources thwarted equitable provision, even across low SES areas, with some areas receiving more organisational and financial support than others: *“there’s nothing specifically for older adults... There’s not the variety that there is in [neighbouring low SES areas]”* (Mary, F, 62, Trainer/Provider, Charity/Voluntary). The impact of funding cuts was strongly felt in low SES areas with loss of existing facilities: *“we do miss our swimming pool”* (Sally, F, 78, Active); lack of services: *“...there’s nowhere round here to dance”* (Jo, F, 69, Inactive); and fear of loss of existing funding: *“I’m trying to envisage... how they would access things... once [we] aren’t there”* (Emma, F, 33, Provider, Social/Leisure).

Lack of individual resources was widely apparent. Some free transport was available, but services insisted on older adults being ready for collection outside venues meaning they had to leave classes early and were left vulnerable: *“[they] started coming when they wanted, so I was missing half the [class]... because I’d have to go outside and wait. And you don’t want to be stood up there outside anything”* (Linda, F, 68, Inactive).

Fewer environmental resources in low SES areas often resulted in shared community resources being lost to other services, such as socialising spaces becoming offices: *“They used to go upstairs and have tea and biscuits...you know what it’s like, funding”* (Jill, F, 40, Trainer, Leisure). Collaborations with local services such as

subsidised lunches in local cafés with attendance of an exercise class, or a walking group ending at the library's free coffee morning helped to offset some disadvantages for minimal outlay.

Trainers/providers found that replacing community venues with centralised facilities was not acceptable to older adults in low SES communities: *“merge them and make something bigger, and then you can put more funding into that and make it more successful. But it just doesn't work”* (Emma, F, 33, Provider, Social/Leisure). The centralised facility management often showed a lack of understanding of older adults' needs, for example giving minimal notice of closures which impacted delivery of older adults' programmes. Also, the facilities seemed unaware of the disadvantages that a lack of personal resources could have on older adults' ability to attend a centralised facility:

“to the leisure centre, their thing was ‘Oh it's only down the road.’ And it is only down the road, but not to maybe an older person who maybe doesn't travel, or has walked there, or isn't confident crossing main roads” (Katie, F, 32, Provider, Health/Leisure).

A lack of effective marketing of physical activity was also evident in low SES areas, with most available monies spent on the activities themselves. Lack of funding meant word-of-mouth was relied on by most providers for marketing as it was free and trusted by older adults, yet over-reliance often led to low initial participation: *“[most] of our participants come from word-of-mouth, so you need that time to get embedded in the communities and for people to find out about them”* (Katie, F, 32, Provider, Health/Leisure).

Flexibility. Lack of flexibility of thought around planning physical activity was evident for many older adults in low SES areas: *“I used to go walking, but it was a funny time. That was on a Thursday. My daughter comes on a Thursday”* (Julie, F, 72, Active). Some could not see physical activity as a leisure activity and so it was not to be engaged with during free time: *“I said, ‘Not Saturday!’ [when asked to go on a walk] My Saturday is my time”* (Kath, F, 77, Inactive). This lack of flexibility may impact on building new routines, or hinder coping with changes to schedules for organized physical activities, a problem of which providers are aware:

“They’re such creatures of habit and they want that instructor, at that time, every week, and if we have to change the instructor, or the time and the day, it kicks up such a fuss and we have to be very sympathetic to that, because they’re not as used to it. They have their routines and that’s what they have to stick to” (Katie, F, 32, Provider, Health/Leisure).

Flexibility around changing plans seemed more apparent in the active older adults: *“Some of these [new classes] coincide with our dinner time in the evenings. So that’s a matter of moving the dinner time and say, ‘We’re going’”* (Diana, F, 71, Active). Flexibility of thought about being physically active was gained by some when they became active: *“but now I see that I can be active”* (Al, M, 77, Active). Empowering older adults so they could build some flexibility of thought and cope with changes to provision was a focus for some trainers/providers: *“over the years, I’ve educated them. ‘...if I can’t make it. If this building has to close... you know at home that you can do this... Because there’s no equipment needed and it’s exactly what I’ve taught you here”* (James, M, 30, Trainer, Leisure).

A need for flexibility within the role of trainer was also evident. It was not seen as sufficient to provide a physical activity; there is a need for trainers to facilitate social integration within their activities, particularly when new members join: *“they are quite tightknit. It’s not in them to say, ‘Oh come and join in with us’, that’s down to me then... to make them join in”* (Fiona, F, 61, Trainer/Provider, Social/Charity). Without such facilitation, cliques can form where newcomers do not feel welcome: *“I’m sort of left on my own and like they’re off in their crowd”* (Jo, F, 69, Inactive). For the socially isolated, this may be exacerbated by a loss of social skills which trainers need to be aware of: *“a lot of older people lose the ability to socialise, because they get so lonely. ...you’re not really sure how to do it anymore, because you don’t practice it anymore, cos it’s not regular”* (James, M, 30, Trainer, Leisure).

A lack of flexibility in provision around age range left some younger, though less able, older adults out: *“only you’ve got to be 75 - what’s the point of that”* (Jo, F, 69, Inactive). There was some evidence of flexible provision based on ability rather than purely on age though: *“the age is more a guideline for suitability”* (Katie, F, 32, Provider, Health/Leisure).

Being Valued: A general lack of value of older adults in society was perceived: *“this world isn’t built for old people... nobody respects you”* (Linda, F, 68, Inactive). Feelings of being less than, no longer a priority, and not being heard were common. This seemed to be exacerbated by physical activities in low SES areas being provided in shared facilities, rather than the dedicated spaces available in higher SES areas, and older adults felt they lost out: *“every time that the pool is needed, it’s always the [older adults’ aquafit] that get told ‘Your exercise is cancelled’”* (Kevin, M, 71, Active). Lack of participation often seemed due to the assumption nothing was available, and the

feeling older adults were being overlooked in favour of others: *“if they were to advertise it more for people of our age that that sort of thing is available... you’d sort of think ‘Oh, I’ll try that’... I’ve never seen an advert about senior citizens swimming... there’s plenty of things about...youngsters, school children that sort of thing”* (Pam, F, 72, Inactive). Some trainers/providers understood this and felt that a broad reaching media campaign celebrating older adults becoming physically active could normalise physical activity in older age, whilst also showing them they were valued. One trainer referred to the *This Girl Can* campaign developed by Sport England which aims to do precisely that for girls and women: *“if they can do that for girls, why can’t they do it for older people ...letting them see older people doing it”* (Jill, F, 40, Trainer, Leisure).

Older adults in low SES areas seemed to feel they were being valued more when they were offered something they perceived as being desirable and having value to others, whether this was through recognition of a brand, a known popular leisure activity, or knowledge of the usual cost which they were getting at a substantially discounted rate: *“Zumba’s really popular... because it’s quite expensive normally to pay for if you were just to go into a gym.... So, when we put those on locally, they’re received well. Cos it’s something that they have heard about”* (Emma, F, 33, Provider, Social/Leisure). Physical activity sessions were seen by some trainer/providers as an opportunity to show older adults that they were valued by society on a more personal level:

“[Older adults] need more. Talk to them, ask them how their day’s been... Listen to what they’ve got to say... they don’t get [that interaction] a lot as they get older and it’s sad to see. And that’s why I try my best to give them a great experience” (James, M, 30, Trainer, Leisure).

Ease of Maintenance

Group Cohesion. Being part of a cohesive group was important for older adults to maintain their physical activity: *“When you’re with people that you know you’re more encouraged to go... because if you’re on your own... you think, ‘Oh I won’t bother, I’ll leave it’”* (Claire, F, 67, Inactive). Some providers were aware of how powerful this was within physical activities for older adults:

“when you start a new group and you’ve got all these strangers around the room and they kind of don’t know each other... and they don’t know what they’re doing, they don’t know what’s expected. And then over a period of time, you see it, something happens, a kind of, it settles, you know? It’s like a cake in the oven... You put all the ingredients together and then magically it turns into a cake” (Fiona, F, 61, Trainer/Provider, Social/Charity).

Group cohesion was helped by trainers/providers reinforcing group identity by simple means such as group names, team tournaments, group t-shirts, but could also be assisted by creating ownership within the classes: *“they’d all start saying, ‘Oh we’re doing the beer pump, now we’re changing the baby’s nappy’ and, so it brought the whole group together... you seemed to have this knitting together element”* (Phil, M, 46, Trainer, Wellbeing/Charity).

Group cohesion needed to be managed by the trainer/provider as in some instances groups resisted newcomers, whether because of established cliques or lack of social skills: *“[The trainer/provider] said, ‘No I will stop her from being like that, she’s stopping other people coming to the class’... it does stop other people, if somebody doesn’t make you welcome, you stop the class from growing”* (Sara, F, 74, Inactive). It was also important for some older adults to feel that they were still connected even if

they couldn't attend: *"Everybody looks out for everybody as well... If I was missing for a couple of days, they'd probably just send an SOS out and make sure"* (Kevin, M, 71, Active). Group cohesion could also be strengthened through outside social support, such as being encouraged by loved ones to stay for available social elements: *"[my wife] said '...you're with them in the baths. Why don't you go and have a chat then after with them'"* (Kevin, M, 71, Active).

Maintaining group cohesion, and thereby facilitating maintenance, can be managed whilst allowing older adults to progress in line with their abilities. For example, a Tai Chi class was enabled to stay together, maintaining the social group, by creating an intermediate class for them to progress to and putting on a new beginners' class: *"so the demand was there to move those on and put another one on because we were getting newcomers to it and they were saying 'Well I'm not quite ready to do what [they're doing]'"* (Emma, F, 33, Provider, Social/Leisure).

Multi-functionality. Many older adults in low SES areas attended physical activity sessions for more reasons than just being physically active. These other functions were equally important to older adults and could be social; *"well 50% is activity and 50% is sociability with the people"* (Sara, F, 74, Inactive); leisure interests: *"We [the walking group] go to the science museum and the other museums... You're absorbing knowledge as well... and I find that interesting"* (Liz, F, 74, Active); or practical needs: *"I'd walk up to the shops on my own alright, but not to go out for a walk on my own"* (Mo, F, 89, Inactive). Multi-functionality could sometimes hinder the intensity of physical activity though: *"We struggle to maintain a good walking pace when the people that walk with me are often interested in nature and stopping to observe things... does slow us down to some extent"* (Mary, F, 62, Trainer/Provider,

Charity/Voluntary). However, multi-functionality encouraged habit formation as there were multiple motivating factors to attend. For example, walking to a sociable physical activity when weather may stop much of the activity itself ensures that the social needs are met, the habit of attending the activity is maintained, and a short walk has still been undertaken: *“if it was pouring down with rain we wouldn’t say ‘Oh we won’t bother going to the [gardening] club’ you know, we’d still [walk] round... we wouldn’t go out in the garden. We’d just sit there and have a cup of tea and a chat”* (Ben, M, 74, Inactive). Having other needs met for one outlay was important to older adults in low SES areas as a lack of multi-functionality, coupled with limited resources, could result in older adults pitting physical activity against other activities: *“I might do something at the expense of something else that I want to do... you’ve got to get that balance right, where you’re happy to do that amount and happy to do that non-exercise bit”* (Sam, M, 67, Active).

Discussion

This study found being familiar with people, locations, movements within physical activities, and music helped to make a physical activity more acceptable and facilitated engagement with it. How older adults identified themselves could impact on engagement with different physical activity providers. Experiencing enjoyment around physical activity was a motivating factor for engaging with and maintaining physical activity. Encouraging flexibility of thought around physical activity sessions and daily routines could assist older adults to adjust to unplanned changes or add new activities to their schedules. Consistent provision of older adults’ physical activities could help ease the cognitive load that such changes imposed. Consistency also increased the feeling of being valued in society as older adults often felt that their

activities were more likely to be cancelled than other groups. Many older adults in low SES areas perceived a pronounced lack of societal value and felt they did not receive parity of provision with those in higher SES areas or with other age groups. Some providers were aware of the lack of parity of provision depending on geographical area. Insufficient visible marketing of available physical activities further added to this perceived lack of value. Belonging to a welcoming group helped older adults to maintain their commitment to attending a physical activity. Maintenance was also made easier by the physical activity sessions being multi-functional, not least because they spent less resources engaging with physical activity sessions which covered multiple needs, such as social, health and wellbeing, practical and leisure interests.

It was important for trainers/providers to market physical activities as fun, social (rather than health-based) opportunities, by older adults in low SES areas. They understood the need for familiarity and where possible utilised local amenities, although closures of facilities and centralisation of services had made this difficult. Encouraging ownership of unfamiliar physical activities through renaming movements bred familiarity, and also enhanced group cohesion. Flexible provision around ability rather than strict age limits and having trainers/providers' remit include facilitation of social interaction and integration was vital in lower SES areas. Building an enjoyable experience was on par with providing a physical activity service for most trainers/providers. Older adults' enjoyment of a physical activity often led to well attended sessions (as they grew through word-of-mouth), which were easier to retain funding for and so eased maintenance of provision. Trainers/providers felt lower SES areas were often underfunded with less than optimal facilities. Along with the lower individual resources and greater instrumental support needs of older adults in these

areas to access physical activity, this led to less than equitable provision.

Trainers/providers were also hampered by the lack of understanding of older adults' needs shown by providers of facilities, especially related to location, need for social space and unplanned changes to schedules.

Strengths and limitations of study. This study addresses the lack of qualitative data in the literature on acceptability of physical activity from older adults and trainers/providers in lower SES areas. The study took place in a city ranked third highest for deprivation in England (DCLG, 2011) and focused specifically on areas with higher deprivation for older adults. Recruitment took place within the communities. Purposive sampling was used to gather data from older adults with different physical activity levels and from trainers/providers of different sectors. Older adults' activity levels were defined in accordance with recommended guidelines, rather than them self-identifying as active or inactive, however the self-report of this data is noted as a weakness. The older adult sample consisted mainly of white British and Irish females. The trainer/provider sample was predominantly white British with a relatively even gender balance. Neither sample is therefore wholly representative of the wider population. The focus on urban areas may not be representative of acceptability of physical activity within deprived rural areas.

Relationship to literature. According to Socioemotional Selectivity Theory (SST) (Löckenhoff & Carstensen, 2004) the shortened remaining lifespan in older age leads to a preference for positive information to maintain emotional balance. Our findings on the importance of familiarity for older adults map on to this aspect of SST. There is less likelihood of unknown (potentially negative) consequences which could impact the emotional state in familiar routines. Also, our findings on the enjoyment of

social interaction and the importance of group cohesion further relate to SST, with social goals being more relevant in older age, and older adults seeking out new friendships if there is a common goal or interest (Löckenhoff & Carstensen, 2004). Support for these findings is offered by Steltenpohl, Shuster, Peist, Pham and Mikels (2018) whose work on age differences and motivation to exercise suggests that older adults are far more motivated to engage in physical activity for the social benefits than their younger counterparts.

According to Csikszentmihalyi (1990), engaging in enjoyable activities which provide both pleasure and a sense of achievement leads to an optimal flow state, where the perception of time can change and experiences are perceived to have greater richness and intensity than normal. With greater familiarity, better flow is achieved, which can lead to heightened enjoyment. This was apparent in our findings within group activities where familiarity with movements was increased through use of more personally relevant and familiar terminology, which in turn added to the group cohesion and social enjoyment. Enjoyable experiences of physical activity may also increase anticipatory pleasure, with older adults looking forward to losing themselves in the activity or meeting their friends. Such anticipatory pleasure can override barriers such as perceived lack of time or energy to help older adults engage in physical activity (Devereux-Fitzgerald et al., 2017) and is related to the habitual recurrence of an activity (Phoenix & Orr, 2014).

Habits are formed through repetition of behaviours in association with cues to create automaticity (Gardner, Lally, & Wardle, 2012). Our findings on a need for consistency of provision of physical activities in older adults in low SES areas may be related to the conditions required for habit formation and the resulting lower mental

processing required to carry out habitual behaviours. Multi-functional activities may help promote habit formation, as multiple cues are involved and so if one aspect is curtailed, another may still cue the habit.

The need for consistency and the lack of flexibility of thought, particularly around changing or making new plans to be physically active, may be due to age related-cognitive decline. According to French, Olander, Chisholm and McSharry (2014) such age-related difficulties may be why planning appears to be a less effective behaviour change technique for older adults in relation to physical activity than for younger adults. However, flexibility to changes may be more apparent in those who place a higher value on being physically active, so engaging in physical activity wins over other competing priorities even when changes occur (Devereux-Fitzgerald et al., 2016).

Several studies have shown that reduced amenities in low SES areas negatively impact engagement in leisure-time physical activity (King, 1999; Annear, Cushman & Gidlow, 2009; Fox et al., 2011). The current study is in agreement with these findings, and goes further to show the impact of reduced amenities on trainers/providers in such areas and the measures they use to offset this. As suggested in Devereux-Fitzgerald et al. (2017), the need for greater expenditure of more limited individual resources to engage in physical activity in low SES areas could be a contributing factor in the low engagement in leisure-time physical activity in such areas. However, our findings also suggest that a previous lack of familiarity with leisure-time physical activity may prevent some older adults in lower SES areas from now viewing physical activity as a leisure pursuit. Rather it is seen as hard work, or something which they

feel too busy to engage with. This is in agreement with McGowan et al., (2017) where for many older adults organised physical activity was perceived as irrelevant.

Implications for practice. Providing multi-functional physical activities in lower SES areas may increase acceptability. Physical activities which also meet socialisation needs, or which incorporate valued leisure pastimes, allow older adults to engage with physical activity without sacrificing other interests due to limited resources. Basing physical activities in familiar local venues, preserving continuity of staff, and building sessions around familiar music, movements or interests could mean less financial, physical and mental expenditure for older adults with limited resources. Promoting group cohesion and identity can enhance older adults' commitment to the group and maintenance of an activity. Promoting physical activities on their fun and social aspects may be more acceptable than focusing on health benefits. Older adults who feel they are active enough or too busy to engage in anything they perceive as effortful, may still be willing to have more fun. A focus on the multi-faceted enjoyment older adults experience around physical activities heightens acceptability, with older adults more inclined to maintain activities they look forward to. As focusing on social and enjoyment aspects of physical activities seems likely to increase maintenance, this could also be beneficial for providers looking for continued funding. Increasing visibility of physical activities to older adults by marketing could increase older adults' sense of being valued, particularly if activities are perceived as desirable to others. Encouraging flexibility of thought around physical activity within sessions could help older adults cope with changes to schedules, although changes should be avoided where possible. Trainers/providers need to foster social interaction within

groups, including sociable events themselves such as dances or walks. For exercises classes, provision of space and time for socialising is key.

Implications for research. To investigate whether there are intrinsic differences in acceptability of leisure-time physical activity across different socioeconomic groups, parity of provision and ease of engagement needs to be established. For instance, longitudinal research could examine acceptability before, during and after a physical activity intervention which ensured equal access for all groups. The role of group cohesion in the maintenance of physical activity in older adults could be explored with the treatment group receiving a social integration and group identity intervention alongside the physical activity, whilst the control group simply engage in physical activity. It may be useful to explore whether feeling valued within physical activity environments increases the perceived value of what occurs within that environment. As social enjoyment makes physical activity more acceptable and appears to allow older adults to engage in longer durations of physical activity, it may be useful to explore this effect in more depth. For instance, whether walking with a group or a friend the walker's pace is increased or decreased in comparison with walking alone (measured by accelerometers). This could establish whether the increased duration is acceptable due to decreased intensity or whether it is the social distraction which allows for a longer duration of the usual intensity

Conclusion. Lack of parity of provision and lack of individual resources need to be considered. Consistent provision of enjoyable, familiar, locally-based activities which foster social bonds can promote acceptability of physical activity as a valid leisure-time activity in lower SES areas. Providing activities which meet multiple needs of older adults may allow engagement from those who would ordinarily eschew

physical activities in preference of social ones, whether due to limited individual resources or to seeing physical activity as too effortful to be considered leisure.

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CHAPTER FIVE

Making physical activity interventions acceptable to older people

For physical activity to be an acceptable part of older adults' daily lives, we need to ensure that interventions and services are appropriate for this population. Within the broad group of older adults, there are vastly different needs due to variations in function and health which must be accommodated. All forms of physical activity have health benefits, not just moderate to vigorous activities, and should be encouraged. Despite these benefits, promoting physical activity as a source of improved health appears not to be very effective. Instead, enjoyment and social contact are fundamental to acceptability. Furthermore, services must base the promotion and delivery of interventions on research conducted with older adults, rather than assume that research findings with younger adults will be applicable.

Introduction

Physical activity and desire to perform physical activity decline with age (Scholes & Mindell, 2013; Department for Culture, 2011). This suggests that engaging in physical activity may not be a priority for, or attractive to, many older adults, i.e. physical activity may have low *acceptability*. Acceptability is a key concept in the Medical Research Council (MRC) Framework for Developing and Evaluating Complex Interventions (MRC, 2008). According to this Framework, it is essential for an intervention, or the behaviours promoted by an intervention, to be acceptable to the target population for that intervention to be feasible. That is, if people are not willing to engage with the intervention or the targeted behaviour, then that intervention is unlikely to result in behaviour change. Despite acceptability being central to intervention development, there has been little discussion of how to conceptualise acceptability (Sekhon, Cartwright & Francis, 2017).

One simple way of assessing whether a behaviour is acceptable is to assess the extent to which people do the behaviour without the need for an intervention. This approach has some uses, but it risks being tautologous: a behaviour is acceptable because it is commonly performed and vice versa. It may be more useful to define acceptability as the combined effect of *antecedents* of performing a behaviour, such as attitudes towards the behaviour or perceived norms regarding the behaviour: the more positive these are, the more likely a behaviour is to be performed. By targeting these antecedents there is an opportunity to increase acceptability and therefore the target behaviour.

Acceptability is often taken as indicating that people are willing to tolerate an intervention or behaviour to gain some anticipated rewards, e.g. attend an unpleasant

screening test to prevent the even worse prospect of cancer. Alternatively, acceptability can be thought of as those features of an intervention or behaviour that are attractive and actively sought. It will be argued below that this latter conceptualisation of acceptability is more useful when considering how best to promote the engagement of older people in physical activity.

Factors related to physical activity in older age

There has been much research examining the correlates of physical activity in older adults, which sheds some light on acceptability of this behaviour. Being male and of younger age are positively associated with physical activity (Koeneman, Verheijden, Chinapaw, & Hopman-Rock, 2011). Adults of low socio-economic status (SES) are less likely to engage in leisure time physical activity than those of high SES (Hallal et al., 2012). Having a history of engaging in physical activity, being generally more active, having greater functional abilities in daily life, and being a healthy weight are all positively associated with being more physically active in older age (Koeneman et al., 2011). Reporting health/other benefits of being physically active is positively associated with physical activity in older adults (Koeneman et al., 2011). Higher self-efficacy, the belief that one is capable of carrying out a behaviour, (Bandura, 1977) is also associated with physical activity (Koeneman et al., 2011) in line with Rothman's (2000) theory (see below).

A systematic review identified differences between determinants of initiation of physical activity and determinants of maintenance of physical activity in older adults (van Stralen, De Vries, Mudde, Bolman, & Lechner, 2009). Given this, a different approach may need to be taken to encourage those who are already physically active

to maintain their activity throughout older age, as opposed to that needed to encourage inactive older adults to become more physically active.

Social support has been associated with both the initiation and maintenance of physical activity, but the source of such support was crucial for the latter (van Stralen et al., 2009). Support from healthcare providers was negatively associated with maintaining physical activity in older adults who have been regularly active for at least six months, perhaps suggesting that active older adults find engaging in physical activity for health reasons to be unacceptable, or else maintenance requires different kinds of support to that offered by healthcare providers. By contrast, social support from sports instructors and group members/sports partners was positively associated with maintaining physical activity, highlighting the importance of the social connection and perhaps also the relevance of the source of support. Those within the individual's physical activity context may be better able to give individualised support as they are likely to be more aware of what the person is achieving and their context. Perceived barriers to being physically active were negatively associated with maintenance but not initiation of physical activity in older adults (van Stralen et al., 2009). It may be that direct experience of undertaking physical activity leads to an increased awareness of the barriers.

In summary, being healthier, higher SES, having a history of physical activity, confidence in ability and belief in benefits of physical activity are associated with higher activity in older age. Different approaches may be needed to encourage uptake and maintenance of physical activity, with support from relevant professionals and peers having a positive impact.

Exploring acceptability of physical activity

Much research aimed at identifying what makes physical activity acceptable to older people has focused on the barriers and facilitators of engaging in physical activity. A recent synthesis of 132 studies identified issues such as social influences, physical limitations, competing priorities, access difficulties, personal benefits, motivation and beliefs as barriers or facilitators to physical activity (Franco et al., 2015). Although useful, the scope of this review was very broad as it included both clinical and non-clinical populations aged over 65 years, and covered all forms of physical activity. The diverse abilities and preferences of older people need to be considered when conducting research with, and delivering interventions to, this population.

The forms of physical activity that are acceptable to clinical and non-clinical populations may differ. Although most older people have at least one chronic condition, clinical populations that are defined by a particular condition are likely to have more barriers to overcome. This is especially true for those who often attend healthcare appointments, are hospitalised or live in a care facility, and who therefore may lack the autonomy to participate in their preferred activities. Further, some clinical populations may be motivated to become more physically active in order to recover from an operation or illness, or to prevent complications from their chronic condition, whereas other clinical populations may face barriers due to chronic pain or physiological deconditioning. It is therefore important to consider whether different factors affect the acceptability of physical activity to clinical and non-clinical populations.

The umbrella term “physical activity” describes a wide variety of behaviours. Physical activity guidelines distinguish between vigorous, moderate and light intensity activity, and sedentary behaviours. Intensity refers to how hard an individual has to work to achieve the behaviour (World Health Organisation (WHO), 2010) and as such, individual perceptions of the forms of physical activity within these categories can vary. Also, although brisk walking, gardening, yoga, golf and ballroom dancing may constitute moderate physical activity to most, it is likely that they will differ in acceptability to a specific older adult. The context of the activity can also affect acceptability, for example brisk walking by oneself may be unacceptable to an individual, whereas brisk walking with other people in a scenic location may be more acceptable. Hence, one must also be careful to consider whether the precise behaviour in a particular context is acceptable or not, and not assume that all behaviours of similar intensity are equally acceptable.

Thus, acceptability of physical activity is likely to be determined by more than simple barriers and facilitators. It is important to consider individuals’ health status, the context and setting of activity, and the meaning of an activity to an individual.

Qualitative studies of acceptability of physical activity to older people

Given the limitations of a simple count of facilitators and barriers across diverse populations and behaviours, a more nuanced understanding of facilitators and barriers may be obtained through qualitative research. The qualitative literature on the experiences of non-clinical samples of older adults (>65 years) who had recently participated in a physical activity intervention has been systematically reviewed and meta-synthesised (Devereux-Fitzgerald, Powell, Dewhurst, & French, 2016). The meta-synthesis resulted in a model of acceptability of interventions (see Figure 1 overleaf)

that highlights four inter-related factors. These were the enjoyment older adults experience whilst being physically active; the perceived value they place on being physically active; the impact of first-hand experience; and the delivery of interventions (in terms of pace, language, style, setting, etc).

Enjoyment was the key factor regarding acceptability of these interventions for older adults. Enjoyment of social contact was considered particularly rewarding and seemed to influence engagement with the intervention and physical activity itself, as well as maintenance of activity after the intervention ceased. The perceived value that older adults placed on physical activity was increased when they attributed positive short-term functional and psychosocial outcomes to physical activity. This suggests that it may be more acceptable to promote physical activity to older adults on the basis of it being an enjoyable social activity that produces positive, relevant short-term benefits, as opposed to focusing on the benefits of physical activity for long-term health.

The Devereux-Fitzgerald et al. (2016) review only covered older adults with recent experience of a physical activity intervention. Those who were willing to take part in such interventions may have been more open to increasing activity than might be typical of older people. Another meta-synthesis focused on studies involving older adults (>65 years) who were not involved in physical activity interventions or programmes, and who therefore could be inactive and/or disinclined to be physically active (McGowan, Devereux-Fitzgerald, Powell, & French, 2017). McGowan et al. (2017) found that many older adults did not distinguish between “physical activity” and “exercise”. Thus, researchers are often talking at crossed purposes with older people, as researchers typically consider “physical activity” to be a broad class of

activities that includes lifestyle physical activity as well as “exercise”, i.e. structured repetitive movement undertaken for its own sake. Possibly for this reason, many older adults questioned the relevance of physical activity for themselves as an older person.

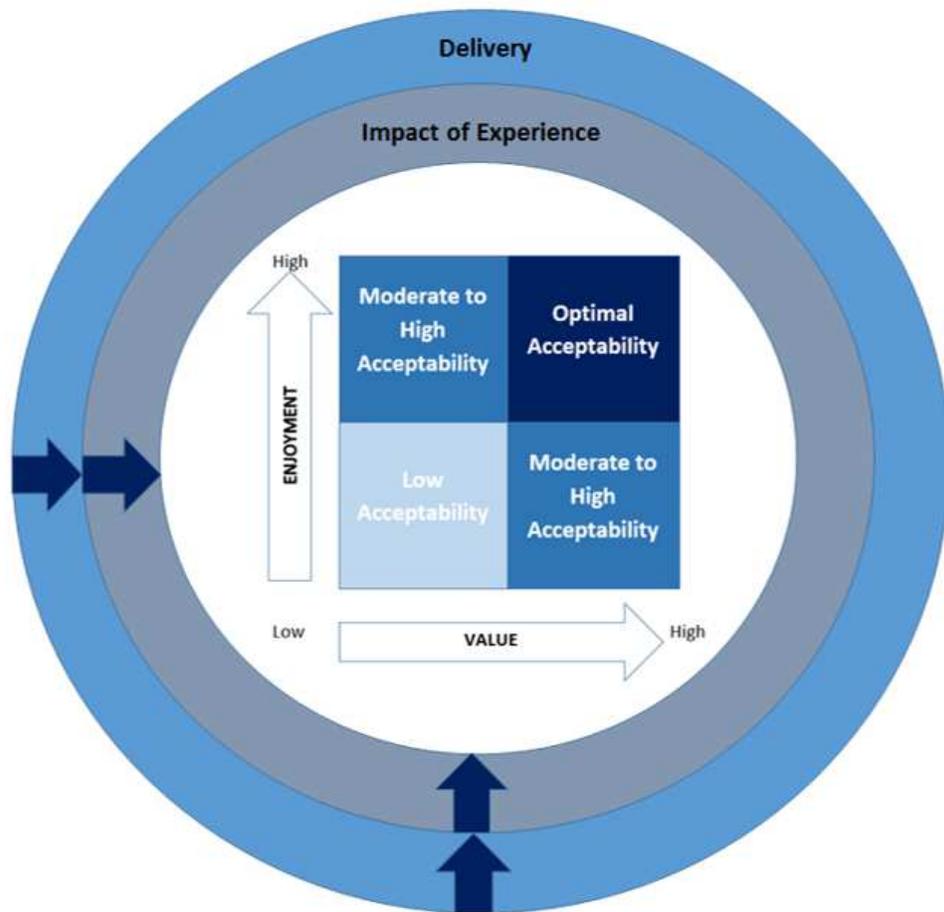


Figure 1. Dynamic model of older adults' acceptability of physical activity interventions

Many inactive older people did not consider physical activity as a purposeful activity in its own right acceptable (McGowan et al., 2017). Instead, they saw physical activity as something they might engage in as a by-product of other activities, such as household chores and maintenance, shopping, gardening, and care of grandchildren

and pets. Their main concern was being mobile enough to fulfil their daily needs in the community, which they saw as appropriate physical activity for their age. This was in line with their self-perception as an ageing member of society, where family roles and maintaining social connectedness took priority, and structured physical activity was seen as incompatible with ageing and therefore irrelevant to them. Many inactive older adults were aware of increasing physical limitations and this reduced their confidence to engage in physical activity, even though they wished to retain their functional capacity and independence.

McGowan et al., (2017) found that most research focused on moderate-vigorous physical activity, perhaps as this is the main focus of physical activity guidelines (WHO, 2010). However, older adults may consider this level of physical activity to be more suitable for younger than older people, which may explain why the desire to perform “physical activity” declines with age (Department for Culture, 2011).

Light intensity activities, such as slow walking or light housework, do not currently count towards the health-enhancing recommended levels of moderate and vigorous activities for older adults (WHO, 2010). Despite this, they are still important as they can break up periods of sedentary behaviour, and reductions in sedentariness and small increases in low levels of physical activity can considerably reduce mortality in older adult populations (Hupin et al., 2015). Promoting such light intensity activities could foster greater acceptability of physical activity in people who feel unable to engage in higher intensity physical activity: “Encouraging baseline activities helps build a culture where physical activity in general is the social norm” (US Department of Health and Human Services, 2008 p.3).

Effectiveness of interventions to increase physical activity in older people

Having identified what older adults consider to be acceptable about physical activity, it is useful to contrast this with the contents of interventions to promote physical activity. There is often a stark mismatch between what people want from such interventions (e.g. fun and social contact) and what is provided.

The specific components of interventions to increase physical activity can be characterised using standardised taxonomies of behaviour change techniques (BCTs), such as that of Michie et al. (2013). Many BCTs involve people trying to self-regulate their own behaviour in the same way that a heating system regulates temperature. Such BCTs might involve people assessing their current behaviour, setting behavioural goals, making plans regarding how to bring about these goals, monitoring their progress towards such goals or receiving feedback on progress, and adjusting their goals where appropriate. Such BCTs are generally effective for increasing physical activity in younger adults (see Williams & French, 2011 for a systematic review). However, physical activity interventions based on self-regulatory approaches appear to be less effective for older adults (French, Olander, Chisholm, & McSharry, 2014). This may be because self-regulatory techniques are less acceptable to older people.

French et al. (2014) also found interventions including the BCT *Feedback on Performance* to be less effective at increasing physical activity levels and surmised that this may be due to the demoralising effect of being made aware of physical limitations in older age. However, another review found that the only effective BCT in physical activity interventions for older adults was the self-regulatory BCT *Feedback* (either of their own data or of discrepancies between their data and their goals) (O'Brien et al., 2015). These differences may be due to French et al. (2014) being focused on

interventions to increase physical activity, whereas O'Brien et al. (2015) focused on maintenance of physical activity. There were also differences in participant age ranges: 60-84 years (French et al., 2014) and 55-70 years (O'Brien et al, 2015). Including more middle-aged adults and excluding many older adults may have masked self-regulatory issues within the older adult population.

There are many possible explanations for the assumption that self-regulatory techniques could be less effective in older populations. For example, one self-regulation BCT is *Prompting self-monitoring*, whereby participants keep a record of their behaviour through diaries or pedometers. This BCT is predominantly used in interventions to assist people in identifying when they are achieving a level of physical activity that maps onto WHO guidelines. Such a BCT may not be acceptable to many older adults as they are more concerned with finding physical activities which they find enjoyable and achieving social goals rather than reaching particular fitness goals or meeting guidelines (Kassavou, Turner, Hamborg, & French, 2014; Kassavou, Turner, & French, 2015).

One reason why self-regulatory techniques may be less acceptable for older adults is provided by Socioemotional Selectivity Theory (SST; Carstensen, Isaacowitz, & Charles, 1999). According to SST, those nearing the end of life, whether through natural ageing or through life-limiting illnesses, display different motivational patterns to those with more time left to live, and are more concerned with maintaining emotional balance in the present than risking this balance by processing possible negative information (Löckenhoff & Carstensen, 2004). This tendency towards positive feelings in the present may impact on behaviour change interventions, particularly if negative risk-related health information is part of the intervention or if challenging

activity goals are recommended to avoid negative health states. This is supported by O'Brien et al.'s (2015) finding that physical activity interventions which included the BCT *Information on consequences of behaviour to the individual* were less effective. A more positive approach when promoting physical activity to older adults may help acceptability of physical activity through decreasing the need to process negative information. This could be achieved through focusing on *relevant* benefits such as increased mobility and better sleep rather than health risks, and focusing on immediate gains such as opportunities for social connection rather than future health gains. The latter may be particularly important to older adults with little or no social network, as social support is acknowledged to have a positive impact on physical and mental health (Uchino, 2006).

According to SST, present-oriented goals are prioritised by older adults over future-oriented goals (Löckenhoff & Carstensen, 2004). This could explain a lack of motivation in many older adults to improve long-term health, particularly the older old. As self-regulatory BCTs seek to translate an individual's motivation into action (Gollwitzer & Sheeran, 2006), a possible lack of long-term health motivation in older people may deem the use of such BCTs less relevant. Further examples of irrelevance in physical activity interventions for older adult populations could simply be where planning aspects deal primarily with fitting physical activity into a busy work schedule, or feedback being related to increasing performance levels (French et al., 2014). Framing goals and feedback in terms of how older people wish to benefit from physical activity and how they feel in themselves on becoming active may be more acceptable than performance-based goals and feedback, and may also increase the perceived value of being physically active.

Another reason why self-regulatory BCTs may be less intrinsically acceptable relates to executive functioning: the cognitive processes such as working memory, planning and organization which facilitate self-regulatory behavioural processes (Hofmann, Schmeichel, & Baddeley, 2012). Executive functioning decreases with age (De Luca & Leventer, 2008), and cognitive decline could render the more complex processes required with some BCTs (e.g. goal setting, comparing behaviour against a goal, and making plans to address discrepancies) too cognitively demanding for some older adults. Allan, Sniehotta, and Johnston (2013) found that the formation of action plans only predicted improvements in a health-related behaviour (snacking) when participants had a high level of planning skill - a key component of executive function (Allain et al., 2005).

Caution is however needed when interpreting the mixed results of the French et al. (2014) and O'Brien et al. (2015) reviews, as acknowledged by the authors themselves. The nature of the interventions, where multiple BCTs are used in conjunction could obfuscate the true effectiveness of individual BCTs, as could differences in the delivery of interventions. Effective BCTs could be cancelled out by being used alongside ineffective BCTs, or a BCT with negligible effect could be seen to be more efficacious if paired with an effective BCT. Lack of information in some primary studies may have led to insufficient data for coding purposes. Furthermore, effectiveness based on both self-reported and objectively measured outcome measures could skew the findings, as the former may be inaccurate or swayed by social desirability (O'Brien et al., 2015).

Practical implications for promotion and maintenance of physical activity

It is important to determine optimal approaches to encouraging physical activity in older adults, as techniques developed with younger adults appear to be less effective for many older people. Facilitating initial engagement in physical activity, and maintaining physical activity both need to be addressed. As noted above, different approaches may be required for different groups, e.g. those who are relatively healthy, but underactive or sedentary, and those who have specific health issues to take into consideration. Therefore, this section will look firstly at implications for promotion of physical activity in older people generally, then focus more on promotion for those with health issues, before considering implications for maintenance.

Promoting initiation of physical activity to older people in general

Social Interaction In general, promoting interventions on the basis of social benefits is recommended, as retaining social-connectedness is something older people value as part of their self-identity within the wider society (McGowan et al., 2017). Promoting the social aspect of programmes, and following this up by encouraging socialisation within programmes, may be particularly beneficial for isolated individuals or those experiencing a transition, such as retirement or bereavement. High enjoyment of social outcomes can override apathy or antipathy toward physical activity itself and the social bonds formed whilst engaging in physical activity can strengthen the perceived obligation towards the group - a motivating factor in itself (Devereux-Fitzgerald et al., 2016). Social interaction is related to enjoyment, a key factor in acceptability.

Physical Activity as a Solo Pursuit Whilst the majority of older adults seem to enjoy group-based physical activities for the social contact, some older adults prefer

physical activity as a solitary pursuit either because they dislike group activities in general, or because they enjoy exercise in its own right and perceive benefit from being able to focus on it (Devereux-Fitzgerald, Powell, & French, 2017). Some may see home-based physical activity as more convenient, or a simple way to supplement their external physical activities. For those who do not value exercise in its own right, activities such as active travel, gardening, DIY and strenuous housework tasks may be more acceptable (McGowan et al., 2017). Actively promoting such home-based activities may increase acceptability of physical activity in this group as these tasks may have a higher perceived value than organised exercise.

Self-efficacy When delivering physical activity classes, great care should be taken to promote self-efficacy, given its importance in bringing about increased physical activity in older adults. Seeing peers successfully perform physical activity may increase self-efficacy through role modelling, and promoting situations where the individual is likely to succeed is likely to enhance self-efficacy (Bandura, 1998). Focusing on aspects of biological decline without taking into account the increased experience and knowledge which may well offset such decline, or measuring themselves against younger (or fitter) adults instead of their peers, can result in lower perceptions of self-efficacy (Bandura, 1994).

Intensity of Activity Promotion of light activity levels and reducing sedentary behaviour may be more acceptable than attempting to increase moderate or vigorous activity levels for older adults who do not see physical activity as relevant or purposeful in their stage of life (McGowan et al., 2017). Activity promotion could also encourage physical activity as a by-product of attainment of purposeful goals, e.g. shopping could incorporate a walk to the shops instead of using transport. As some

benefit is preferable to none, reducing sedentariness in older adults could also be worthwhile. Incorporating light physical activity into typically sedentary activities (e.g. regular taster sessions at coffee mornings) is acceptable (Devereux et al., 2016) and it may be worthwhile trying this at other sedentary activity groups (e.g. bingo, crafts).

Pacing In exercise classes, older people should be encouraged to go at their own pace, but they should also be supported to increase intensity or duration when they are able to do more. This is a very important aspect of delivering physical activity, as older people may have self-limiting expectations which need to be addressed sensitively (Devereux-Fitzgerald et al., 2016). In many classes, there will be a mix of those with and without functional limitations. Delivering physical activities that can meet the needs of a mixed group (e.g. easy circuit training, walking groups) may be optimal if funding is tight, rather than providing physical activities which exclude by perceived ability (e.g. a complex dance class) or a perceived lack of benefits to many (e.g. a seated-only exercise class) (Devereux-Fitzgerald, Powell, & French, in preparation).

Empowering As older adults value retaining a sense of control over their lives, physical activity interventions should aim to empower participants, through greater choice of activities, and greater participant input into the delivery or development within programmes (McGowan et al., 2017). Also, as autonomy is valued, providing more publicly available resources such as benches, public toilets, and safe walking environments allows older adults to engage in physical activity on their own terms, increasing their independence in the community. Providing such resources also facilitates walking as transport, an acceptable physical activity for many older adults (McGowan et al., 2017).

Dispelling Misconceptions and Managing Expectations Prior to engaging in any physical activity in their current physical state, older adults may not know what to expect in terms of what they can achieve, or what benefits they may receive. These uncertainties could act as barriers to attempting new physical activities. Face-to-face recruitment where knowledgeable professionals can give advice (e.g. at taster sessions) may help to dispel misconceptions about capabilities and allow older adults to feel safe enough to take part, particularly for novel physical activities or after changes in ability (Devereux-Fitzgerald et al., 2016). Having experienced physical activity, older adults may then perceive barriers they were previously unaware could exist, such as muscle aches at the start of a programme, or travel difficulties. This shows the need to normalise sensations experienced when becoming more active, and so allay fears of physical activity being harmful (Devereux-Fitzgerald et al., 2016). It would be helpful for instructors running such classes to be aware of these issues and handle them sensitively and appropriately.

Perceptions of Ageing At a societal level, it would be helpful to challenge the negative perceptions and attitudes society holds towards the ageing population with respect to physical activity. McGowan et al. (2017) have shown that many older adults do not see physical activity as relevant to their self-identity. Given this, addressing self-perception of older people within society may be useful, to create a new social norm of activity in older age. This could be facilitated through a national campaign, similar to the 'This Girl Can' campaign developed by Sport England (2015), which celebrated women's participation in sport through posters and television adverts. A similar campaign promoting physically active older adults as the norm could increase the salience of the idea that all older people can participate in some form of physical

activity, and reap the benefits of increased social connections and uplifted mood, whatever their physical ability (McGowan et al., 2017).

Promoting initiation of physical activity for health reasons

Assistance from Healthcare Professionals The recommendations above are particularly applicable to older adults without significant health problems, but other issues may apply for some older adults with chronic conditions. Both chronic illness and depression are negatively associated with being physically active (Koeneman et al., 2011). Depression particularly has been negatively associated with engagement in recreational physical activities outside the home (Pritchard et al., 2015). Depression can lead to social isolation, which is also linked with low SES (Pinquart & Sorensen, 2001). Deprivation in turn has been linked to higher levels of impaired mobility in older adults and a reduced tendency to leave the home (Fox et al., 2011). Inactive older adults experiencing health conditions may be more receptive than healthy older adults to receiving counselling by health care professionals on increasing their physical activity (Weiss, Wolfson, Yaffe, Shrier, & Puts, 2012). Therefore, older people with health issues may benefit from assistance to undertake physical activity from their healthcare provider, (e.g. prescribed subsidised/free physical activity). This could be particularly helpful for those with limited resources such as older people living in low SES environments.

Self-Management of Chronic Conditions For older adults with long-term conditions it may be pertinent to raise awareness of the role of physical activity in the management of chronic disease (e.g. Chodzko-Zajko, Schwingel & Park, 2009). Many older adults with chronic conditions perceive themselves as particularly vulnerable to limitations of the ageing body, which in turn inhibits rather than promotes

engagement in physical activity (McGowan et al., 2017). Relating the relevance of appropriate, manageable physical activities to achievable improvements in *their daily experience* of managing their condition (rather than numbers on a medical measure) may increase the acceptability of physical activity (Devereux-Fitzgerald et al., 2016). Functional programmes which teach balance and strength training within the context of everyday activities have been found to be effective in such older adults (Clemson et al., 2012).

Maintaining Independence Inactive older adults may have limited physical ability or be completely sedentary and may not be attracted to engaging in physical activity as a leisure pursuit (McGowan et al., 2017). Some however may be willing to engage in a physical activity programme specifically designed to increase their mobility or retain their ability to carry out the day-to-day activities required to support their independence. Focusing on independence may increase physical activity acceptability as independence has high perceived value.

Promoting maintenance of physical activity throughout older age

Long-term thinking Promotion of physical activity should not stop with older adults engaging in a short-term programme or intervention. For example, many “exercise on referral” schemes help older adults develop a pattern of attending the gym or exercise classes, but financial support for these is often time-limited, resulting in dropout at the end of this subsidised period (Campbell et al., 2015). Physical activity promotion should address both initial and maintained engagement in activity by considering ongoing motivations for adherence to a more physically active lifestyle and delivering programmes which have longevity.

Maintaining Social Networks Using existing community-based physical activity and social programmes rather than research/medical facilities to implement interventions allows for a longer-term approach to physical activity provision and encourages continuation of the social network formed. This may encourage maintenance after an intervention ends, and also removes transitional barriers post-intervention, as older adults can continue their physical activity in an already familiar, acceptable setting (Devereux-Fitzgerald et al., 2016). A central motivation for many older people in taking up new forms of physical activity is enjoyment of the social aspects (Devereux-Fitzgerald et al., 2016), so ensuring this is satisfied is a key consideration in developing new interventions or services which will effectively retain members. If interventions are developed in line with older people's needs and values, it is more likely that their goals will be fulfilled, which can facilitate maintenance of the behaviour (Kassavou et al., 2015). For example, older people taking part in walking groups are primarily looking for social contact, hence those who were most satisfied with the social contact they experienced were most likely to maintain their attendance (Kassavou et al., 2014). These findings fit well with Rothman's (2000) hypothesis that a key determinant of maintenance is satisfaction with the anticipated outcomes of a new behaviour.

Independent Physical Activity Similar physical improvements to health have been found in home-based and externally-based programmes, but adherence to the programme and long-term maintenance of physical activity can be better for individuals who perform physical activity at home (Ashworth, Chad, Harrison, Reeder & Marshall, 2005). Home-based physical activity may be more acceptable and easier to maintain for those who have problems accessing external physical activities, whether

this is due to lack of mobility, confidence or resources. Encouraging older adults to incorporate some form of physical activity around their routine daily activities may be more acceptable, particularly to those who may see organised exercise as not applicable to them (Clemson et al., 2012). However, all older adults could benefit from this apparent ease of maintenance with home-based activity, and those who attend classes could be encouraged to engage in supplemental physical activity at home by group leaders.

Valued Benefits in Daily Life Helping older adults to relate their increased physical activity to tangible benefits (e.g. improved function, increased capabilities, increased mobility, better sleep, better mood, more confidence) may increase the value of maintaining engagement in physical activity, increase self-efficacy for further physical activities, and address misconceptions about loss of function being inevitable in ageing (Devereux-Fitzgerald et al., 2016). Relating this maintenance or improvement of physical function to valued issues, such as independence or being able to safely look after grandchildren, may help to increase motivation to maintain a physically active lifestyle, as these are perhaps more personally relevant than abstract health measures and have a higher perceived value (Devereux-Fitzgerald et al., 2016). Highlighting such relationships may also reduce the perception of family roles as competing commitments and instead increase the level of priority given to maintaining physical activity as it can aid them in meeting family responsibilities (McGowan et al., 2017). This may be especially important as competing commitments, particularly related to caregiving and family, are often cited as the reason for dropping out of exercise programmes in later life.

Habit Formation Another important aspect of maintenance of physical activity in older age is habit formation. Habits are formed through repetition of behaviours in association with cues, creating automaticity around the behaviour when the cue is present, thereby requiring less mental capacity to initiate the behaviour (Gardner, Lally, & Wardle, 2012). Being able to rely on an activity taking place at the same time and place and with the same people, each day or week, can help with this habit formation and so services need to provide consistency and continuity of long-term community programmes, rather than short-term interventions (Devereux-Fitzgerald, et al., 2017). This can reduce the effort required to engage in the activity and thereby assist with the maintenance of a physically active lifestyle.

Future research needed

There are a number of gaps in the evidence that it would be useful for future research to address. Little qualitative research on acceptability of physical activity interventions is based on low SES populations. Low SES older adults are less likely to engage in leisure time physical activity (Hallal et al., 2012), and exploring the reasons for this further may yield new insights into acceptability. It is currently unclear if lower engagement in physical activity is associated with barriers related to low income or to more environmental issues of low SES adults living in physical settings where they feel less safe outside of the home. Qualitative research is also needed to explore older adults' experiences of using different BCTs within physical activity interventions to establish how to optimize acceptability.

Further research on the benefits and perceptions of lower intensity physical activity is required from the perspective of older adults themselves, and also from professionals engaged with older adults and policymakers. If promotion of

incorporating lower intensity day-to-day physical activity is more acceptable it may be more easily maintained, leading to higher general levels of physical activity and the health benefits this brings. More research is needed to develop activities and programmes which would match older people's values and goals, and this may involve interventions or services that are not badged as physical activity, e.g. community gardening or history walks. Research into the acceptability of incorporating low intensity physical activity into social programmes may also be fruitful. It is important for future research to discern the extent to which reducing sedentary behaviour can act as a gateway to increasing physical activity in this population.

There is a particular dearth of research on the acceptability of interventions to reduce sedentariness in older people. It is unclear how older adults conceptualise the differences between reducing sedentariness and increasing physical activity, and what older adults' views are on decreasing the overall amount of their sedentary behaviour or breaking up long periods of sedentariness. Research is needed to identify what factors predict sedentariness, and what forms of non-sedentary behaviours and modes of intervention delivery older adults would find most acceptable to reduce sedentariness.

Conclusion

Promotion of physical activity to older adults should focus on enjoyment, social interaction and activities perceived to be of value to older adults. Ideally, interventions should be community-based so that the social bonds created can continue post-intervention and there are no transitional barriers to be overcome. Short-term functional and psychosocial benefits of being physically active should be promoted, with individuals encouraged to note their own progress so that they can see the

difference they are making to themselves, for themselves. Such increased awareness of real-life benefits may promote maintenance of a physically active lifestyle. Giving older adults more control over programme content and delivery could create autonomy and ownership and encourage the social bond of a group, all factors which could help older adults maintain their physical activity. Promoting physically active older adults as the norm using peer role models, and including lower intensity activities, could show that all older adults can do something to increase their levels of activity and reap the health, functional and psychosocial benefits.

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CHAPTER SIX

Conclusions and Future Work

The work presented within this PhD adds substantially to the understanding of older adults' acceptability of physical activity. The meta-synthesis paper in Chapter 2 was the first systematic review of qualitative studies to collate and synthesise factors of older adults' acceptability of physical activity and generated a model of acceptability of physical activity interventions for older adults. The model highlights that enjoyment and perceived value of physical activity are key, and these are impacted by first-hand experience and intervention delivery style. The synthesis also emphasised the positive effect of social bonds formed within group physical activities. The systematic review highlighted the dearth of qualitative physical activity research carried out with older adults in low SES areas. The multi-perspective interview study was therefore conducted in such areas and is reported in two papers.

Chapter 3 provides novel insights from older adults living in low SES areas on the conflation of time and energy in older age. Older adults reported greater expenditure of resources just to attend activities and a perception of a reduced window of time in which it was acceptable to engage in activities outside the home. This paper shows that enjoyment of social interaction seemed to increase the acceptable amount of time or energy spent engaging in physical activity. Chapter 4 brought together the views of older adults in low SES areas and providers of physical activity in these locations. This paper showed the wider impact of limited resources, with social enjoyment, familiarity and locally-based provision being key factors in acceptability of being physically active. This paper describes how lack of parity of provision affects how older adults in low SES areas felt they were valued in society. Physical activities which provided social opportunities were highly valued in low SES

areas, as multi-functional activities addressed multiple needs for a single expenditure of resources.

Chapter 5 gives an overview of the basic factors of older adults' acceptability of physical activity and is a published chapter in *The Palgrave Handbook of Ageing and Physical Activity Promotion* which aims to inform the development and delivery of future physical activity interventions.

New Insights

Taken together, this research highlights that physical activity for older adults is both a health-related behaviour and a pleasurable leisure pastime for many, and as such has different factors of acceptability than say health screening, or adherence to medication. The meta-synthesis in Chapter 2 suggests a model for older adults' acceptability of physical activity interventions built around enjoyment as a key factor, whilst still covering aspects such as perceived value, the lived experience, and delivery specifically tailored to older adults, which can all impact on acceptability. The interview study reported in Chapter 3 and Chapter 4 shows the importance of including in-depth qualitative research to inform the design of physical activity interventions with older adults. This is in agreement with Yardley et al. (2016) whose work on engagement with digital behaviour change interventions promotes such co-design with a tailored approach to increase effective engagement and produce the targeted health outcomes. However, the work of Yardley et al. (2016) is based on acceptability of intervention delivery systems, rather than direct engagement with the health-related behaviour and so there is still a need for a more appropriate model for physical activity with older adults, such as is offered within this PhD.

The fact that physical activity is not just a health-related behaviour but also a leisure activity that is sought mainly for enjoyment in the older adult population, suggests that a specific model of acceptability for this behaviour and this population is required. Other work on acceptability of health behaviour changes are not as relevant to physical activity for older adults, as they too are not based around the key factor of enjoyment. The theoretical framework of acceptability of healthcare interventions (Sekhon, Cartwright, & Francis, 2017) defines acceptability as the perceived health-related appropriateness of the intervention coupled with the emotional and cognitive reactions to it. Whilst the Sekhon et al. (2017) framework includes affective attitude and is useful for health behaviour change interventions in clinical settings, it is not well suited to acceptability of physical activity as it does not cover the enjoyment-based perspective of leisure time physical activity.

This research has shown the need for interventions to increase physical activity to be tailored for older adults, as their needs and motivations to engage with physical activity appear to differ from the general adult population. The finding of the current research that social enjoyment is the main motivating factor for older adults to engage in physical activity is supported by Steltenpohl, Shuster, Peist, Pham and Mikels (2018). Their study on younger versus older adults' motivations to be physically active showed that older adults were more motivated by social benefits than fitness goals, in contrast to their younger counterparts. Enjoyment has been shown to be a key element to acceptability of physical activity in older adults throughout the current research. Enjoyment is also a predictor of both initiation and maintenance of physical activity in older adults (Van Stralen, De Vries, Mudde, Bolman & Lechner, 2009) yet such affective influences can be absent from behaviour change theories (French et al., 2005). When

the focus of a programme is on enjoyment, social interaction and connectedness, rather than health or physical activity performance related messages, it is highly acceptable to older adults. Although adults may tend to prune their social network of extraneous relationships with increasing age, those without such a network may be inclined to seek out new social relationships provided there is a common goal or interest, such as shared enjoyment of a leisure pursuit (Carstensen, Isaacowitz, & Charles, 1999). Social enjoyment appears to be of particular importance to older adults' acceptability of physical activity as a leisure pastime, more so than intrinsic enjoyment of the activity itself. Social interaction is seen as core to survival (Carstensen, et al., 1999) and psychological wellbeing (Deci & Ryan, 2000) as humans have evolved to form social attachments.

The current research has discovered that many older adults appear to conflate time and energy when deciding whether they have the resources to participate in physical activity (Chapter 3). This work has also highlighted the negative impact that closure of local facilities and centralisation of services had on older adults' engagement and maintenance of physical activity. The lack of individual, social and environmental resources in low SES areas, compounds the conflation of time and energy, as greater expenditure is required from those with the least resources merely to *attend* a physical activity. This may explain in part the low engagement with leisure time physical activity that is apparent in low SES areas (Annear, Cushman & Gidlow, 2009; Fox et al., 2011). Furthermore, if opportunities to be active are labelled with a physical, health or fitness focus, this may explain why many of the inactive participants in this research, often with little previous experience of leisure time physical activity, reported perceiving it to be too effortful and hard work rather than a pleasurable leisure

activity. Such a perception, alongside feeling time and/or energy poor, would only add to the barriers these older adults face in becoming more physically active.

This research showed however that even the most inactive older adults were able to spend more time being physically active when in enjoyable company. Their perception of individual available resources appeared altered as the social element distracted them from focusing on physical ailments, or time passing, and they did not perceive the physical activity they were doing to be as effortful as a result.

Csikszentmihalyi (1990) speaks of achieving an optimal flow state when engaging in enjoyable activities, particularly activities which provide a sense of pleasure coupled with a sense of achievement. With greater familiarity, better flow is achieved, which can lead to heightened enjoyment. Indeed, some such experiences are deemed autotelic, or having a purpose in themselves, in that they are pursued simply for the inbuilt reward or pleasure of doing them, no matter the reason for initially engaging in them. Whilst some may think of autotelic experiences in terms of physical activity as the intrinsic enjoyment of the sport or exercise itself, the present research highlights that for older adults this can actually be derived from enjoyment of the wider social experience of attending group physical activities. Older adults spoke of the joy they felt when with their group and that they would not miss attending for anything, often overcoming substantial barriers to do so. This shows that the whole approach to providing physical activity as an acceptable leisure pastime for older adults needs to be aimed at their enjoyment and social connection rather than health and fitness goals.

The current research highlighted the multi-faceted nature of the enjoyment older adults experience in relation to physical activity. Most older adults do not appear to focus on intrinsic enjoyment of the physical activity itself but rather the

social enjoyment, the anticipated enjoyment of meeting up with friends, enjoyment of the wellbeing benefits, and sensory enjoyment (e.g. of the music, or nature). This is in line with the work of Phoenix and Orr (2014) on the multi-dimensionality of pleasure. This focus by older adults on the concurrent enjoyment rather than the actual performance of the physical activity may explain why some older adults perceive physical activity to be irrelevant to them as an activity in its own right (McGowan, Devereux-Fitzgerald, Powell, & French, 2017). If, as evidenced within this PhD, older adults are less likely to be motivated by a desire to perform the physical activity itself, then questions based around this may miss important factors of acceptability.

In this research the participants reported that the camaraderie and fun they had during physical activities was a highlight in their week and as such, created anticipated enjoyment which helped them to attend, often despite barriers. Such, anticipatory enjoyment has been shown to occur with regularly scheduled pleasurable activities (Phoenix & Orr, 2014) and is an enjoyable experience in its own right. However, the current research found that low SES areas were often victim to unplanned breaks in service provision, such as those due to funding, location closures, staffing problems, etc. When scheduled activities are cancelled older adults miss out on both the enjoyment within the activity itself and the lost pleasure of anticipating that activity. This hiatus of services can also fracture highly valued social bonds which can be irretrievable, particularly if service provision is moved to a different location.

Consistent scheduling, together with familiarity with location and personnel has been shown in this research to be important for older adults' acceptability of physical activity. This may be due to reduced expenditure by older adults of multiple resources when familiar, consistent activities are undertaken, which is particularly relevant in low

SES areas. Local provision of physical activity requires less time, energy and cost to attend and heightens the probability of familiarity. Consistent, familiar provision is also beneficial for habit formation as the more a behaviour is repeated within the same set of circumstances, the greater the automaticity of performing that behaviour (Gardner, Lally, & Wardle, 2012). Less cognitive resources need to be expended to engage in the activity, making it more acceptable. Older adults' physical activity habits should therefore be created within the context that they would aim to be maintained, in order to reduce cognitive load. Disruption of schedules and changes in location, particularly if further afield, displace the cues to automatic behaviour and can therefore weaken habit formation. Habit formation may be of particular importance for those experiencing cognitive decline as more cognitive energy is required for non-habitual behaviour.

Lack of cognitive flexibility towards engaging in physical activity was a limiting factor for some older adults when faced with planning new activities or disruption to current schedules (see Chapter 4). This seemed more apparent for inactive older adults, who make up the majority of the older adult population, with inactivity rates increasing with age. Therefore, it seems prudent to situate physical activity interventions within community-based programmes, rather than in clinical or academic settings. The possibility of then continuing the physical activity in the familiar setting, whilst also preserving the valued social bonds could thereby promote maintenance. According to Rothman's (2000) framework, maintenance of a new behaviour is based on the perceived satisfaction of positive life changes that individuals experience due to the behaviour change. Through self-monitoring and self-regulatory processes, decisions are made about whether their expectations on the

outcomes of performing the behaviour are being met. If they are, then the individual is motivated to continue the behaviour; if not, their motivation will lessen. However, if physical activity interventions are not based locally (with participants expected to recreate the behaviour patterns themselves post-intervention), or physical activity provision is inconsistent, maintenance could be hampered no matter the individual's perceived satisfaction with the outcomes of being physically active or their motivation to continue. Changes in location or provision could also mean the need for greater self-regulatory input in line with Rothman's (2000) framework, which could be problematic in itself for many older adults with cognitive decline.

The current work shows that feelings of belonging to a close-knit group often helped older adults to maintain physical activity, as the social bonds formed increased their commitment to attend. Trainers who spent time fostering social interaction and group cohesion were rewarded with enthusiastic word-of-mouth recommendations from their class members and effective long-term retention. The current research shows that the role of a trainer working with older adults is actually more specialised than initially apparent and goes beyond the basic need of knowledge on physical limitations and motivating factors in this population. The current research suggests trainers must also be aware of, and willing to facilitate, the broader social needs of this population. This is in agreement with the work of Hawley-Hague et al. (2013) who recommend that group cohesion, which is positively related to maintenance of physical activity in older adults, be promoted by trainers. Furthermore, it could be beneficial to providers to include facilitation of social needs within their programmes due to the increased maintenance effect, as it may be more cost effective to keep running well-attended successful classes than setting up new activities.

Our findings about currently inactive older adults in low SES areas suggested that they met their social needs through forming social bonds at more sedentary activities, such as craft or social clubs. They often reported that they could not afford any further expenditure of their limited resources, such as time, energy or money, on attending extra activities. They therefore eschewed engaging in any new activities, as their social needs were already being met elsewhere and health-related messages did not motivate them to seek out physical activity in its own right. Creating opportunities for multi-functional activities which deliver physical activity alongside socialising, non-physical leisure interests (e.g. nature, history, crafts), or practical errands (e.g. shopping, visiting GP) could increase the acceptability of engaging in physical activity almost incidentally. The latter is in line with the findings of McGowan et al. (2017) in which some older adults perceived being physically active as a by-product of practical day-to-day activities more acceptable than as a standalone activity. Furthermore, creating multifunctional activities which meet both physical activity and social interaction needs, means that older adults with limited resources do not have to choose between one over the other. This could go some way to increase parity of provision as for one outlay, multiple needs can be met.

The current research showed that many older adults in low SES areas perceived that they lacked value within society, feeling that they were overlooked in favour of younger, healthier and wealthier people. Opportunities to engage in physical activities that are known leisure pursuits (e.g. yoga, Zumba, Tai Chi) were rare within low SES areas due to lack of parity of provision, as reported by providers and older adults in Chapter 4. However, such activities were desired and seemed to have more cachet than generic exercise classes or 'elderly' activities (e.g. chair-based exercises). This

may be due to their perceived desirability to others adding to their intrinsic value. Being offered such desirable physically active leisure pursuits seemed to positively impact feelings of being valued for some and when offered were extremely well attended. More isolated or inactive older adults often had little awareness of what physical activity was available to them. This lack of visibility of acceptable physical activities further added to a perception of low value within society. The lack of advertising was due to the budgetary constraints providers were under, with little or no money available for marketing. What little marketing there was often focused on health issues with minimal mention of fun or enjoyment, and so would not resonate with its intended target audience.

Competing priorities and doubts about capabilities can negatively impact older adults' acceptability of physical activity. The meta-synthesis in Chapter 2 showed that such initial misgivings towards engaging in physical activity could be overcome through older adults being supported to gain first-hand experience of novel physical activities. Many then positively re-evaluated their perception of physical activity, their abilities, and the short-term benefits they could achieve. This change in attitude towards physical activity could be related to increased self-efficacy through mastery (Bandura, 1977; 1998). As noted by Koeneman, Verheijden, Chinapaw and Hopman-Rock (2011) positive changes in physical activity self-efficacy and experience of functional benefits are determinants of physical activity engagement in older age. Perceived value of physical activity may be enhanced, as noted in Chapter 2, through older adults becoming aware of personally relevant short-term benefits. These appeared to be much more effective at increasing acceptability than awareness of longer-term health risks. However, individuals may not be wholly aware of such changes unless their

attention is drawn to them, and increased value may not occur unless the changes are specifically related to being physically active.

Increasing physical activity levels in older adults is a behaviour that results in health improvements. Despite this, the present research suggests that the message to older adults themselves would be more effective couched in terms of social connection and enjoyment rather than in health-related information. Some physical activity trainers and providers in low SES areas were aware of this, although the language many of them used when referring to physical activity for older adults still seemed to have a health-related focus. Many providers reported a seeming lack of understanding of the wider issues of provision of physical activity to older adults within the higher levels of the infrastructure (e.g. funding providers, facility management). Some providers, particularly in large organisations within the health/leisure sectors, often felt unable to bridge the gap between what was desired by older adults and what they could offer, or how they felt permitted to market physical activity. If improving health was the remit of their programme, they seemed to feel that this was the message that needed to be adhered to in communications to all parties. Other providers, often those running independent services or having more control over their programme content, were aware that focusing on the social, fun elements was key to getting older adults more involved. Different approaches to the different stakeholders are probably required in order to gain adequate funding and facility provision, supply an acceptable physical activity programme, and meet the health targets. The present research suggests that having different messages about the same targets up and down the supply chain could be more effective. Labelling physical activity programmes for older adults in more acceptable terms, such as enjoyment, socialising, fun, belonging and

connecting, does not in any way detract from the health benefits that would be obtained from engaging in them. However, without the funds or the facility provision for the social aspect (e.g. extra time, social facilitation education for trainers, room and funds for tea and biscuits) those in low SES areas will continue to miss out on this key factor. The priority is therefore helping funders and facility managers to understand the importance of the social focus, whilst still promoting the programmes to them as having all the health-related benefits to meet their targets.

The importance of exploring latent implications in qualitative research was apparent during the interview study (Chapters 3 and 4), as inconsistencies were noted within individual older adults' responses in relation to their physical activity preferences. Some older adults professed a lack of interest in physical activity or a dislike for a particular activity, only to then report engaging with them quite happily when under a different guise. For instance, not liking walking but often attending nature or history walks, or not seeing themselves as a dancer but loving a belly dancing class. This indicates that how a physical activity is labelled and presented to older adults impacts their engagement. The participants did not seem initially aware of these contradictions but recognised them as such when they were explored further within the interviews. This exploration led to a richness of data which could not have been obtained had the initial statements been taken at face value, indeed doing so could have led to misconceptions. How this research was conducted and the quality of the data it produced demonstrates the importance of in-depth exploration of latent content both in the interview and analysis stages. Such depth is often absent from the qualitative literature, as the systematic review noted (Chapter 2).

Reflections

The research in this thesis was conducted from a limited (or critical) realist perspective (Brooks & King, 2017), incorporating a realist ontology with a more relativist epistemology. In limited realism the existence of an objective reality is acknowledged, with this reality being viewed through the lens of individuals' beliefs, perceptions and experiences, including those of the researcher.

Many methods were considered for the meta-synthesis in Chapter 2 (as noted in the research protocol in Appendix A): Meta-Ethnography (Noblit & Hare, 1988); Thematic Synthesis (Thomas & Harden, 2008); Grounded Formal Theory (Kearney, 2001); Critical Interpretive Synthesis (CIS; Dixon-Woods, et al., 2006). The advantages and disadvantages of each approach were weighed up in relation to the personal preference, research background and experience of the principal researcher, together with the aims of the study and the audience the review was intended to reach. Thematic Synthesis was deemed the best fit for the meta-synthesis as it encompasses a critical realist approach and was somewhat familiar to me due to my previous experience with Thematic Analysis (Braun & Clarke, 2006) and Grounded Theory (Glaser & Strauss, 1967) which also use variations of inductive coding and constant comparison of data to define themes (Barnet-Page & Thomas, 2009). Within limited realism, whilst a single truth is not sought, the most credible interpretation of the data is the aim (Brooks & King, 2017). This approach therefore enabled me to ascertain the factors of older adults' acceptability of physical activity, rather than just whether or not physical activity was acceptable to them. Also, as it was devised within the arena of public health and health promotion specifically to address questions of efficacy and

acceptability of interventions, and could accommodate a heterogeneous sample, Thematic Synthesis seemed the most appropriate choice for this meta-synthesis.

The interview study aimed to build on the findings of the meta-synthesis, particularly through providing data from low socioeconomic status participants. As context is shown to impact on reality within the limited realist stance, such an approach would again allow for the perspective of older adults in low SES areas to be captured. Also understanding that using two similar approaches across studies which are to be viewed together, i.e. having 'philosophical congruity' (Brooks & King, 2017), led me to choose Thematic Analysis (Braun & Clarke, 2006) for the interview study. The addition of the Framework Approach (Ritchie & Spencer, 1994) was agreed within the larger research team as it is a useful tool for transparent and accessible data management, promotes easy communication about data between team members and can facilitate exploration of the data via both thematic and case-based analyses, as the depth of the analyses of both the uni-perspective study (Chapter 3) and multi-perspective study (Chapter 4) are testament to.

Although this PhD is qualitative in nature, and so is concerned with individual perspectives on the social phenomenon of acceptability of physical activity, as Yardley (2008) noted it is desirable for all types of research to have some degree of generalisability to add to the knowledge base. In quantitative research, stringent statistical generalisability is sought through capturing data from a sufficiently representative random sample of the target population. However, qualitative research is typically not aiming for this, but rather for findings which provide valuable insight to the target population and could potentially provide insight into other comparable populations or situations (Yardley, 2008). Both Thematic Synthesis and Thematic

Analysis when utilised from a limited realist perspective allow us to obtain the most credible accounts of the data through its considered interpretation (Brooks & King, 2017) and as such, a limited generalisability can be obtained, albeit contextually dependent and within comparable populations. Some qualitative researchers prefer to think of this as more of a considered applicability rather than generalisability (Noble & Smith, 2015).

Rigour was operationalised throughout all aspects of this PhD via methods such as purposive sampling, triangulation of data across different populations, and the use of multiple researchers for quality appraisal and formulation of themes. However, use of such tools alone is not necessarily sufficient for rigour to be achieved, but rather it is how they are used that will promote it (Barbour, 2001). Rigour has been related to trustworthiness in qualitative research (Cypress, 2017) as evidenced throughout this project, for example with the use of accurate and truthful data excerpts taken from verbatim transcriptions to illustrate the findings. Use of memos during the coding and analysis processes provided an audit trail and allowed researcher reflection to mitigate potential bias. Initial analyses of the data were undertaken whilst interviews were still being conducted, and constant comparison of data and interpretations checked the validity of the findings within the target population. Furthermore, the concurrent triangulation of data across different populations (the older adults and those who delivered physical activity to them) allowed for validation of the emerging themes in the broader social context. A qualitative equivalent of reliability was achieved through multiple researchers reviewing transcripts and thematic frameworks before agreement was reached on the final themes.

Quality appraisal was undertaken on the primary studies in the meta-synthesis by two researchers using the Critical Appraisal Skills Programme (CASP) Checklist (CASP, 2013). One weakness noted with the CASP which became apparent during this project was that the quality of the study *could* be based on gaining ‘enough’ points on more trivial matters whilst missing more crucial elements. To mitigate this, the current research did not exclude primary studies on the basis of this quality appraisal, but study quality was reported. It was noted that the poorer studies offered less to the analysis, whether due to lack of analysis in the primary study or poor reporting resulting in less available data.

The introduction to this PhD posited many behaviour change and motivational theories to be considered during the research: Theory of Planned Behaviour (TPB; Ajzen 1991), Transtheoretical Model (TTM; Prochaska & DiClemente, 1983), Motivational and Volitional Action Phases (MVAP; Heckhausen & Gollwitzer, 1987), Social Cognitive Theory (Bandura, 1977), Self-Determination Theory (Deci & Ryan, 2000), and Socioemotional Selectivity Theory (Carstensen, Isaacowitz & Charles, 1999). Some of the traditional theories of behaviour change once prominent in health psychology research (namely TPB, TTM and MVAP) could not provide sufficient understanding of the nuances of the acceptability of physical activity to older adults. This may be because of the absence of sufficient affective influences for factors such as pleasure or enjoyment to map onto within such models. Further these models are increasingly being criticised for neglecting automatic processes, and wider consideration of environmental and societal influences on behaviour (Sniehotta, Penseau, & Araújo-Soares, 2014). For example, in the TPB, SES constraints on behaviour are modelled as affecting behaviour by influencing beliefs, and in turn,

constructs such as attitudes and intentions. By contrast, there is much recent theorising about how interventions that aim to reduce inequalities by addressing such beliefs are unlikely to succeed as they rely on agency of people at a number of steps in engaging with traditional public health messages and programmes, which typically do not engage people from low SES backgrounds (Adams, Mytton, White & Monsivais, 2016).

Enjoyment of social interaction mapped onto Relatedness, a component of Self-Determination Theory (Deci & Ryan, 2000). Also, the impact of experience showed that as the older adults gained Mastery (a component of Social Cognitive Theory (Bandura, 1977)) they reported increased self-efficacy. However, much of the work conducted during this PhD can be best viewed through the lens of Socioemotional Selectivity Theory (Carstensen, Isaacowitz & Charles, 1999). Findings such as enjoyment and perceived value show the significance of the impact and meaning which social interaction brings to bear on physical activity for older adults. The importance of time and its conflation with energy on older adults' acceptability of physical activity perhaps shows the particular pertinence of Socioemotional Selectivity Theory to health psychology research within this population, as it sets out the impact of perceived remaining lifespan on motivation.

Limitations

Limitations exist and are noted within chapters 2-4. Only including English language studies in the systematic review may have given a narrow view of cultural factors of acceptability. Most primary studies within the meta-synthesis did not report data from non-adherent or declining participants. Most primary studies within the meta-synthesis omitted SES data although many inferred participants came from more

affluent demographics, for example reporting regular engagement in costly activities such as tennis and golf. Most primary studies also reported on organised physical activity rather than recreational or lifestyle physical activity. Little to no information on behaviour change techniques utilised was reported. In the interview study the use of self-report of physical activity levels with its retrospective reliability and social desirability is a weakness. There were mainly white participants, which again skews cultural factors of acceptability, and the urban base of the study may mean that there are factors of acceptability in low SES rural areas that have been missed. On further reflection, the following limitations also bear comment. In the meta-synthesis, although a broad range of activities and general terms for physical activities were utilised in the search for papers, specifying certain activities whilst leaving out others may have introduced an element of bias. The interview study may have benefited from more male older adult participants, as well as broader ethnic diversity which although sought was not achieved. Whilst there was some reporting of differences in the results based on gender, further exploration of this as well as of different age groupings (such as younger old 65-74 years, mid old 75-84 years, and oldest old 85years+) may have produced deeper insight. Also interviewing more trainers/providers who delivered physical activity in non-traditional physical activity settings, such as dancing in social clubs, could have provided further insight to the themes.

This PhD has gone some way to increase the knowledge base on the topic of older adults' acceptability of physical activity. The meta-synthesis captured a broader view of factors of acceptability across older adults and the interview study provided a more in-depth look at a population previously under researched, older adults in low

SES areas. However, as there is such diversity in the older adult population, there can be no one-size-fits-all approach and so a suite of studies will be required to capture the essence of acceptability within different groups, based on factors such as gender, age, culture, abilities, and SES to facilitate understanding of the detail in the bigger picture.

Future research

Qualitative research to determine the understanding of major stakeholders within the infrastructure of physical activity provision for older adults is necessary. Ascertaining the view of funding bodies, local authorities and facility managers on competing priorities and older adults' specific needs in relation to physical activity within tight budgetary constraints may help to facilitate more acceptable and effective provision. Differences between types of funding or facility provider would be interesting to explore (e.g. whether from a health, sports, leisure, wellbeing, or older adults' charity background). This would enable us to better understand their current strengths and good practice as well as to recognise their barriers to delivery and possibly identify financially worthwhile collaborations to enable retention or reinstatement of local provision. Also seeking qualitative evaluations of physical activity programmes currently being offered to older adults could be pertinent to development of physical activity interventions or new programmes, as little feedback is sought by providers. Again, exploring such physical activity provision across the different sectors (charity, sports, health, leisure, wellbeing, etc.) and comparing provision between low and high SES areas could be useful to highlight any disparities and to fill the gaps in current provision. The findings, coupled with our current knowledge of older adults' acceptability of physical activity, could then assist with providing workable solutions to increase older adults' engagement and maintenance

of a more physically active lifestyle, particularly in low SES areas where engagement is generally lower and where there is a scarcity of resources.

Further qualitative research is also needed to discover whether the conflation of time and energy around physical activity exists in other groups. Particularly pertinent to the current research would be a qualitative study on the conflation of time and energy in relation to physical activity with older adults outside of low SES areas to establish whether the conflation is also evident. Exploring whether the lack of resources inherent in low SES areas plays a part in the existence of the conflation itself, rather than merely compounding it would be useful. Conversely, looking at the conflation of time and energy through the lens of activity levels of older adults in all SES areas could explain if this is more of an issue with inactive older adults generally, as is suggested by the current research in relation to inactive older adults in low SES areas. Qualitative explorations of other populations and time and energy conflation in relation to physical activity would also be interesting. Exploring groups who would benefit most from increasing their physical activity (e.g. sedentary, obese, those managing long-term conditions) could inform future interventions.

Future research could also include a natural experimental study to explore the impact of lack of resources on older adults' acceptability of leisure-time physical activity. For instance, two similar areas where real world changes (e.g. changes in policy, changes in provision of services, changes in provision of instrumental support) have occurred in one geographical area but not the other could provide opportunities for new insight on the effect such changes may produce. Specifically, looking at how costs for transport and leisure services affect engagement with physical activity in older adults, and whether this differs across high and low SES areas.

Future research is necessary to separate the concepts of perceived available time and energy within physical activity for older adults. As noted in Chapter 3, a longitudinal approach with perceived energy levels and perceived available time measured via self-report before, during and after a physical activity programme, together with measures of the actual available time and time spent engaging with the programme could help to dispel the conflation of time and energy for research purposes. Other factors which may affect energy levels would also need to be considered, so open ended questions with prompts on topics including general health, medications, sleep patterns, life events, and environmental/seasonal changes, together with a measure of energetic arousal such as the UWIST Mood Adjective Checklist (UMACL; Matthew, Jones & Chamberlain, 1990) would therefore be pertinent. The UMACL may be of particular use within studies of older adults' acceptability of physical activity as it includes a pleasure (or hedonic arousal) scale. Furthermore, previous research related to perceived lack of time to engage in physical activity in older age would need to be revisited to ensure that time was indeed the issue, as opposed to energy.

Going beyond the theoretical scope of health psychology has proved fruitful in this research which has suggested that older adults' acceptability of physical activity is more deeply related to the social context than the health context. However, as Socioemotional Selectivity Theory (Carstensen, Isaacowitz & Charles, 1999) is focused more on individuals than society as a whole, it would be prudent to explore further aspects of acceptability of physical activity in the wider social context. An alternative to looking at individual perspectives of acceptability of physical activity in older age may be to look to wider community and environmental factors. On a societal level,

building age-friendly communities which allow older adults to age in place (Thomese, Buffel, & Phillipson, 2018) could address individual barriers which impact acceptability of physical activity (e.g. inequality of provision in lower SES areas) whilst retaining familiarity and social networks. Improving acceptability of environment (e.g. by incorporating more urban green spaces) whilst measuring aspects of wellbeing such as taking notice of said environment and connecting with others whilst engaging in physical activity (Benton, Anderson, Cotterill, Dennis, Lindley & French, 2018) could give us a more holistic picture of acceptability of physical activity in a naturalistic environment. However, Nettleton and Green (2017) suggest that using either individual, community or population level approaches is failing to achieve sufficiently satisfactory rates of behaviour change and posit that a social practice approach may be more efficacious. Utilising a social practice framework (Shove, Pantzar, & 2012) could allow for acceptability of the practices older adults perform in order to engage in physical activity to be explored via three main components: the *Materials* they require (e.g. venue, equipment, trainer, suitable clothing/footwear, etc); the *Competences* they possess (e.g. mobility, balance, familiarity with the movements, time-management); and the *Meaning* they place on engaging (e.g. fun, enjoyment of social interaction, fear of pain or embarrassment, empowerment, perceived value, health benefits/costs). However, care needs to be taken that confusion over behaviour and its determinants is avoided, in order to facilitate identification of optimally effective components of behaviour change interventions, whatever level of society they are aimed at.

Further investigation into class and gender differences are warranted within the scope of older adults' acceptability of physical activity. The current proclivity to

market physical activity to older adults as a way for them to age healthily seems to cross gender lines with both men and women being equally targeted, although male older adults are still more likely to be active than their female counterparts. However, this may well change with future generations, as it may be a cohort effect. For example, the current oldest old (85+ years) did not experience encouragement or easy access to physical activity throughout their lifespan and so may find it less acceptable to engage with (Semerjian, 2018). However, it would be interesting to see if today's adults, who will have had more exposure to the concept of physical activity as a leisure pursuit in older age, find it a more acceptable pastime in their oldest old years.

Further understanding is needed around acceptance of the changing physical body in relation to acceptability of physical activity in older age. The current widely held view of the ageing body is one of decline, with physical activity in older age seen as a buffer to numerous medical problems inherent in the ageing process (Palmer, Tulle & Bowness, 2018). Again, a possible cohort effect may mean that current physical activity guidelines are expecting many older adults to engage in higher levels of activity than they would have found acceptable even in their youth, let alone in older age. However, active older adults may also be urged to slow down in accordance with cultural expectations of age appropriate behaviour. Changing societal perceptions of ageing as a negative process may incidentally increase acceptability of being more active in older age.

In summary, this PhD has provided evidence of factors of acceptability in relation to older adults engaging in and maintaining a physically active lifestyle. It also offers novel practical ways of implementing such factors within services in a bid to encourage more older adults to engage in physical activity, and to maintain their

attendance. The work presented here demonstrates that enjoyment, especially of social interaction, is key for older adults to accept physical activity as a valid leisure-time activity and part of their normal routine, particularly in low SES areas.

Acceptability of physical activity is hampered by the conflation of time and energy, which is further compounded by a lack of individual and environmental resources.

Parity of provision needs to be addressed through provision of familiar, locally-based physical activities which foster social bonds and are desirable to others. Providing activities which also meet older adults' need for social connectedness may allow engagement from those who would ordinarily eschew physical activities in preference of social ones, whether due to limited individual resources or to seeing physical activity as too effortful to be considered leisure. Physical activity differs from many other health behaviours as it can be viewed as both a pleasurable leisure pursuit and an aid to health. As such, interventions to increase physical activity need to take a different approach to those which are purely health-based, such as medical screening. The health-based onus often present within services aimed at older adults can discourage engagement due to the positivity bias in older age. Basing older adults' physical activity interventions, services and marketing around the core principals of enjoyment and social connections may realise greater engagement, with health benefits becoming apparent even without being the focus. Facilitating understanding of these concepts throughout the physical activity provider infrastructure, whilst allaying any fears that focusing on social enjoyment could detract from meeting health targets is therefore key. The landscape of physical activity provision needs to be changed from the top down.

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APPENDICES

Acceptability of physical activity interventions for older adults:**A meta-synthesis of qualitative literature****RESEARCH PROTOCOL****INTRODUCTION**

With the UK population over the age of 65 years estimated to increase by more than 50% by 2030, but the lack of *healthy* life expectancy currently experienced (HOCL, 2010), it is imperative to find ways to increase the health of this population to minimise costs of such morbidity on public funding and to increase healthy life expectancy to a similar rate to population growth. One effective way of improving health in the largely sedentary older adult population is to increase physical activity (Rejeski & Mihalko). For a behaviour change intervention to be optimally feasible, it must be acceptable to the target population. "Evaluations are often undermined by problems of acceptability..." (MRC, 2008, p. 10). Therefore this study will look into the role acceptability of physical activity interventions plays in the engagement of older adults in physical activity.

Benefits of Physical Activity for Older Adults

Increasing physical activity in the largely sedentary population of older adults can lower their risk of chronic illness and mortality (e.g. reduced incidence of type 2 diabetes, reduced incidence of some cancers, lower levels of coronary heart disease and stroke) as well as resulting in improvements in quality of life (Rejeski & Mihalko, 2001), improvements in mood, self-esteem and maintenance of ability to carry out activities of daily living (UK Department of Health (DoH), 2011). Activities of daily living are the basic self-care tasks such as bathing, toileting, dressing, grooming and eating, as well as more instrumental functions such as housework and shopping. Furthermore, physical activity has been shown to help maintain cognitive function and reduce the risk of dementia, a major obstacle to retaining independence for older adults, as well as reducing the risk of falls (DoH, 2011).

Physical Activity Guidelines and Current Levels of Activity in Older Adults

The current UK guidelines for older adults (65+) recommend that they participate in 150 minutes (2½ hours) of moderate intensity physical activity per week, or 75 minutes (1¼ hours) of vigorous intensity physical activity (or a combination of the two) per week in bouts of 10 minutes or more. It is also recommended that they engage in muscle-strengthening activities on all major muscle groups (for 8-12 reps) on at least two days a week (DoH, 2011). Older adults at risk of falls are advised to also include physical activities which will improve their balance and coordination on at least two days a week. Muscle strengthening and balance

training can not only assist in maintenance of performing basic activities (e.g. walking up steps, rising from chair), but also are known to lower the risk of falls (DoH, 2011).

According to the Health Survey for England 2012 (HSE 2012) (Scholes & Mindell, 2013) although the rates of 65-74 year olds (Male, 40%; Female, 45%) are comparable with the older middle age group of 55-64 year olds (Male, 44%; Female 43%), the rates of inactivity increase dramatically for 75-85 year olds (Male, 55%; Female 78%) and 85+ year olds (Male, 87%; Female 92%). This increase in inactivity is particularly apparent for women (Scholes & Mindell, 2013).

Sedentary behaviour also increases with age, with 65-74 year olds and 75+ year olds having the second highest and highest rates respectively, with the latter spending around 10 waking hours engaging in sedentary activities (BHFNC, 2012).

Acceptability, Older Adults and Physical Activity Interventions

Minimal work has been done on acceptability of physical activity interventions specifically within the older adult population. Previous qualitative or mixed-method studies have included older adults in physical activity intervention evaluations (e.g. Fukuoka, Lindgren & Jong, 2012), but without any age stratification reported in the results it is impossible to ascertain issues of acceptability specifically relevant to the older adult population. Other feasibility studies only give a minimum age range (e.g. Ho et al, 2013; Rabin, Pinto, Dunsiger, Nash & Trask, 2009) and so it is unclear whether older adults views have been sought. Acceptability of mode of delivery (e.g. use of technology) has been looked at in studies which included older adults (Fukuoka et al., 2012; Vandelanotte & De Bourdeaudhuij, 2003; Kerr et al, 2008) but not the acceptability of the physical activity or behaviour change interventions themselves.

The value placed on physical activity by the older adult population may have some bearing on its acceptability. Older adults who could identify more reasons for being active and were aware of and accepted the benefits of being physically active as they aged, were found to be more active than those who identified fewer reasons for staying active (Burton, Lewin & Boldy, 2013). Without experimental studies, it is impossible to say whether the higher value placed on physical activity in this study is a cause of maintaining that activity or a result of it. However, gaining insight into the experiences of older adults currently or recently involved in a physical activity intervention may be more relevant rather than just eliciting general views about physical activity from older adults. Utilisation of qualitative experience of interventions is encouraged by the MRC Framework (2008) in order to increase feasibility and acceptability.

What This Review Will Add

At the time of conducting this review, there were no existing reviews on acceptability of physical activity interventions in the older adult (≥ 65 years) population. Acceptability and feasibility not only of physical activity but also the BCTs utilised within interventions are possibly key determinants for effective, efficient implementation of physical activity programmes with older adults. A meta-synthesis of qualitative studies on older adults' experiences of physical activity interventions will consolidate existing evidence of acceptability and provide new insights from a broad range of older adults that it would not be feasible to access through primary qualitative research.

METHODOLOGY

Meta-Synthesis of Qualitative Research

Use of meta-analysis of quantitative data has long been utilised to aggregate findings from multiple studies and give access to the 'bigger picture'. Synthesis of qualitative studies is now also on the increase, with an ever widening range of approaches being used in studies across different disciplines. Due to the nature of qualitative studies however rather than a 'multiplicative' effect of combining data, instead the findings are synthesised with an aim that the whole will be greater than the sum of its parts.

In order to decide which approach to use in conducting a meta-synthesis of qualitative studies in this review, a broad range of methods were considered: Meta-Ethnography (Noblit & Hare, 1988); Grounded Formal Theory (Kearney, 2001); Thematic Synthesis (Thomas & Harden, 2008); Critical Interpretive Synthesis (Dixon-Woods et al, 2006); and Qualitative Meta Summary (Sandelowski & Barroso, 2007). Weighing up the advantages and disadvantages of a particular approach depends on various factors such as the aims of the study, the personal preference and research background of the reviewer, the discipline the researcher is based in or even the journals the reviewer plans to publish in.

Thematic Synthesis

This study will employ Thematic Synthesis as outlined by Thomas and Harden (2008), as it offers a transparent 3-step process by which to reach a deeper understanding of the available qualitative research, whilst remaining closely linked to the original data. Furthermore, it was developed within the arena of public health and health promotion, specifically to address questions of efficacy and acceptability of interventions and so was deemed the most appropriate method for the current study. The first author (ADF) has previous experience of using Grounded Theory (Glaser & Strauss, 1967) and thematic analysis

on primary qualitative data, both of which Thematic Synthesis is based on. The 3 stages of Thematic Synthesis are outlined below:

Stage One: Coding Text

Inductive line-by-line coding of meaning and content of findings of relevant studies, is conducted independently by one or multiple reviewers. This allows translation of concepts between studies. Comparisons can be seen with axial coding in Grounded Theory (Glaser & Strauss, 1967).

Stage Two: Developing Descriptive Themes

Codes are reviewed and grouped hierarchically (e.g. in a coding tree) based on similarities and differences. New codes (the descriptive themes) are generated based on these groupings. One reviewer writes a summary of the findings of all the studies based on the descriptive themes. Other reviewers then give their input on this summary until a final version of the summary of findings is produced.

Stage Three: Generating Analytical Themes

This stage allows interpretation of the findings which go beyond the basic summary and is similar to the third order interpretations of meta-ethnography (Noblit & Hare, 1988). The reviewers independently make inferences in relation to the research question from the beliefs and perceptions expressed in the initial data through the descriptive themes. These inferences are then discussed between reviewers until abstract analytical themes are apparent across all studies in the synthesis. These analytical themes can then inform the design of future interventions and policy.

Quality Appraisal

Appraising qualitative studies determines the trustworthiness of studies to be included in a systematic review (Dixon-Woods et al, 2004). Rather than using appraisal as a basis for exclusion, it can allow the reviewer to include studies of a poorer quality whilst not necessarily giving as much weight to the findings from those with poor or unclear methodology. This enables the retention of a richer data pool, whilst offsetting any possible distortion of findings. Considering the quality of the included studies and reporting this accordingly, lends to the credence of the review. It is also necessary to ensure that any policy decisions or clinical practices are based on quality research (Dixon-Woods et al., 2004). There are many different tools available for appraisal, although they can vary greatly on the factors to be appraised (see Dixon-Woods et al., 2007).

The Critical Appraisal Skills Programme (CASP) tool (Public Health Resource Unit, 2006) will be used to assess the quality of the studies included in this synthesis. The CASP was devised for health related qualitative research and so is relevant to this review's research question. The CASP provides a systematic approach to appraising the rigour, methodology, credibility and relevance of the studies to be included.

Summary

The benefits of physical activity are well known but the older adult population remains largely inactive. Increasing physical activity in such a sedentary population would have a far reaching positive impact on health and social issues. Ascertaining what older adults find acceptable and unacceptable about physical activity interventions through consolidating existing knowledge in the qualitative literature would help to inform development of an optimally acceptable intervention for this population. Accessing qualitative data from such a broad range of older adults would not be feasible in a primary qualitative study and so a meta-synthesis is an appropriate approach.

RESEARCH QUESTION

What can we learn about acceptability of physical activity from the qualitative literature on older adults' experiences of interventions to increase physical activity?

Aims of this study

- To systematically find and synthesise qualitative studies of older adults who have taken part in a physical activity intervention, that show their experiences and attitudes towards that specific physical activity intervention and their views on physical activity in light of this experience.
- To identify issues of acceptability within physical activity interventions for older adults.

METHODS

Inclusion Criteria

Types of studies: Studies using qualitative methods such as interviews, focus groups or surveys with open-ended questions, or mixed methods studies where open ended questions have been used in an evaluation of the intervention and qualitative findings have been reported in the results.

Types of participants: Older adults, 65+ years of age, male and female, living independently in the community. The age of 65 has been chosen as it is the age used by the UK Department of Health, the US Department of Health and Human Services, and the World Health Organisation to denote the beginning of older adulthood in their physical activity guidelines.

Phenomena of interest: Acceptability of physical, psychological, social or environmental factors of physical activity interventions (including behaviour change techniques used within such interventions), in the non-clinical community-dwelling older adult population.

Date: No date restrictions are in place.

Language: Due to limitations of translation resources, only studies reported in English will be included.

Exclusion criteria

Types of studies: Studies using qualitative methods which only aim to count occurrences of concepts (e.g. conceptual content analysis) and any quantitative-only studies will be excluded.

Types of participants: People who are <65 years of age, or 65+ living in assisted living/care homes/hospices or are currently hospitalised.

Phenomena of interest: Studies which do not include a physical activity intervention or those which do but for rehabilitation purposes (e.g. cardiac, stroke, hip replacement/fracture) or specific clinical populations (e.g. diabetes) will be excluded. Studies related to acceptability of technology used in intervention, will be excluded. Similarly feasibility studies of psychological measures are to be excluded.

Language: Due to limitations of translation resources, studies reported in any language other than English will be excluded.

Searches

Scoping Searches

Prior to the systematic search, scoping searches ascertained that there were no existing meta-syntheses of acceptability of physical activity in older adults at the time of this study. The scoping searches helped to establish the most relevant databases for use in the systematic search. By using known studies and identifying further relevant studies through the scoping search, it was possible to then test the effectiveness of the search terms and refine them accordingly. Adjustments were made for different databases to increase optimal results.

Breakdown of research question using CHIP (Shaw, 2012) and subsequent search terms

C and H and I and P

CHIP	Breakdown	Search Terms
Context	Physical activity/exercise interventions aimed at older adults for general well-being and health	physical activity OR exercise OR walk* OR yoga OR danc* OR cycling OR swim* OR tai chi OR gym OR activities daily living
How	Qualitative and mixed method studies which contain results from interviews, focus groups or open-ended questions	qualitative OR mixed method* OR meta-synthesis OR review* OR interview* OR focus group* OR survey OR questionnaire*
Issues	Acceptability of performing physical activity, acceptability of behaviour change techniques, perceptions of what constitutes physical activity/exercise, perceptions of own abilities, perceptions of current level of physical activity, motivations and barriers to being physically active, beliefs and fears about physical activity, financial and physical access to physical activity, needs of older adults in relation to physical activity	acceptab* OR feasibility OR perception* OR belief* OR experience OR attitude OR barrier* OR motivat*
Population	Older adults, ≥65 years old, independently living	older adult* OR senior* OR ag\$ing OR geriatric OR elder* OR retire*

(N.B. For actual search terms used in each database, and specific fields searched, please see Appendix B).

Systematic Search

A search of relevant electronic databases will be conducted. The following databases were chosen after scoping found these to be the most appropriate, with AMED included as a known

relevant paper was not found using just the first three databases. PsycInfo, Medline and AMED will be accessed via the Ovid search platform. Cinahl will be accessed via Ebsco.

- PsycInfo
- Cinahl (Cumulative Index to Nursing and Allied Health Literature)
- Medline
- AMED (Allied & Complementary Medicine Database)

Backward and forward citation searches will also be carried out on the included papers.

Screening

Duplicates will be removed from PsycInfo, Medline and AMED searches within Ovid. All search results will then be imported and combined in Endnote so that duplicates between results from these three databases and results from Cinahl can be removed. All remaining results will be exported to an Excel file so that notes of exclusion reasons can be made as the screening progresses. Initial screening of titles and abstracts will be conducted by the first author (ADF). When a text is excluded at this stage, it will be noted whether this was at title or abstract. Where it is impossible to determine from the title or abstract whether or not a study meets the inclusion criteria, the full text will be obtained. All full text will then be screened to ensure that the inclusion criteria are met (see Appendix C). A sample of 25% of full text studies will be referred to another reviewer (AD). Both ADF and AD will complete a full text screening form for each batch of full texts screened (see Appendix C). If there is uncertainty whether or not the inclusion criteria have been met, such studies will be flagged as uncertain. All uncertain cases will be discussed within the research team until agreement can be reached on inclusion/exclusion. The above screening processes will also be applied during the backward and forward citation searches.

Quality appraisal

The first author (ADF) will appraise all included studies using CASP. Any studies where quality is unclear will be discussed within the research team until agreement is reached about quality.

Data Extraction

The first author (ADF) will immerse herself in the data, by reading and re-reading the findings of the included studies in order to understand the breadth and depth of the data. Data extraction will be performed by the first author (ADF) using the attached form (see Appendix 5). Participant demographics, methodological information, context, aims/research questions, key themes/concepts and author's conclusions will be extracted for context of each study. All text under the headings of Findings or Results will be extracted for coding.

Participant quotes (raw data) and author findings will be treated equally as primary data. If the Findings/Results sections of the papers are combined with the Discussion section then all relevant text will be extracted. For papers which have a separate Discussion section, these will be read to ensure that no Findings/Results are missed. If Findings/Results are located in the Abstract or Discussion section, these will be extracted and noted as such on the Extraction Form.

Data synthesis

This study will employ Thematic Synthesis as outlined by Thomas and Harden (2008). This approach was developed within the arena of public health and health promotion, specifically to address questions of efficacy and acceptability of interventions and so is seen as appropriate for this study's research question. It offers a transparent 3-step process by which to reach a deeper understanding of the available qualitative research whilst remaining closely linked to the original data.

Stages of Thematic Synthesis (Thomas & Harden, 2008)

Stage One: Coding Text

Firstly a summary of all included studies will be carried out to help with immersion in the data and to provide an overview which allows the similarities and differences between studies to emerge (Boyatzis, 1998). Findings from included studies will then be extracted and coded. Findings are defined as all text reported under a heading of Findings or Results (in the text and the abstract), with raw data quotations and author interpretations treated as primary data. Inductive line-by-line coding of meaning and content is conducted, with multiple coding per line allowed. Inductive coding allows the theme to emerge from the data without being constrained by a theoretical framework or hypothesis (Boyatzis, 1998). Codes are catalogued in a database (if using specialist software) or table/ spreadsheet (if not). Codes can be structured in tree form at this stage with branches of sub-codes already defined, or simply noted as 'free codes' which have no hierarchical structure. New codes are added to the coding database as further studies are reviewed and new issues are discovered. Existing codes may be merged or split to form new codes as necessary throughout this process. All data which has had a code applied is checked for consistency of application. This initial coding stage allows for translation between studies with codes arising from earlier studies being applied to later studies. Also relationships between codes are explored with any need for further levels of coding fulfilled. Comparisons can be seen with axial coding in Grounded Theory (Glaser & Strauss, 1967).

Stage Two: Developing Descriptive Themes

Codes are reviewed for similarities and differences and grouped hierarchically in a coding tree. Descriptive themes and sub-themes are generated based on optimally encompassing these groupings. One reviewer (ADF) will write a summary of the findings of all the studies based on the descriptive themes. Other reviewers will then give their input on the summary until a final draft of the descriptive summary of findings is produced. This will then be applied to a blank copy of the extracted data from all studies to ensure validity of the descriptive codes. This summary remains close to the original data and merely provides an aggregate of the findings of all the studies, using a common language. In order to go beyond this understanding, analytical themes must now be generated.

Stage Three: Generating Analytical Themes

This stage allows interpretation of the findings which go beyond the basic summary and is similar to the third order interpretations of meta-ethnography (Noblit & Hare, 1988). The reviewers independently make inferences in relation to the research question from the beliefs and perceptions expressed in the initial data through the descriptive themes. The impact these inferences could have on intervention design is also considered. After independent consideration, the research team discuss their inferences until abstract analytical themes are agreed upon. These are then further examined and again considered against the research question in an iterative cycle until they are apparent across all studies in the synthesis and have sufficiently explained all descriptive themes. Recommendations for intervention design or implementation is then formed on the basis of the analytical themes.

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Electronic Search Strategy (20/02/2014) for Meta-synthesis on older adults' acceptability of physical activity

CINAHL (1937 to date - 20/02/14)

Fields: All fields

1. "physical activity" OR
 2. exercise OR
 3. walk* OR
 4. yoga OR
 5. danc* OR
 6. cycling OR
 7. swim* OR
 8. "tai chi" OR
 9. gym OR
 10. "activities of daily living"
- AND
11. qualitative OR
 12. "mixed method*" OR
 13. meta-synthesis OR
 14. review* OR
 15. interview* OR
 16. "focus group*" OR
 17. survey OR
- AND
18. acceptab* OR
 19. feasibility OR
 20. perception* OR
 21. belief* OR
 22. experience OR
 23. attitude OR
 24. barrier* OR
 25. motivat*
- AND
26. "older adult*" OR
 27. senior* OR
 28. ag\$ing OR
 29. geriatric OR
 30. elder* OR
 31. retire*

Amed (1985 to Feb 2014); PsycInfo (1806 to Feb Week 3 2014); & Ovid Medline (R) (1946 to Feb Week 2 2014)

Fields: Abstract, Abstract label, Age group, Exploded subheading, Floating subheading, Heading words, Key concepts, Keyword heading, Keyword heading word, Methodology, Original title, Population group, Subject headings, Title, Title comment

1. physical activity.mp
2. Exercise.mp
3. walk*.mp
4. yoga.mp
5. danc*.mp
6. cycling.mp
7. swim*.mp
8. tai chi.mp
9. gym.mp
10. activities daily living.mp
11. 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10
12. Qualitative.mp
13. mixed method*.mp
14. meta-synthesis.mp
15. review*.mp
16. interview*.mp
17. focus group*.mp
18. survey.mp
19. 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18
20. acceptab*.mp
21. feasibility.mp
22. perception*.mp
23. belief*.mp
24. experience.mp
25. attitude.mp
26. barrier*.mp
27. motivat*.mp
28. 20 OR 21 OR 22 OR 23 OR 24 OR 25 OR 26 OR 27
29. older adult*.mp
30. senior*.mp
31. ag\$ing.mp
32. geriatric.mp
33. elder*.mp
34. retire*.mp
35. 30 OR 31 OR 32 OR 33 OR 34
36. 11 AND 19 AND 28 AND 35
37. Remove duplicates from 36

**MetaSynthesis: Acceptability of Physical Activity in Older Adult Population:
Screening of Full Text**

ID no of paper is provided and matches title of full text pdf.

Answer all inclusion/exclusion criteria : (Y = Yes; N= No) – if unsure put ? and it will be discussed

If the study does **not** meet all the inclusion criteria, please put the reason for its exclusion in the last column, based on the codes below. If there is more than one reason please put each code separated by a forward slash e.g. AGE/RES

*Reason for exclusion at full text	Reason Code
Language: Full text not available in English	LANG
Age: Study includes participants under 65 years old	AGE
Residence: Includes inpatient/assisted living/care home participants	RES
Methodology: No open ended qualitative methods included	METH
Not PA: The study is not about physical activity	NOTPA

If the study does meet all the inclusion criteria, it then needs a category code entering in the second to last column to determine which category the study fits in (e.g. SR if it's about a stroke rehab intervention).

**Category Identification when meets inclusion criteria	Identification Code
PA intervention included	INT
No Intervention	NOINT
Stroke Rehabilitation	SR
Hip Rehabilitation	HR
General Physiotherapy/Rehab	GENP
Heart Disease management	HD
Diabetes management	DIA
Alzheimer's management	ALZ

ID No.	Is the study in English?	Are ALL participants ≥65 yrs old?	Do all participants live in community/independent living?	Is there an open ended qualitative component reported in the results?	Do study aims or findings refer to Physical Activity?	Category Code if meets all criteria.	Reason for Exclusion Code

Data Extraction Form

Study ID				
Author(s) & Year				
Source				
Volume(Edition), Pages				
Title				
Date of Extraction				
Reviewed by				
Study Details	Location/Setting			
	Research Question/ Aims of study			
	Theoretical Framework			
Participant Details	Population			
	Sample Size			
	Age			
	Gender			
	Ethnicity			
	Inclusion Criteria			
	Exclusion Criteria			
	Health Status			
	Recruitment/Sampling Method			
Data Collection	Method			
	Collected by			
Data Analysis	Method			
Summary of Themes:	Main Theme: <i>Sub Theme(s)</i>			
Extracted Data (Findings/Results):				
Author Conclusions				
Reviewer Comments				
Actions				
Quality Appraisal:	CASP Questions:	Yes	Can't Tell	No
	Clear statement of the aims?			
	Is qualitative methodology appropriate?			
	Appropriate research design?			
	Appropriate recruitment strategy?			
	Appropriate data collection?			
	Researcher/Participant relationship considered?			
	Ethical issues considered?			
	Data analysis sufficiently rigorous?			
	Clear statement of findings?			
	Value of Research			

Coding Manual for Meta-Synthesis on Older Adults' Acceptability of Physical Activity			Indicator/Restrictions	
Theme Label	Sub-Theme Label	No. Definition		
Attitude towards Physical Activity	Self-Perception	1a Perception of own physical activity levels and mention of own attitude towards physical activity;	<p>Examples</p> <p>"Tasks of daily living were frequently thought to be sufficient activity to gain physical activity benefits. People who saw themselves as "doing well for their age" often felt they were "active enough." (Study 7)</p> <p>"I'm not really a morning person, but I have found that this [the programme] has really got me going in the morning. I mean normally I make a cup of tea, get the paper, sit and read it from cover to cover and put off doing anything as long as possible. Now I race around, eager to get here." (Participant, Study 8)</p> <p>"I tend to procrastinate quite a bit, and I need something to push me." (Female participant, Study 6)</p>	Only code aspects of self which participants relate to them engaging (or not) in physical activity
	Expectations	1b Expectations of ability to perform PA; Outcome expectations of PA (high/low/none); Expectations of Self and Others about OAs and PA	<p>"I wasn't too sure how the legs would stand up to it." (72 year old male participant, Study 3)</p> <p>"We feel we are deteriorating and it would be kind of nice if we could slow that process a little bit."</p> <p>"...also [I doubted] whether it [resistance training] would be any good to me at my age" (69 year old female participant, Study 3) (Participant, Study 11)</p> <p>"I think that older people should exercise." (Participant, Study 11)</p> <p>"...my wife was delighted as she felt that I wasn't getting enough exercise anyway." (75 year old male participant, Study 4)</p>	Code references to high and low expectations of own ability to perform PA as well as any outcome expectations of PA and expectations surrounding older adults and PA in general
	Fears	1c Fear of causing harm to self through own lack of knowledge or apparent lack of knowledge of professionals;	<p>"I only go so far. I wonder what's next and have doubts if it is the correct form." (Participant, Study 1)</p> <p>"I really feel that I really want some supervised exercise so I'm not going to be doing some things that are bad for me." (Participant, Study 11)</p> <p>"You know, I'll keep on - because I know how to do it... they didn't have gyms when I was at university... But we've learnt to use them and we're not so scared!" (Female participant, Study 2)</p> <p>"A few people, especially those over age 80, were afraid to push themselves for fear of negative consequences." (Study 7)</p>	Code references to fears that participants hold around physical activity but also fears removed through knowledge or experience of physical activity

Theme Label	Sub-Theme Label	No.	Definition	Examples	Indicator/Restrictions
	Priorities	1d	High and low priorities of physical activity as well as reasons for these; Competing priorities, e.g. reference to lack of time, family/work commitments	<p>"I want to stay independent as long as I possibly can. That's the main reason for staying fit." (80 year old male participant, Study 7)</p> <p>"It seemed to me too much time considering that I live alone and I have a house and yard to take care of." (Participant, Study 11)</p> <p>"The thing is that we are grandmothers, and if your daughter has to do something, there goes grandma to take care of the children, or if she is sick or has to cook, and so you place a higher priority on being a grandmother..." (female participant, Study 5)</p> <p>"I think at this age you have to make time for yourself and it's better for you if you can... I had my family commitments... I think I really sort of feel I'm on the way, I do have to make that a priority." (Participant, Study 13)</p>	
	Passivity	1e	Passive attitude towards engaging in physical activity	<p>"I signed up because you were here and we talked about it. I think if I had gotten bulletin in the mail I may not have signed up." (Participant, Study 9)</p> <p>"We haven't quite known how to go about it, we haven't sought guidance, this [program] has given guidance of what to do, how to do it, and all the detail, and provided us with the facility." (Male participant, Study 2)</p>	
Understanding Older Adults' Needs	Knowledge/Attitude of Trainer/Provider	2a	Reference to or examples of physical activity staff (or provider of physical activity sessions) knowledge of older adults' needs in relation to learning styles, support needs, fears/doubts; Reference to or examples of attitude of physical activity staff (or provider of physical activity sessions) towards older adults	<p>"Every time we met, I went away and tried harder, and I didn't feel like there was any pressure to do that at all. I felt their attitude, their demeanor was such that you wanted to do a lot of the things they suggested." (Male participant, Study 6)</p> <p>"...because they didn't make you feel bad if you couldn't get up as high as maybe you were programmed for and they were just very helpful and led you on the whole way." (Female participant, Study 12)</p> <p>"The use of intensive tuition and one-on-one support during the first weeks of the programme enabled staff to provide reassurance and help participants build both confidence and physical competence to cope with the exercise loading." (Study 14)</p>	Code references to knowledge or attitude given by participants, evidenced by quotes from trainers/providers themselves or inferred by study authors
	One to One Attention	2b	One-to-one attention of physical activity staff or provider of physical activity sessions to include individually relevant information in order to dispel doubts/fears and build self-confidence and self-efficacy		

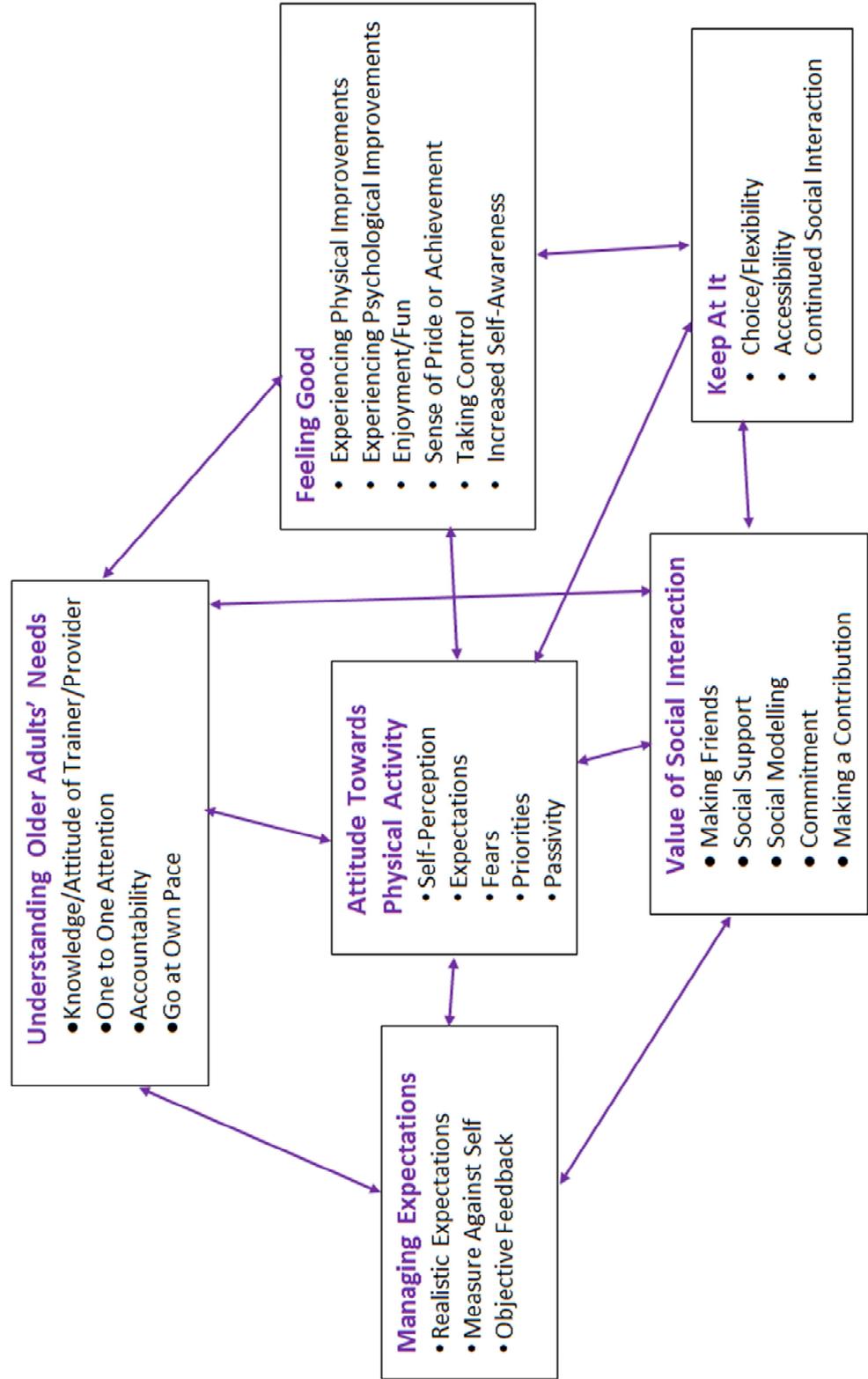
Theme Label	Sub-Theme Label	No.	Definition	Examples	Indicator/Inferctions
	Accountability	2c	Mention of activity logs or calls/check ins by staff/providers	<p>"I think maybe the logs are the least pleasant, but maybe the most important thing. I know somebody who dropped and said they hated doing those logs. But when you had a few empty days, you realized you were slacking off." (Male participant, Study 6)</p> <p>"But you didn't feel they were going to check up on you." (Male participant, Study 6)</p> <p>"...you were getting really too notch equipment and advice... and really, really careful concern about your own abilities and not overdoing things." (Female participant, Study 13)</p> <p>"They were very careful not to overstretch us, certainly at the beginning. Everything was on the basis of 'don't do more than you feel you can do'. Then gradually, they increased the pressure on us to do more and feel that we could go on until we felt that's enough. So gradually we were building up the strength to lift, to pull and to push more." (87 year old male participant, Study 14)</p>	<p>Only code accountability re own levels of physical activity rather than attending session (see Commitment)</p>
	Go at Own Pace	2d	Suitable pace set for individual participants with gradual increases to build self-efficacy and the knowledge that they were in charge of how hard they worked within their limits	<p>"The results are more than I expected...I've got a lot more power in my thighs than I ever thought was possible." (65 year old female participant, Study 3)</p> <p>"By understanding the programme approach and rationale, participants confidence increased even when they experienced muscle soreness. This combination of understanding and success ensured that discomfort - a known barrier to continued physical activity - was overcome." (Study 14)</p> <p>"...this [resistance training] is a good thing to do and it has been proven useful to do even when you hit 68 you can still sort of, not necessarily become Superman, but try and maintain some of your function." (68 year old male participant, Study 2)</p>	<p>Code references to expectations with reference to experience of physical activity - either within this intervention or previously. Also code unrealistic expectations in reference to the intervention itself (as opposed to due to lack of knowledge prior to the programme)</p>
Managing Expectations & Fears	Realistic Expectations	3a	Reference to actuality of own abilities e.g. surprise at surpassing own unrealistically negative expectations; Reference to setting realistic expectations on own or with staff input	<p>"I never used to walk anywhere and now I walk at least an hour everyday." (74 year old female participant, Study 4)</p> <p>"Physically he had pain and posture problems but was still reasonably strong. The other men in the class constantly compared themselves to him and wanted to perform as well as, if not better, than he did. They openly admitted his competitiveness [1]...for the men in this group, friendly competition provided one course of motivation to excel at strength training." (Study 12)</p>	<p>Only code references related to physical activity not other factors such as health or resources; Also code instances of measuring against others (disconfirming cases)</p>
	Measure against self	3b	Older adults measuring their own progress, whether objectively or subjectively		

Theme Label	Sub-Theme Label	No.	Definition	Examples	Indicator/Restrictions
	Objective Feedback	3c	Factual feedback obtained regarding decline/improvement in measures of physical activity or health.	<p>"We saw it [improvement] in black and white, besides feeling better." (81 year old female, Study 12)</p> <p>"I used to have severe pain in my back and knees. I had to take pain medicines, mainly Tylenol almost everyday, now I am not taking the medications much." (Participant, Study 10)</p>	Code any reference to factual feedback participants had experienced (e.g. amount of weight lifted, blood pressure, change in medication dose/use)
Value of Social Interaction	Making Friends	4a	Actual instances of meeting new people and making friends or hope or potential of meeting new people/making friends/widening social circle	<p>"Because of this class, I have more friends now, we meet even if we do not have the class." (Participant, Study 10)</p> <p>"I think it makes you feel as though you're part of the world." (Female participant, Study 2)</p> <p>"This group allowed me to get together with people of my own age." (Participant, Study 5)</p>	Code instances of friendships or social connections beyond the context of the physical activity sessions
	Social Support	4b	Reference to presence of peers going through same experiences and supporting each other; Provision of support to carry out activity either provided within intervention (peers/staff) or externally (family, friends, health professionals);	<p>"Not only were group members supportive of her using a chair in class, but a couple other participants followed her lead and kept a chair in front of them to hold onto or sit if they had chronic medical conditions causing them pain from standing or from performing the movements during class." (Study 1)</p> <p>"My husband kind of asked me to go along with him." (Female participant, Study 11)</p>	Code references to any aspect of social support (instrumental, informational, emotional, appraisal) within the context of the physical activity sessions, whether provided by peers or staff
	Social Modelling	4c	Peers or respected others as role models to becoming or remaining physically active; Reference to seeing relevant others perform activity and participants wanting to engage because of this	<p>"Marylen Mann mentioned that she took the course and that's what gave me the first incentive." (Participant, Study 9 referring to founder Older Adult Service and Information System)</p> <p>"...those who wanted to get involved comment on individuals they knew who had commenced training. [...] I have seen [other participant] at the bowls club. He is very mobile for his age." (Study 8 & Participant, Study 8)</p>	Code both negative and positive instances where seeing someone performing an activity in person or via media has encouraged/discouraged older adults from engaging with that activity themselves
	Commitment	4d	Feeling of obligation or commitment to a group which acts as a motivator	<p>"...there's really only two things that motivate me and one is fear and one is obligation and I don't fear much at this old age so only obligation will get me moving and that's why I joined this [exercise program]." (Participant, Study 13)</p> <p>"A group does help. It gives you more incentive to go and do it." (Participant, Study 9)</p>	Don't code feeling the need to log activity or check in with provider - this is covered by Accountability

Theme Label	Sub-Theme Label	No.	Definition	Examples	Indicator/Restrictions
	Making a Contribution	4e	Altruistic actions either making a contribution towards research, giving back to society, or helping peers	<p>"What we decided was that this was obviously putting something back into medical science. And we have had quite a bit out of it over our years so it was a means of putting something back in." (73 year old male participant, Study 14)</p> <p>"What I learn from this class, I would like to share with my friends who are not able to come to this class." (Participant, Study 10)</p>	
Feeling Good	Experiencing physical improvements	5a	Reference to perception of increased physical ability or decreased physical disability	<p>"I feel stronger in both my hands and legs." (Participant, Study 10)</p> <p>"I've got arthritis in my left foot. It always gave me trouble. Since I've been going to the gym, it's definitely helped me by strengthening my leg up." (75 year old male participant, Study 4)</p> <p>"Since we started this [resistance training program 4 weeks ago]... I've changed a few things around and done a few things more than I would normally do [around the house]." (Male participant, Study 3)</p>	Code instances of perceived improvements (or decline) both in execution of scheduled physical activities and in activities of daily living/leisure pursuits
	Experiencing psychological benefits	5b	Reference to perception of improved mood, lessened anxiety, feeling better	<p>"I am not anxious now, I feel more relaxed, I feel light. My daughter also told me that she thinks I am more happy these days." (Participant, Study 10)</p> <p>"I'm more contented with my own self. (I) I'm not a failure." (73 year old male participant, Study 4)</p>	Code instances of perceived improvements (or decline) both during scheduled physical activities and in daily life
	Enjoyment/Fun	5c	Enjoyment of physical activity itself and having fun during the physical activity sessions Enjoyment of outcomes of physical activity	<p>"...just the physical activity itself [makes it enjoyable]" (female participant, Study 2)</p> <p>"And so I do some exercise, but it's a chore really, I don't find... I particularly want to do it." (Participant, Study 13)</p> <p>"I did a fair bit of gardening yesterday and, it was just a pleasure to [go] up and down, up and down... Makes such a difference when you've got energy." (female participant, Study 3)</p>	Code positive and negative cases
	Sense of Pride or Achievement	5d	Feeling of having achieved a goal or engaged in a worthwhile activity	<p>"And I feel good that I'm doing it... psychologically I feel, you know, "aren't I good to be doing this." (Female participant, Study 2)</p> <p>"Certainly, there was a sense of improved sense of well-being from the fact that I can still [sit] and after you do it each day and for the rest of the week you felt like you were in the program and you felt like 'Look what I'm doing!'" (74 year old male participant, Study 12)</p>	Code references to pride in performing a task as well as a sense of achievement for completing it or experiencing improvements/meeting goals

Theme Label	Sub-Theme Label	No.	Definition	Examples	Indicator/Restrictions
	Taking Control	5e	Feeling of being more in control of own health outcomes	<p>"Well, I suppose the main thing is that I've been able to take control of my own health and change it. And do something to bring about positive change... [] It also means that later on I may not need surgery or drugs..." (Female participant, Study 2)</p> <p>"I just feel I'm in charge of my body. Perhaps before, my body was in charge of me" (74 year old female participant, Study 14)</p> <p>"It didn't dawn on me at first, but I'd had so much struggling to get out of bed [in the initial 6 weeks of training] and then I just suddenly thought, "Oh, I can just spring out of bed!" [laughed]." (71 year old female participant, Study 3)</p> <p>"Because I felt that I discovered my core and I was centred and it somehow helped me centre myself a bit psychologically as well. But it certainly made me very conscious of where I was and where my body was in connection to the environment." (Female participant, Study 13)</p> <p>"I am more in touch with myself" (Participant, Study 10)</p>	
Key at it	Choice/Flexibility	6a	A flexible service provided so that older adults have a choice of times, activities, locations, durations or anything else which makes it easier for them to engage and continue with physical activity	<p>"One couple cited the early morning time of the class as a barrier. "Because of the increased time we need to get ready in the morning with foot care, diabetes routine, and compression hose, it takes 2 to 2½ hours to get anywhere..." (Study 9 & Participant, Study 9)</p> <p>"...and if we wanted to exchange for a period and come at an earlier hour or later hour, they allowed us to do that." (72 year old female participant, Study 12)</p> <p>"And I think it's awful nice... because I don't have any money and she told me that there would be no charge. Anybody would take that offer." (Participant, Study 11)</p> <p>"They said it would be easier for them to continue the exercise classes if the same or a new programme was delivered in the same setting." (Study 14)</p>	Code any OA experiences of having a choices or not and the impact this has on their engagement with physical activity
	Accessibility	6b	Locally available suitable low cost activities; Instrumental/Informational social support, e.g. discounts, transport, new activities in the area	<p>"I have joined the gym in my own right. It is a bit lonely, last week I was on my own but it is good because it continues this terrific strengthening for my legs that came from the programme. I do not enjoy it, and I do not feel good after it for some reason or other, always have that feeling low. [] When you go to big place all by yourself, it is a bit miserable." (74 year old female participant, Study 14)</p>	Code any references to factors which participants mention as helpful to accessing PA during/after intervention
	Need Continued Social Interaction	6c	Continued group identity/interaction More opportunities for social contact beyond the activity itself;		

Descriptive themes (with sub-themes) and the interplay between them



Meta Synthesis Third Analytical Themes
All studies with examples

Study 1 Beaudreault (2006) (65-68) Tai Chi (Low)	<p>Engagement is Key The social aspect of the group, although rarely mentioned during the focus group, was observed as an important variable (e.g., socializing before and after class).</p>	<p>The Role of Perceived Value Why did you join the group? Have you taken or heard of tai chi before? <ul style="list-style-type: none"> Exposed to tai chi (e.g., friend, on TV, in park; n = 5) To improve balance, strength, coordination or decrease pain (n = 4) To exercise or complement a regular exercise program (n = 3) Convenient time and location (n = 2) What would affect an older adults' decision to stay in or drop out of an exercise class, including this one? <ul style="list-style-type: none"> Taught at level appropriate for the older adults' needs (e.g., cognitive, physical, sensory; n = 4) Interest and motivation in improving self (n = 2) Paying in advance for sessions would increase motivation and attendance (n = 3) </p>	<p>Experiences Affects Value and Enjoyment Dropouts did not appear particularly motivated even during the first session, and were observed as less interactive compared with other group members.</p>	<p>Delivery is as Important as Content Generally speaking, the instructor and participants cited the relatively small size of the group as ideal for learning tai chi. Many participants commented that they felt particularly comfortable with the instructor, who was also an older adult, because she understood the participants' needs to have new movements presented in smaller segments with repetition (e.g., "her repeating is good."). Many participants expressed frustration in trying to practice at home because of an inability to remember the moves (e.g., "I only go so far, I wonder what's next and have doubts if it is the correct form."). Although the instructor was concerned that home aids such as audiocassette, videotape, or handouts would increase likelihood of reinforcing incorrect form or posture when practicing outside of class, participants were unanimous in requesting something to aid them during practice.</p>
<p>Study 2 Diong'i & Cannon (2007) (65-72) RT (High)</p>	<p>During a tour of the gym, the author overheard one of the participants murmur in dismay, "It looks like a torture chamber!" She was referring to all the unfamiliar white exercise machines that were lined up around the room. During the programme: "I'm enjoying it ... I think it makes you feel as though you're part of the world... You get out of the house."</p>	<p>"Talking Control." Furthermore, like many of the participants, Sophie viewed regular participation in resistance training as one way of "taking control" of her life, maintaining her independence, and preventing future "health problems". "Well, I suppose the main thing is that I've been able to take control of my own health and change it. And do something to bring about positive change ... not only can I do it, but it's my responsibility ... first to maintain optimum health ... so that I can keep doing what I want to do ... keep going. Keep on my feet... It's good insurance ... it's taking responsibility for my health and for my future well-being ... It also means that later on I may not need surgery or drugs. I want to be as drug free as possible; I want to die healthy! That'll be my goal and this [resistance training] contributes to that."</p>	<p>The improved strength and stability that Sophie felt in her legs increased her perceived endurance and confidence levels when going for her routine (i.e., four times per week) 45-min walk. Sophie even noticed a difference in her gardening: "I did a fair bit of gardening yesterday and, it was just a pleasure to, up and down, up and down ... to have the energy to do it." Likewise, Donna, 71, said, "Well I just feel stronger. And I must say, golf has improved, my golf swing. I and I don't get so tired ... because I play so much golf I can hit the ball better that he could ride his bike a lot easier." Yeah, I got an old geared bike, coming up the hills, I'm up one gear to what I used to be, so ... it's got to come from this [resistance training]."</p>	<p>The preceding quotation emphasizes the importance the participants placed on the ongoing verbal encouragement and support given by the students, because without that Barbara believes she would not have the ability and motivation to do the exercises. The author observed and heard the students motivating their participant via proximity and verbal persuasion. For instance, a student crouched down beside his participant (who was pumping her legs up and down on the leg press with intense effort) and exclaimed, "Come on, you're doing great, just three more reps. You can do it!"</p>
<p>Study 3 Diong'i & Cannon (2009) (65-72) RT (High)</p>	<p>Before the program, Barbara, age 69 years, said, "Physically I'm reasonably fit and health-wise I'm very well" and "also [I doubted] whether it [resistance training] would be any good to me at my age."</p>	<p>After 12 weeks of training, Sophie reflected on the physical changes she felt over time: "In the beginning I was still having spells of feeling really tired and, even though physically I could feel my muscles responding ... But now I'm, I don't know whether it's the exercise, but I feel very fit. And plenty of energy. Like yesterday I had a very full day, physically, and I'll tell you I went for a walk and walked for 50 minutes [and] didn't feel the effects of it at all. Yeah, and walked fast ... a rapid step out."</p>	<p>Delivery is as Important as Content Generally speaking, the instructor and participants cited the relatively small size of the group as ideal for learning tai chi. Many participants commented that they felt particularly comfortable with the instructor, who was also an older adult, because she understood the participants' needs to have new movements presented in smaller segments with repetition (e.g., "her repeating is good."). Many participants expressed frustration in trying to practice at home because of an inability to remember the moves (e.g., "I only go so far, I wonder what's next and have doubts if it is the correct form."). Although the instructor was concerned that home aids such as audiocassette, videotape, or handouts would increase likelihood of reinforcing incorrect form or posture when practicing outside of class, participants were unanimous in requesting something to aid them during practice.</p>	<p>Delivery is as Important as Content Generally speaking, the instructor and participants cited the relatively small size of the group as ideal for learning tai chi. Many participants commented that they felt particularly comfortable with the instructor, who was also an older adult, because she understood the participants' needs to have new movements presented in smaller segments with repetition (e.g., "her repeating is good."). Many participants expressed frustration in trying to practice at home because of an inability to remember the moves (e.g., "I only go so far, I wonder what's next and have doubts if it is the correct form."). Although the instructor was concerned that home aids such as audiocassette, videotape, or handouts would increase likelihood of reinforcing incorrect form or posture when practicing outside of class, participants were unanimous in requesting something to aid them during practice.</p>

Meta Synthesis Final Analytical Themes
All studies with examples

Study	Employment is Key	The Role of Perceived Value	Experience Affects Value and Enjoyment	Delivery is as Important as Content
<p>Study 4 Fox, Smith, McKeena & Davis (2007) (70+)</p> <p>Aerobic, ST, Tai Chi & Flexibility (High)</p>	<p>Several participants described the home-based programme as boring and providing little motivation. In contrast, the exercise group setting offered a friendly and supportive environment with opportunities for socialisation.</p> <p>"Definitely the class was better because of the other people there as well." (Mary, 71)</p>	<p>The exercise classes were used by some participants as a way to escape falling into lethargic routines.</p> <p>"I'm sure if I stayed here, and didn't take any exercise, my mental state would be very poor. But going about, doing that, and having the incentive to go out every day, is good for the mental thing." (Susan, 74)</p>	<p>For some this was expressed in a sense of increased energy and motivation in other aspects of their lives.</p> <p>"Now I've got to the stage, where if I don't go out, I don't feel right - which for me is amazing. Before, weekends were just spent working and catching up on sleep I hadn't had in the week, from getting up at 4.45. Friday afternoon, would come in and shut the door, and wouldn't go out till Monday morning. Now if I don't go out in the weekend I feel weird." (Susan, 74)</p>	<p>Participants commented on the knowledge, the patience and the enthusiasm of both the researchers and the class leaders. They praised the support they received especially during the first sessions, which they felt was the most difficult time for them.</p> <p>"We have had good people teaching this. They had a super team and there isn't one of them who has not been nice to us you know and they're great, all of them have been super. It all helps doesn't it? If you get someone - an instructor - someone who you didn't like, he was bit nasty, you wouldn't want to come would you. When they are all so nice and welcoming they bring out the best in you, hopefully." (Mary, p. 71)</p>
<p>Study 5</p> <p>Gammenda, Dangour, Abala, Equiguen, Allen & Uary (2013) (65-67.9) Progressive Resistance Class (Medium/ High)</p>	<p>The analysis revealed two main facilitating factors for adherence to PA: the health benefits attributed to the intervention and the social interaction the participants enjoyed with the instructor and other class members. All older adults who adhered to the intervention highlighted these aspects.</p>	<p>"The thing is that we are grandmothers, and if your daughter has to do something, there goes grandma to take care of the children, or if she is sick or has to cook, and so you place a higher priority on being a grandmother, that's what I think." (OA)</p> <p>"Working, especially among men."</p> <p>"Because I'm also working, but I'm not always working. I only work when the catering company calls me, ... you know, to supplement my pension" (OA).</p>	<p>"What did it do for me? It gave me energy and health, that's how I would sum it up." (OA)</p> <p>"It impacted my physical condition, it made me work body parts that hadn't moved in a while, so I felt better physically in general. The mental part was also important, meeting others from my neighborhood that I hadn't had the chance to meet before" (OA).</p>	<p>Both male and female participants noted personal attention by CHAMPS staff to be one of the most helpful features of the program. Specific aspects of personal attention seen as helpful were receiving one-on-one contact from staff, getting positive feedback, and the use of a supportive and nonpressuring approach. One man had the following to say about his contact with CHAMPS it counsellors:</p> <p>"Every time we met, I went away and tried harder, and I didn't feel like there was any pressure to do that at all. I felt their attitude, their demeanor was such that you wanted to do a lot of the thing they suggested. But you didn't feel they were going to check up on you."</p>
<p>Study 6 Gilks, Grossman, McMillan, King & Stewart (2002) (67-82) CHAMPS II (Medium)</p>	<p>A frequent suggestion from women involved having more opportunity for group participation. Women wanted help in making social connections with other participants, such as having more staff assistance in creating a buddy system. Men suggested expanding opportunities for measurement so participants could measure individual progress and compare themselves with others in similar age ranges. Other men wanted help in finding ways to make exercise more fun and enjoyable.</p>	<p>Women reported joining CHAMPS II because of a desire for improved health and physical functioning. Social support from family, friends ("several of my friends were joining"), and health professionals ("I joined because of my doctor") was also important for women. The desire for motivation and structure that could be provided by a program or a group was reflected in one woman's quote: "If you do it on your own, it's a little bit harder to be consistent." Another woman said:</p> <p>"I tend to procrastinate quite a bit, and I need something to push me. I thought this would help me to do some of the things I knew I should do and wouldn't, unless someone came along to push me along the way."</p>	<p>Exercise education, part of numerous components of the program such as the initial planning session, workshops, and the newsletter, was also seen as very helpful by both groups. An example of how simple physical activity information was helpful is illustrated by the following quote from a male focus-group member: "The best thing I got out of the program was the advice that you didn't have to work hard at your exercise, that you should do it gradually."</p>	<p>People over 80 wanted to walk close to their homes, and poor sidewalks presented a problem for them. Roots, curbs, overgrown shrubs, and dog leashes were of concern, especially for those with impaired eyesight.</p>
<p>Study 7 Grossman & Stewart (2003) (75+) CHAMPS II (Medium)</p>	<p>Lack of Time. "The days are shorter because it takes longer to do things." 85-year-old men. Lack of time was a problem for about one half of those interviewed. Closely related to lack of time was procrastination and placing priority on other obligations, especially housework and chores, which some participants saw as more "productive". According to one 79-year-old man, "I try to exercise for a few days, and then the first thing you know I'm out in the garage, fixing something."</p>	<p>According to a 79-year-old woman, "Any activity will lift you out of depression, and the more you move the better you feel."</p>		

Study	Engagement is Key	The Role of Perceived Value	Experience Affects Value and Enjoyment	Delivery is as Important as Content
<p>Study 8 Hemwood, Tucker, Edelstein & Barnett (2011) (65-81) Resistance Training [High]</p>	<p>The interaction with individuals of a similar age was highlighted as more important than the social wellbeing achieved during such interaction. This suggests that participants felt an increased sense of security among people of a similar age but did not necessarily sense this had specific benefit besides social contact</p>	<p>This resistance to negative functional change was a common concept among the groups that had experienced training (G1, G2). The ability of resistance training to affect functional longevity was commented on in many ways, but best probably summed up by CD (G1) who said that "Some of the women in my family have lived till their early nineties. In that case, unless I get run over by a bus, I'm back to live to 100. So it's terribly important that I look after myself so I don't become a burden to my children. I want to be as independent as possible."</p>	<p>Data analysis revealed that individuals were aware of a number of key benefits available from resistance and exercise training, and that they could link these to improved functional health. However, a number of established benefits did not receive specific mention, while others were only minimally reflected in contrast to their clinically recognised effects. Moreover, G1 (currently involved) and G2 (previously involved) displayed greater knowledge of the broad range of benefits than their interested in training but not previously trained counterparts (G3). When analysed by group, it appeared only G1 and G2 appreciated the social contact that was available during group training. In contrast, the mention of valued social contact through group-based resistance or exercise training was hardly raised by G3.</p>	<p>Those individuals who had previously trained (G2) declared the group and trainer benefits of exercise as important whilst those presently involved (G1) suggested the programme structure they had was an important consideration for their continued training.</p>
<p>Study 9 Mills-Brand (65+) ALED (Medium/High)</p>	<p>Desire for social engagement was a reason for signing up for the ALED course. Representative comments included, "I thought it would be a chance to make some friends."</p>	<p>22 (87%) credited proactive recruitment strategies and 3 (12%) credited reactive recruitment strategies as the motivating factor. I signed up because you were here and we talked about it. I think that if I had gotten bulletins in the mail I may not have signed up.</p>	<p>One couple cited the early morning time of the class as a barrier, "because of the increased time we need to get ready in the morning with foot care, diabetes routine, and compression hose, it takes 2 to 2½ hours to get anywhere."</p>	<p>One couple cited the early morning time of the class as a barrier, "because of the increased time we need to get ready in the morning with foot care, diabetes routine, and compression hose, it takes 2 to 2½ hours to get anywhere."</p>
<p>Study 10 Patel, Alkhalifa, Espinoza & Chiodo (2011) (65-89) Yoga (Medium)</p>	<p>Participants expressed a desire to interact with other adults in their age group. Participants also expressed an interest in sharing their experience with others who might benefit from such a program as well. The expectation themes were broadly classified as to social other residents in the community, "I want to share this with my friends, who are not able to come to the class. Yoga makes me feel so good. I want them also to come to this class."</p>	<p>Physical Health <ul style="list-style-type: none"> "I joined as I have arthritis and I heard that yoga is good for arthritis." "Yoga helps to feel healthier." "I do not want to use the wheelchair. I want to improve my mobility." "To be able to move more and have more strength to do more things by myself, I want for my daughter to come and help me with my chores, if I get more strong by this exercise, I can do some things by myself" "I hope to reduce the number of medicines I take. I want to feel stronger and not take so much medicine." </p>	<p>Physical Health <ul style="list-style-type: none"> "I am walking more now, I am not afraid of falling or losing balance." "First when I started the class, after the class I would feel pain but at night when I start the rehab as we do in class, I could fall asleep and felt no pain, I did not need the pill." "I can move more now, before, I had a lot of pain in my right shoulder, could not move it. I used my other hand to move it, now I can move it without any problem." "First I thought I will not be able to do yoga, as I could not sit on the floor and could not get up, but now, I can easily sit on the floor on the mat and am able to get up on my own without any help." "I used to have severe pain in my back and knees, I had to take pain medications, mainly Tylenol almost everyday, now I am not taking the medications much, I do not have pain. I feel taller" "I feel my balance is better, I am not falling as much as I used to before" "I have better grip and balance of myself now." "I feel stronger in both my hands and legs." </p>	<p>"We want more help with how to practice at home what we do in class so that we can practice every day."</p>

	Delivery is as Important as Content Free Services referred to tests, training, transportation, which were provided at no cost: "And I think it's awful nice... because I don't have any money and she told me that there would be no charge. Anybody would take that offer." "The fact that you offer transportation is a great boon because, although I have confidence in my driving ability, I have no car. I didn't feel I could afford that..."	Experience Affects Value and Enjoyment	The Role of Perceived Value Satisfaction with Health Status referred to the belief that respondents' current health status was adequate and they did not need to participate in the exercise program to improve their health. "...but I am in very good condition." "And then I decided, since I'm in fairly good health, I'm 85 years old, really, I don't know what they could find out. Really, because I must have been doing something right or I wouldn't be in such good health."	Perceived physical competence is developed from successful mastery experiences with exercise. Positive mastery experiences may facilitate increases in personal efficacy that, in turn, promotes continued exercise. In regard to this source of motivation, the focus group participants identified tangible gains in their ability to carry out daily routines in addition to being able to lift more weight over time in the exercise intervention. An 80-year-old man described his increase in physical strength as follows: "I've got two sets of chairs up at the lake, one made out of oak and one of them made out of something else that is very light, and for years I have looked at those oak chairs like 'lured, I hate to move those them out on the porch.' And now I go out there and pick up the chairs and move them out on the porch."	Confidence in the design and instruction was key to women being able to more beyond their fear and into action. One woman stated: "... One of the things that interested me was that it was professionally run because there are so many people that it seems everyone is a fitness instructor nowadays. And I'm not a big joner. And I like to do things with people who know what they're doing."
Employment is Key Socialization referred to a desire to meet people. Respondents reported: "And that's another thing, you know, I might be able to meet some people I would really enjoy." "I think another thing that I will get out of it is more contact with humanity. I happen to live alone and I know not too many of my neighbours."	Social reinforcement, including the attitudes of family, significant others, peers, and health professionals, has been shown to be highly significant to exercise adherence. Social reinforcement for exercise occurs as verbal praise and feedback, attention, interaction, and social support from others. Within the domain of social reinforcement, exercise leadership appears to be the single most important variable affecting exercise adherence. Responses of the focus group participants indicated a highly positive attitude toward the program's exercise leadership. Many of the participants perceived the exercise leaders as being more important to the program than the strength training equipment. The following example of one woman's evaluation of the exercise leadership highlights the importance of leadership for a successful intervention with this group: "I want to give more praise to the three young ladies here who helped us because they didn't make us feel bad if you couldn't get up as high as maybe you were programmed for and they were just very helpful and led you on the whole way."	However, many women expressed that they were not as active as in the past or that their activity patterns have changed in response to health conditions. Their choice to join an exercise program was in response to the perception that it would have physical benefits and it would be safe and potentially enjoyable. Conversely, a few women noted that their inactivity, or lack of experience with exercise, was the impetus for joining an exercise program. Donk stated, with several accompanying nods and smiles in the room: "I find it hard to fit in physical activity. I don't like not to do any, because I value my health and I want to stay healthy and I don't want to turn into a blob, especially a really fat blob. And so I do some exercise, but it's a chore really, I don't find... I particularly want to do it."	Employment of activity is one of the two principal reasons, along with health benefits, that older adults participate in exercise. Whereas initial involvement is usually motivated by a belief in health benefits, continued participation is more influenced by the enjoyment of this strength training experience, overall attendance rate among the intervention subjects was high; participants attended 95% of the exercise sessions over the 4-month period. According to the focus group members, another source of enjoyment associated with the strength training intervention was that they experienced not only physical but also more general feelings of improved well-being. A 74-year-old man expressed his enjoyment of the activity in the following way: "Certainly, there was a sense of improved sense of well-being from the fact that I can still lift and after you do it each day and for the rest of the week, you felt like you were in the program and you felt like, 'Look what I'm doing!'"	"I had retired and I didn't like it very much. It was quite an adjustment, I went into a deep depression, I was - I had a job where I saw people every day and just going from morning till night. I liked it as well. So I saw the ad and I thought, this is going to help me get - participate in this and I also had arthritis. So I thought, this will be great and also the fact that you may learn something for others"	
Study 11 Evraker, Schneider, Wehner & Bronder (2003) (78-95) Flexibility, Strength, Endurance Training (Medium)					
Study 12 Sharon, Hennessy, Brandon & Boyette (1997) (65+) Strength Training (High)					
Study 13 Sims-Gould, Miran-Moran, Haggis & Lu-Ambrose (2012) (65-75) RT or BAT (High)					

	Enjoyment is Key	The Role of Perceived Value	Experience Affects Value and Enjoyment	Delivery is as Important as Content
<p>Study 18 Stathis, Iviskova & Fox (2010) (70+) Aerobic, ST, Tai Chi & Flexibility (High)</p>	<p>I have joined the gym in my own right. It is a bit lonely, last week I was on my own but it is good because it continues this terrific strengthening of my legs that came from the programme. I do not enjoy it, and I do not feel good after it for some reason or other, I always have that feeling low. Do not know why, does not exhilarate me, maybe because when the instructor was there, I had someone to motivate me and other people around. When you go to big place all by yourself, it is a bit miserable. Still perseverer because it is good and keeps the old legs mobile. [Susan, 74]</p>	<p>Starting up Intrapersonal: previous experiences. Some participants had no intention of starting exercising until finding out about the local availability of a suitable programme. Others had realized that declining physical capacity was beginning to impact negatively on ordinary, every-day activities. Some participants identified the need for more discipline and structure in their day-to-day life and decided that participation in the programme would help them to resist the effects of their increasingly sedentary lifestyle: Well I think, as you get older it is very easy to just sit back and do nothing and well it's just the right thing to do, isn't it? (Mary, 71) Because unless I do something disciplined like that I shall be too lazy to do anything on my own. (Jim, 73)</p>	<p>Developing adherence Intrapersonal: meeting outcome expectations. Matching expectations with outcomes facilitated programme adherence. A key motivator was the inclusion of functional exercises. Participants—even those who did not specifically expect changes in their fitness levels and functional ability—soon noticed fitness improvements that were in some cases substantial in areas such as strength, flexibility and general mobility: I get out of bed easier. Hoovering is so easy, you just walk up and down much better. Because those were the movements that came into the exercise, the walking and the pushing' (Helen, 73).</p>	<p>Interpersonal: staged approach to confidence building. The appropriately paced programme was particularly important in the early stages when exercise was accompanied with some discomfort and delayed onset muscle soreness. By understanding the programme approach and rationale, participants' confidence increased even when they experienced muscle soreness. This combination of understanding and success ensured that discomfort—a known barrier to continued physical activity—was overcome: They were very careful not to overstretch us, certainly at the beginning. Everything was on the basis of 'don't do more than you feel you can do'. Then gradually, they increased the pressure on us to do more and feel that we should go on until we felt that's enough. So gradually, we were building up the strength to fit, to pull, and to push more. [scrit, 87]</p>



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ref: *ethics/14391*

21 January 2015

Dear Mrs Devereux-Fitzgerald

Research Ethics Committee 1

Devereux-Fitzgerald: Older Adults and Acceptability of Physical Activity (ref 14391)

I write to confirm that the amendments to your application satisfy the concerns of the Committee and that the above project therefore has ethical approval.

The general conditions remain as stated in the letter of 13th January.

Finally, I would be grateful if you could complete and return the attached form at the end of the project or by January 2016, whichever is earlier. When completing this form, please reference your project as:

'Devereux-Fitzgerald: Older Adults and Acceptability of Physical Activity' (ref 14391)

Yours sincerely

Afzal Ali
Acting secretary to University Research Ethics Committee 1

Older Adults and Acceptability of Physical Activity

Participant Information Sheet

You are being invited to take part in a research study about acceptability of physical activity for older adults. Before you decide whether you would like to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask us if there is anything that is not clear or if you would like more information before deciding whether or not you wish to take part. Thank you for reading this.

Who will conduct the research?

Angela Devereux-Fitzgerald, a 2nd year PhD student at the University of Manchester, supervised by Prof David French. Angela is also a Health Psychologist in training supervised by Dr Rachael Powell. Angela has enhanced DBS clearance.

What is the aim of the research?

This study aims to find out more about acceptability of physical activity for older adults. Physical activity includes all forms of activity where you move your body. It includes what you might think of as 'exercise', such as going to a fitness class or swimming but it also includes activities like gardening, dancing, walking or playing an active game with grandchildren. Many older adults are not active enough to enjoy the health benefits being moderately physically active can give them. We hope to find out what it is about different kinds of physical activity that does and doesn't appeal to you. The results from the interviews will be used to help us design a physical activity intervention which is more acceptable to older adults.

Why have I been chosen?

Adults aged 65 years old and over living in specific areas of the city of Manchester* are being invited to take part so that the views of older adults are taken into account when designing a physical activity intervention for them. *[Ancoats, Ardwick, Cheetham, Clayton, Bradford, Fallowfield, Gorton, Harpurhey, Hulme, Longsight, Miles Platting, Moss Side, Newton Heath, Rusholme, Sharston or Woodhouse Park].

Do I have to take part?

It is completely up to you to decide whether or not you would like to take part. If you do decide to take part you will be given this information sheet to keep and will be asked to sign a consent form. If you change your mind you are free to stop the interview at any time and do not need to give us a reason. If you decide to withdraw part way through the interview, we can either use the data up to that point if you are happy for us to do so, or you can ask for your data to be destroyed.

What would I be asked to do if I took part?

Angela will briefly ask you some questions over the phone (at a time convenient for you) or via email to see if you are eligible to take part. If you are eligible, an appointment will be made for you to take part in an interview with Angela. It is up to you where the interview takes place. It can either be in your own home or in a private room at the University, whichever you prefer. The questions will focus on your experience of physical activity and how you feel about it, as well as what might make it easier for you to be active, and some more general questions on acceptability. There are no right or wrong answers, we just want to hear your views. This will take around 45 minutes to an hour, but you can take as many breaks as you like and can stop at any time. The interviews will be audio-recorded so

Older Adults and Acceptability of Physical Activity

that Angela can accurately write up (transcribe) what you have said so that all the issues you raise can be looked at in more depth.

What are the possible benefits and/or disadvantages of taking part?

Although there are no immediate or direct benefits to yourself for taking part, you may find it helpful or interesting to talk about physical activity and your experience of it. Also your participation will help us to develop more acceptable physical activity interventions for older adults in the future. It is possible that you may find it distressing to talk about your experience of physical activity, especially if this has changed over time. If you get upset you can skip questions, take a break or decide not to continue with the interview. If you are very distressed, we will offer you some sources of support, such as calling a family member or friend, or referral to free counselling services. You will not be left alone in a very distressed state and if attending the University, a taxi home will be provided.

What happens to the data collected?

The interview will be transcribed and analysed to allow us to gain a better understanding of what older adults in the specified areas of Manchester think about physical activity and what can be done in their area to make it more acceptable and easier for them to be active. The data may be stored securely for secondary analysis. This means that it will be kept for use in future relevant studies.

How is confidentiality maintained?

Identifying personal details such as your name or address are not included on the audio recording or transcript, and won't be shared with anyone outside of the study. When we write up the study, we may use quotes from your interview but these will be carefully chosen so that no one would know that you took part in the study.

Will I be paid for participating in the research?

If you choose to be interviewed at the University rather than in your own home, then agreed travel costs will be reimbursed.

Will the outcomes of the research be published?

This research will be written up as part of Angela Devereux-Fitzgerald's PhD thesis and also written up for her training as a Health Psychologist. We will also write up the research for publication in a scientific journal.

Who has reviewed the research project?

The project has been reviewed by the University of Manchester Research Ethics Committee 1.

What if something goes wrong?

Should you wish to make a complaint about the conduct of the research in the first instance you should contact Prof David French by emailing: david.french@manchester.ac.uk. In the event that your complaint is not addressed at this level, it will be referred on to the Head of School, Prof Rachel Calam, or on to the Research Governance and Integrity Manager, Research Office, Christie Building, University of Manchester, Oxford Road, Manchester, M13 9PL, by emailing: Research.Complaints@manchester.ac.uk, or Tel: 0161 275 7583 or 275 8093.

Contact for further information

If you would like any further information, or you wish to withdraw from this study, please contact Angela Devereux-Fitzgerald, University of Manchester, School of Psychological Sciences, [Coupland 1 Building](#), [Coupland Street](#), Oxford Road, Manchester, M13 9PL, by emailing: Angela.devereux@manchester.ac.uk or Tel: 0161 275 2593

Older Adults and Acceptability of Physical Activity
Demographics & Screening Questions for Older Adults
 (To be completed by researcher in conversation with participant)

1. Gender: M / F

2. Age: _____

3. Ethnicity: _____

4. Residential area of Manchester: _____

5. Marital Status: (Circle Applicable)

Single	Married/Civil Partnership/ Cohabiting	Divorced/ Separated	Widowed
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6. Residential Status: (Circle Applicable)

Live alone	Live with Partner	Live with Other Relative(s)	Live in Care Home/Hospice/ Assisted Living
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Other _____ (state if not covered by above)

7. Current Employment status: (Circle Applicable)

Paid Full-time	Paid Part-time	Unpaid Full-time	Unpaid Part-time	Not working
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8. Former Employment: _____

9. Highest level of Education: _____

10. No. of children: _____

11. No. of grandchildren/great grandchildren: _____

12. Can you walk continuously for 10 minutes unassisted by another person (with or without mobility aids such as walking sticks/frames)?
 Yes No Usually

(If not presently, specify why?)

13. What would you say is your current physical activity level? (Tick all applicable depending on responses)

No physical activity	
Baseline physical activity (light only)	
Some moderate or vigorous PA but not meeting guidelines	
Meeting moderate or vigorous PA guidelines	
Meeting flexibility guidelines*	
Meeting strength guidelines	
Doing more than guidelines (note which e.g. MVPA, strength, flexibility)	

14. Do you feel at risk for falls? Y / N*

15. Does this stop you feeling able to be physically active?

16. Do you have family/friends who you see or are in contact with regularly?

See F&F regularly In contact with F&F regularly Have F&F but not in regular contact Do not have F&F

Other _____ (state if not covered by above)

17. Do you ever feel like you lack companionship?

Not at all Hardly ever Some of the time Often

18. Do you ever feel left out?

Not at all Hardly ever Some of the time Often

19. Do you ever feel isolated?

Not at all Hardly ever Some of the time Often

Interview Schedule Older Adults
Older Adults and Acceptability of Physical Activity

Opening:

So I'll be asking some questions about your experiences of physical activity and how you feel about it, what's acceptable to you and what's not. There are no right or wrong answers, I just want to hear your views. You can take a break at any time and you don't have to answer a question if you'd rather not. Is that okay?

1. Say you went to the doctors and your GP suggested that you increase your 'physical activity' levels, what would you think he or she was encouraging you to do?

2. How would you describe yourself in terms of physical activity levels?

(Explore in depth)

If active – what motivates you to be so active?

If not – what stops you from being more active?

If PA level lower than recommended: What would need to change for you to increase your level of physical activity?

3. How do you feel about physical activity?

(Prompt on different types of activity – dancing, walking, exercise classes, gardening)

If enjoy: What kinds of physical activity do (did) you enjoy/enjoy the most? *(If references made to previous enjoyment but not present enjoyment, probe further to find out what has changed to stop them enjoying it now – what could help them to enjoy it again).*

If don't enjoy PA: What is it about physical activity that you don't like? Get specific.

What **benefits** do you think being physically active has for you? **OR**

What benefits do you think there would be from being more physically active?

(Explore physical/cognitive protection and mental wellbeing, social interaction, functionality, family benefits)

Is there anything that would **worry** you about **increasing** your level of physical activity? What would **ease those worries**?

- 4. What is the range of activities like in your area? Are there any physical activities that you would like to do, but do not have access to?**
What would that be like, when, how many times a week, where? How would it be delivered? What would the trainer/leader be like? Who would you go with?
- 5. Do you have any inactive friends/family/neighbours? What do you think about their levels of activity? What do you think could help them to get active?**
- 6. How do you think physical activity has/can become an acceptable part of your everyday life?**
- 7. Are there any groups of people who you think would benefit from being more physically active? What do you think could be done to help them or motivate them to be more physically active?**
- 8. What makes it easier/harder for you personally to be physically active?**
- 9. Has any health professional ever suggested that you become more physically active?**
Yes: How did you feel about that? What was the effect? Why? What could they have done differently?
No: How would you feel if one did?
- 10. Is there anything else you would like to add?**

Participant Information Sheet

You are being invited to take part in a research study about acceptability of physical activity for older adults. Before you decide whether you would like to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask us if there is anything that is not clear or if you would like more information before deciding whether or not you wish to take part. Thank you for reading this.

Who will conduct the research?

Angela Devereux-Fitzgerald, a 2nd year PhD student at the University of Manchester, supervised by Prof David French. Angela is also a Health Psychologist in training supervised by Dr Rachael Powell. Angela has enhanced DBS clearance.

What is the aim of the research?

This study aims to find out more about acceptability of physical activity for older adults to inform design of subsequent interventions/services. We want to understand what aspects of physical activity programmes older adults seem to find more and less acceptable. We would like to know how your understanding of older adults' needs informs the structure and delivery of physical activity programmes and your experience of older adults engaging with these programmes.

Why have I been chosen?

We are interested in listening to the perspective of exercise professionals involved with older adults, providers who manage facilities where older adults engage in physical activities (e.g. local leisure centres) or volunteer leaders of programmes such as walking groups within specific areas of the city of Manchester [Ancoats, Ardwick, Cheetham, Clayton, Bradford, Fallowfield, Gorton, Harpurhey, Hulme, Longsight, Miles Platting, Moss Side, Newton Heath, Rusholme, Sharston or Woodhouse Park]. You have real life experience of older adults engaging with physical activity, some of whom stay on and some of whom drop out. We would like to find out your thoughts and experiences around this. How do you get older adults in your community to engage with the physical activities that you provide, or is there little to no demand in your area? What, if any, programmes would you ideally like to be able to provide?

Do I have to take part?

It is completely up to you to decide whether or not you would like to take part. If you do decide to take part you will be given this information sheet to keep and will be asked to sign a consent form. If you change your mind you are free to stop the interview at any time and do not need to give us a reason. If you decide to withdraw part way through the interview, we can either use the data up to that point if you are happy for us to do so, or you can ask for your data to be destroyed.

What would I be asked to do if I took part?

Angela will briefly ask you some questions over the phone (at a time convenient for you) or via email to see if you are eligible to take part. If you are eligible, an appointment will be made for you to take part in an interview with Angela. It is up to you where the interview takes place. It can either be in your place of work, your own home or in a private room at the University, whichever you prefer. The questions will aim to find out your experiences of supporting older adults in lower income areas of the city of Manchester to engage in physical activity. There are no right or wrong answers, we just want to hear your views. This will take around 45 minutes to an hour, but you can

Older Adults and Acceptability of Physical Activity

take as many breaks as you like and can stop at any time. The interviews will be audio-recorded so that Angela can accurately write up (transcribe) what you have said so that all the issues you raise can be looked at in more depth.

What happens to the data collected?

The interview will be transcribed and analysed to give more insight from a different perspective on older adults and the acceptability of physical activity. It will allow us to gain a better understanding of how older adults in lower income areas of the city of Manchester engage in physical activity and possibly what can be done to make it more acceptable and easier for them to be active. The data may be stored securely for secondary analysis. This means that it will be kept for use in future relevant studies.

How is confidentiality maintained?

Identifying personal details such as your name, address, place of work, are not included on the audio recording or transcript, and won't be shared with anyone outside of the study. When we write up the study, we may use quotes from your interview but these will be carefully chosen so that no one would know that you took part in the study.

Will I be paid for participating in the research?

If you choose to be interviewed at the University rather than in your own home or place of work, then agreed travel costs will be reimbursed.

Will the outcomes of the research be published?

This research will be written up as part of Angela Devereux-Fitzgerald's PhD thesis and also written up for her training as a Health Psychologist. We will also write up the research for publication in a scientific journal.

Who has reviewed the research project?

The project has been reviewed by the University of Manchester Research Ethics Committee 1.

What if something goes wrong?

Should you wish to make a complaint about the conduct of the research in the first instance you should contact Prof David French by emailing: david.french@manchester.ac.uk. In the event that your complaint is not addressed at this level, it will be referred on to the Head of School, Prof Rachel Çajam, or on to the Research Governance and Integrity Manager, Research Office, Christie Building, University of Manchester, Oxford Road, Manchester, M13 9PL, by emailing: Research.Complaints@manchester.ac.uk, or Tel: 0161 275 7583 or 275 8093.

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**Older Adults and Acceptability of Physical Activity
Demographics & Screening Questions for Trainers/Providers**
(To be completed by researcher in conversation with participant)

1. Gender: M / F

2. Age: _____

3. Ethnicity: _____

4. Area(s) of Manchester covered: _____

5. Employment status regarding physical activity for older adults: (Circle Applicable)

Paid	Paid	Unpaid	Unpaid
Full-time	Part-time	Full-time	Part-time

6. What is your Physical Activity Job role: (Circle Applicable)

Physical Activity Professional	Manager at Leisure Centre	Manager at OA Centre	Volunteer Leader
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Other PA Provider/Deliverer: (Specify) _____

7. Do you have another/a main job role: (if answer to Q5 is paid/unpaid part-time)

8. What type of location is the physical activity delivered in?

Leisure Centre	Community Centre/Hall	Hospital/ Clinic	Care Home	Outdoors	Other
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9. Do you have any fitness qualifications or training? Please specify.

10. Do you have any training specific to older adults? (If not clear from above).

**Interview Schedule Trainers/Providers
Older Adults and Acceptability of Physical Activity**

First I'll ask a couple of background questions on your involvement with older adults and physical activity and then I'll focus more on your experiences of this work. There are no right or wrong answers, I just want to hear your views. You can take a break at any time and you don't have to answer any question you'd rather not. Is that okay?

- 1. How long have you been involved in providing/delivering physical activity to older adults?**
- 2. Is there a reason you became involved with physical activity for older adults?**
- 3. What sorts of physical activity do you think older adults like to do? What is it about these activities that you think appeals to them?**
- 4. What do you think the provision of physical activities for older adults is like in more deprived areas?**
- 5. What physical activities do you provide/deliver? (Where, how, when, with whom)**
Do you offer different types of physical activities or deliver them in different ways for different populations? Is it for a set age range and above or is it based more on ability?
- 6. What feedback have you received about the physical activities you provide?**
- 7. How well attended are the physical activities that you provide? Has this changed over time?**
- 8. Can you think of anything that could be done to increase older adults attending your classes/centres or engaging in physical activity in general?**
- 9. Do you see any barriers to older adults in your area engaging in physical activity?**
Follow up: have you had any feedback from older adults in your groups about barriers – perhaps if they say why they won't be coming anymore?
- 10. What do you think it's important for a trainer/provider to know if delivering physical activity to older adults? How do you think a trainer needs to interact with older adults for best results?**
- 11. What have you found gets older adults involved in physical activity? What do you think keeps them coming?**
- 12. Is there anything else you would like to add?**

APPENDIX O

Coding Framework for Multi-Perspective Interview Study: OAs and TPs	
Code	Description
1. Perception of Older Adults within Society	
1.1 Lack of value in society	Not feeling older adults are valued by powerful others in society or generally within society in direct relation to being older
1.2 Old age equals slowing down	Having earned the right to put one's feet up in older age; expectation that older adults should slow down; the ease with which this can happen if you let it; (negative) older adults today not as old as they used to be
1.3 Use of humour supports societal bias	Humorous references to perceived lack of older adults' ability whether accurate or not, or general humorous references to older adults in society related to lack of ability
1.4 Important others' perception of older adults	Family/friends attitudes/behaviours towards older adults engaging in physical activity or not
2. Older Adults' Perception of Self in relation to Physical Activity and Ageing	
2.1 Expectations of older adults' own ability (or that of other older adults)	Older adults referring to their perception of their own capabilities in relation to physical activity; any differences between past, present, future expectation; note any factors perceived to be associated with such expectations; Trainers/providers experience of older adults' expectations of themselves, whether they are realistic or not, and how they address them
2.2 Perceptions of own physical activity levels	How physically active do older adults view themselves; may relate to the guidelines or in comparison to others (often with own level being acceptable and others less/more active being lazy/overdoing it) [NOTE: 'Active' doesn't always apply to physical activity in the transcripts and so need to avoid coding instances of 'busy']
2.3 Sense of identity	How someone identifies themselves in terms of age, surroundings, body image; importance of how they are perceived by others; how these impact their engagement with PA; e.g. services or activities they will/won't, can/can't attend in relation to their identity

2.4 Sense of loss or gain in older adulthood	May refer to personal losses which have come with age (e.g. function, status, confidence) or sense of gain in older adulthood (e.g. experience, confidence, freedom– e.g. from responsibilities, time constraints, others’ expectations)
3. Perceived Relevance of Physical Activity in Older Age	
3.1 The meaning of physical activity in older age	Is physical activity seen as necessary in its own right in older age, if so, in what circumstances; is physical activity viewed as different from exercise; reasons given for need for physical activity in older age: is it merely a by-product (e.g. dancing to socialise) or means to an end (e.g. health outcomes, walking for transport); for trainers/providers what they perceive as the reasons older adults engage in physical activity
3.2 Previous experience of physical activity	For older adults, previous experiences of physical activity whether in earlier life, or later years, but not current; mentions of the impact or feelings about such experiences; For trainers/providers noting their previous experience with older adults and physical activity (and reasons for working with older adults)
3.3 Adaptability/Flexibility towards physical activity	Sense of flexibility (long and short term) around PA arrangements, (e.g. when plans or schedules have to be changed or multiple commitments juggled to fit in PA); (negative) rigid thinking so that changes cannot be adapted to, even when a valued PA is lost as a result; can refer to trainers/providers rigid thinking of what to offer or how they offer it also
3.4 Goals of older adults engaging in physical activity	What do older adults want to achieve from being physically active; what do trainers/providers perceive/experience older adults’ goals of being physically active to be; note any unrealistic expectations or bias in service provision related to such goals
3.5 Perceived benefits of older adults engaging in physical activity	Perceived gains to older adults due to engaging in physical activity; can be health, social, psychological (note focus of trainer/provider); (negative) no perceived gains in older age for self
3.6 Concerns about being physically active	Issues which older adults fear may occur around being physically active; any factors that they fear would impinge on their progress in PA; worries may be related to illness representations; also weather may cause concerns either directly or as a barrier to getting to PA; (negative) no concerns about PA (also note any consequences of no concerns e.g. lack of caution leading to injury)

3.7 Don't want to join in physical activities	Older adults who express lack of interest in joining in physical activities; don't see themselves as joiners; not interested in physical activity; unsuccessful experiences of active older adults or trainers/providers trying to get other older adults to engage in physical activity; perception that some older adults do all activities available whilst some do none (note where this is perceived as down to personality of individuals rather than acceptability of offer; also note any differences regarding joining in PA e.g. gender, culture)
4. Importance of Social Contact	
4.1 Desire for social interaction	Want to remain socially active or to rekindle social interaction in life; aware of and wanting to avoid social isolation (not always achieved); (negative) no desire for social interaction within context of PA; prefer physical activity as a solitary pursuit
4.2 Need for friend to go with	The feeling that a friend is required to go somewhere (especially at start but often throughout); lack of friends resulting in no engagement; loss/incapacitation of friend resulting in dropped activity; may be due to actual need for friend to attend with e.g. for transport; (negative) happy/able to go alone to new activity
4.3 Word-of-mouth	Hearing about new activities from contacts at one activity leading to increased PA; (negative) hearing reports about an activity (re exertion levels, instructor, facilities) which lead to not engaging in that PA; Trainers/providers reliance on word-of-mouth for engagement and their attitude towards actively encouraging it
4.4 Sense of belonging to a group	Any mention pertaining to group identity, sense of belonging, feeling of a good fit, being cared about; commitment to group; fear of letting group/leader down by not attending; (negative) perception of not fitting in to group; fear of not being wanted by a group
5. Facets of Enjoyment	
5.1 Intrinsic enjoyment (multi-faceted)	Intrinsic enjoyment of PA in older age is multi-faceted and context specific for many; may include the instructor, the music, the surroundings (e.g. nature), the purpose (e.g. sightseeing) and others engaging in it alongside.

5.2 Intrinsic enjoyment (singular)	Intrinsic enjoyment of the actual activity itself; instances where the activity alone is enough regardless of the context
5.3 Social enjoyment	Enjoy interacting with others during and/or after activity; having a laugh; having fun with others/the group; bonding; making friends; companionship
5.4 Enjoy a sense of achievement and/or competition	Feeling of having achieved something in relation to physical activity; enjoying opportunity to be competitive (whether in terms of self-improvement or engaging with others); enjoying feeling of putting some work into being physically active
5.5 Enjoy a sense of purpose	An added level of enjoyment beyond the physical activity itself, whether a walk with purpose (e.g. educational nature walk, museum or history tour) or learning a skill (e.g. taught dancing, tai chi, yoga); impact of this (e.g. can reduce pace of walking, or be short-lived if purpose is intermittent or one-off)
6. Different Perception of Time in Older Age	
6.1 Time is energy	Time spent getting ready and travelling to any activity account for energy use as well as the activity being undertaken; particularly relevant if reliant on public transport as takes longer/more energy; note any references to not having time for physical activity which infer not having the energy (e.g. if older adults comment on being tired from being busy or social activities)
6.2 Reduced 'day'	Reduced acceptability of multiple activities per day (includes domestic, social and physical) due to Time is Energy above; also perception that activities out of house should finish early in the day; avoidance of going out in afternoon, evening, night; impact of this perception on provision of services (e.g. results in no activities available outside this reduced day); (negative) full day perceived and discussed; evening activities desired/available (note any differences in acceptable day/evening activities)
6.3 Being given 'enough' time	Having enough time to engage in desired activities without feeling rushed (or rushed to leave after); not being pressured to engage or justify themselves if sitting out a certain activity or part of class; having time before or after physical activities to engage in social activities; having time and space to interact with trainer one-to-one; an awareness by trainers of the importance of this

6.4 Different experiences of seasonal impact	Instances where different needs related to seasons affect engagement in PA; note call for different types or more/less physical activities at different times of year often in opposition to younger adults patterns (e.g. less likely to venture out in January due to concerns (see 3.7) v New Year fitness kick for younger adults; more likely to want evening activities in summer due to increased daylight facilitating access)
7. Lack of Resources in Low SES Areas	
7.1 Felt impact of funding cuts	Felt loss of valued physical activity services or facilities (note where this feeds into perceived lack of value as older adult and/or lower SES resident); for trainers/providers felt pressure to cut services to align with reduced budgets (e.g. due to low attendance)
7.2 Lower SES areas forgotten about	A perception that some lower SES areas receive fewer funds and services (may be because of their low SES status, or reputation, or that other low SES areas and/or higher SES areas are prioritised over them); that there are no/less suitable accessible physical activities in their area (may include instances of comparison to other areas); provision is not equal across the city; luck/who you know/where you are = better services; (negative) that there is plenty of provision of physical activity in lower SES area
7.3 Fear of loss of existing resources	Older adults worried about losing existing programmes or services; perceived pressure to 'use it or lose it' (both older adults and trainers/providers); sense of hopelessness that services will be lost anyway; any lack of engagement due to this fear
7.4 Greater need for instrumental support	Mentions of greater need for basic instrumental support (e.g. transport, accessible facilities) as less personal resources (and possibly lower health status) and more run down or dangerous locations; independent providers needing more support/funds to ensure continuity of services as less infrastructure in place in lower SES areas
7.5 Utilising existing resources for other uses	E.g. Use of buses to get out of city for sightseeing or nature walk; encompassing free event (e.g. community coffee morning, movie screening) into walking group session; friends/family offering lifts; use of existing active and inactive groups for recruitment/promotion; forming partnerships for provision of social element (e.g. cheap lunches for attendees at neighbouring café)

7.6 Need for organisation	Mention of utilising own organisational skills to make things happen; mention of needing this but not having it; for independent trainers/providers need for network/links to older adults/support services; (negative) mention of not liking being organised by others
7.7 Lack of trust	A sense of distrust of authorities/trainers/providers on the part of the older adults; may be in relation to provision/lack of services, or in ability of trainer, or in disclosing personal information (e.g. giving out contact details, or restrictions due to illness); a perception of this distrust by the trainers/providers and how they combat it
7.8 Sense of local community	Sense of community cohesion in their local area that supports older adults engaging in physical activity; (negative) no sense of local community leading to perceived lack of support
8. Understanding today's older adults	
8.1 Relatability	Promoting and delivering physical activity in the frame of reference of the older adults it is aimed at; older adults perceiving that services are aimed at and suitable for them (or not); use of recognisable language, contexts, labels to promote understanding, ownership and enjoyment; relevant incentives alongside the physical activity (e.g. low cost/free, food, socialising, someone to go with)
8.2 Individualised pacing	Pacing led by trainers/providers of physical activities based on individual needs to fit with current abilities rather than assumptions based on age (may change daily/weekly and can go up as well as down); progression to ensure pacing is kept appropriate; pacing self within groups and in solo activities; resting when needed but pushing when able
8.3 Support to socialise	Assistance and encouragement given to make social connections, including taking breaks to allow socialisation; pairing up in groups; making introductions; building social skills; ensuring cliques addressed; allowing socialisation at individual pace also so as not to overwhelm those unused to interacting; note when given by trainers/providers or peers and when sought out by individuals; (negative) no perceived support

8.4 Inclusivity	Allowing for mixed abilities within activities/services and providing separate classes where necessary (e.g. preferences, ability, progression, attitudes, cultures); issues this may create (e.g. problems with pacing, budgetary constraints, reduced numbers, how to market) allowing those who cannot partake to still socialise; ensuring that not only allowing for least able also;
8.5 Permission to have fun	A sense of older adults overcoming a perceived barrier which then allows them to have fun; any mention of feeling of permission needed or given to engage in fun; a lack of need for permission to have fun; a perceived lack of fun; a real focus on fun or older adults enjoying themselves by the trainers/providers whether in activities or promotion
8.6 Personal characteristics of trainer/group leader	Mentions of personality traits, behaviours or attitudes of anyone on frontline delivery of physical activity, both positive and negative, and the impact these can have on enjoyment, engagement, maintenance, drop out; observations may be from older adults or the trainers/providers themselves
8.7 Relevance of location	Accessibility of physical activity in terms of distance, time spent to get there, familiarity, safety, seasonal differences/availability; identity with locality (note: further may be more convenient for older adults if better bus route, or may not perceive closer venue suitable or 'theirs')
9. Importance of good communication around physical activity for older adults	
9.1 Building trust	The importance of trainers/providers building trust between themselves and individuals and within groups (e.g. through knowing their abilities, preferences, personalities, frames of reference); any examples of when this is apparent or not and the impact of this
9.2 Impact of advice around physical activity	Impact of advice from peers, healthcare professionals, trainers, gym staff; whether this is followed or ignored and reasons for this; any differences in them engaging in physical activity due to receiving advice; note any differences in impact depending on source of advice;

9.3 Open and collaborative approach to planning/delivering physical activities	Trainers/providers including older adults (and other services/professions) in planning of services; choices given within classes; older adults being aware of this collaborative approach; (negative) older adults' feeling that they are not being heard about preferences or desired services or could be penalised for speaking up; trainers/providers providing in relation to their own preferences/remit without recent older adult input
9.4 Importance of feedback and closing the feedback loop	Mentions of feedback (and its' follow-up) whether from trainers/providers, healthcare professionals to older adults, or vice versa; effect of feedback on older adults engaging in physical activity; need for tailored feedback for individuals; different forms of feedback; any difference it has made to older adults' awareness of progress/benefits; any difference it has made to trainers/providers understanding of older adults' needs or service provision; (negative) feedback not seen as important or not sought out; no follow up to feedback
9.5 Clarity of communication	How trainers/providers communicate services and/or changes to services; barriers to clear communication; instances of miscommunication or confusion; mentions of what works for older adults or not in terms of communication preferences (mode, repetition, reminders, notice)
10. Need for longer term thinking for older adults and physical activity	
10.1 Awareness of maintenance factors around physical activity	Comments from trainers/providers about what keeps older adults coming to physical activity; older adults' own perceptions of this in relation to themselves
10.2 Impact of changes of staff	Any mention of staff/provider changes that have resulted in change of engagement and the reason given for this
10.3 Empowering older adults	Overt or inferred instances of a desire to empower older adults through encouraging physical activity engagement or maintenance; any sense from older adults that they feel empowered through physical activity engagement; (negative) any mentions of blaming/judging older adults for a lack of physical activity

Participant	Themes	Insights from Framework with Summaries and Examples	Insights from Framework with Summaries and Examples	Insights from Framework with Summaries and Examples
<p>Older Adults Sara, 67, Active, Not Isolated, No Car</p>	<p>Being Valued Older adults need help to reconnect once isolated. Charity networks can help them to see they are valued by supporting them to activities, although they don't usually start with PA. OAs in neighbourhoods without such networks are not being helped to access services. Nothing to do for many as OAs, especially men, are not valued so not well provided for in low SES areas: "they're just sitting around doing nothing or drinking, or whatever it is, cos there's nothing else to do"</p>	<p>Challenges in Low SES Areas Lack of Resources in Low SES Areas "Money is everything. But trying to do that [help community person going] without any money... you have to have nice weather to go out exercising outside, or walking outside, which is where I do my exercise"</p>	<p>Perception of Older Adults in Society Feels that many OAs just sit and watch TV but he feels as if he's seen what this can lead to - social isolation and loneliness. "Generally everybody just doing anything and being in a state and they're not doing anything and they're just sitting there because they've got to the state where that's their life and they've got to the state where that's their life and because... by the time they've got into that state, it's too much effort"</p>	<p>Challenges in Low SES Areas Lack of Resources in Low SES Areas "Money is everything. But trying to do that [help community person going] without any money... you have to have nice weather to go out exercising outside, or walking outside, which is where I do my exercise"</p>
<p>Ula, 74, Active, Not Isolated, No Car</p>	<p>OAs in white British community left out and isolated. Speaks of being "isolated" by family on holidays/holidays but they don't really want you around. Compared to Asian communities where OAs seem more valued still as they live with their families in multi-generational homes, as was much more common for white British where she was younger.</p>	<p>Challenges in Low SES Areas Lack of Resources in Low SES Areas "I think in this area the facilities are excellent for older people. A lot of older people have not got a lot of money, therefore that prevents them going on things that's expensive... I mean they get free bus passes so I think that's why [walking group activity] takes us on public transport"</p>	<p>Perception of Older Adults in Society Feels that many OAs just sit and watch TV but he feels as if he's seen what this can lead to - social isolation and loneliness. "Generally everybody just doing anything and being in a state and they're not doing anything and they're just sitting there because they've got to the state where that's their life and they've got to the state where that's their life and because... by the time they've got into that state, it's too much effort"</p>	<p>Challenges in Low SES Areas Lack of Resources in Low SES Areas "I think in this area the facilities are excellent for older people. A lot of older people have not got a lot of money, therefore that prevents them going on things that's expensive... I mean they get free bus passes so I think that's why [walking group activity] takes us on public transport"</p>
<p>Chloe, 5, 67, Isolated, Some Isolation, No Car</p>	<p>Adding social elements to PA makes it more of an occasion but she can manage as can only cope with getting to see friends. She can't manage as can only cope with getting to see friends. She can't manage as can only cope with getting to see friends. She can't manage as can only cope with getting to see friends.</p>	<p>Challenges in Low SES Areas Lack of Resources in Low SES Areas "I heard to go swimming quite a lot, but they've closed the [swimming pool]... I want something closer, within easy reach, not in the city centre or far from her neighbourhood. Used to do a lot of PA, but funding cuts put a stop to them: "at one time there was a lot of funding and it was amazing... there was always something on, but you see as the funding got cut and they don't put as much on now as at first"</p>	<p>Perception of Older Adults in Society Feels that many OAs just sit and watch TV but he feels as if he's seen what this can lead to - social isolation and loneliness. "Generally everybody just doing anything and being in a state and they're not doing anything and they're just sitting there because they've got to the state where that's their life and they've got to the state where that's their life and because... by the time they've got into that state, it's too much effort"</p>	<p>Challenges in Low SES Areas Lack of Resources in Low SES Areas "I heard to go swimming quite a lot, but they've closed the [swimming pool]... I want something closer, within easy reach, not in the city centre or far from her neighbourhood. Used to do a lot of PA, but funding cuts put a stop to them: "at one time there was a lot of funding and it was amazing... there was always something on, but you see as the funding got cut and they don't put as much on now as at first"</p>
<p>Keith, 7, 77, Isolated, Not Isolated, No Car</p>	<p>She seems to create her own value through keeping herself busy with visiting and helping others. Thinks there's plenty to do if you go out and find it. Doesn't talk about how to find out about it if you're not as involved in the community as she is and doesn't seem to understand that others may have difficulty with this.</p>	<p>Challenges in Low SES Areas Lack of Resources in Low SES Areas "I think in this area the facilities are excellent for older people. A lot of older people have not got a lot of money, therefore that prevents them going on things that's expensive... I mean they get free bus passes so I think that's why [walking group activity] takes us on public transport"</p>	<p>Perception of Older Adults in Society Feels that many OAs just sit and watch TV but he feels as if he's seen what this can lead to - social isolation and loneliness. "Generally everybody just doing anything and being in a state and they're not doing anything and they're just sitting there because they've got to the state where that's their life and they've got to the state where that's their life and because... by the time they've got into that state, it's too much effort"</p>	<p>Challenges in Low SES Areas Lack of Resources in Low SES Areas "I think in this area the facilities are excellent for older people. A lot of older people have not got a lot of money, therefore that prevents them going on things that's expensive... I mean they get free bus passes so I think that's why [walking group activity] takes us on public transport"</p>

Participant	Themes
<p>Definitely not allowed down in older age, in fact done more PA since she retired than ever before. She doesn't feel her age "I just feel a bit younger than what I am. Probably it's because I'm doing all these exercises"</p> <p>Doesn't want to sit at home watching telly all the time</p>	<p>Feels on friends and people who respects at different activities to tell her about other PA rather than through affect of any advertising. Wants to get back into swimming but unaware of the times she can go. Doesn't know why services have been cancelled, never gets to hear the reason.</p>
<p>Had never ventured into city centre on her own, so local provision was extremely important to her and she felt it was quite well provided for all age groups in her area. However, not everything she'd like to do was available. "I'd like to do Tai Chi but there's nothing in this area... you just book in the area". In fact, she had to book to walk so early in the morning. "I'd like to go to the gym but it's better for the elderly, unless they can drive... when you can't drive, it's a bit awkward" [concerned about safety]</p>	<p>Unaware of activities. Only hear about them if you're attending at the facility itself. Need to go out to find out if there's anything on as not on computer. Lack of advertising and older adults overlooked in favour of others. "If they were to advertise it more for people of our age that that sort of thing is available... you'd sort of think 'Oh, I'll try that'... I've never seen an advert about Tai Chi, I'll try that"... I've never seen an advert about Tai Chi, I'll try that"... there's plenty of things about Tai Chi, I'll try that". (Pam, F, 72, inactive)</p>
<p>You slow down and gain weight when you retire and there's not a lot you can do about it."</p>	<p>Real sense of belonging to the community with regular attendance at local groups and activities, some physical, some not. Also a sense of being valued within his family.</p>
<p>Great sense of community where he lives. Attends local facility that puts on gardening club</p>	<p>Unaware of activities. Only hear about them if you're attending at the facility itself. Need to go out to find out if there's anything on as not on computer. Lack of advertising and older adults overlooked in favour of others. "If they were to advertise it more for people of our age that that sort of thing is available... you'd sort of think 'Oh, I'll try that'... I've never seen an advert about Tai Chi, I'll try that"... there's plenty of things about Tai Chi, I'll try that". (Pam, F, 72, inactive)</p>
<p>Working in the free patient club she gets about activities. Doesn't like to be organised by others though as tends to feel her own way to activities.</p>	<p>Unaware of activities. Only hear about them if you're attending at the facility itself. Need to go out to find out if there's anything on as not on computer. Lack of advertising and older adults overlooked in favour of others. "If they were to advertise it more for people of our age that that sort of thing is available... you'd sort of think 'Oh, I'll try that'... I've never seen an advert about Tai Chi, I'll try that"... there's plenty of things about Tai Chi, I'll try that". (Pam, F, 72, inactive)</p>
<p>Older adults not valued, often overlooked in favour of others e.g. young people</p>	<p>Unaware of activities. Only hear about them if you're attending at the facility itself. Need to go out to find out if there's anything on as not on computer. Lack of advertising and older adults overlooked in favour of others. "If they were to advertise it more for people of our age that that sort of thing is available... you'd sort of think 'Oh, I'll try that'... I've never seen an advert about Tai Chi, I'll try that"... there's plenty of things about Tai Chi, I'll try that". (Pam, F, 72, inactive)</p>
<p>It's normal to slow down when you're in the age. "I don't feel it's about time you just either drive, don't drive or I'll laugh myself". Old age is for sitting and reading with a book or knitting</p>	<p>Unaware of activities. Only hear about them if you're attending at the facility itself. Need to go out to find out if there's anything on as not on computer. Lack of advertising and older adults overlooked in favour of others. "If they were to advertise it more for people of our age that that sort of thing is available... you'd sort of think 'Oh, I'll try that'... I've never seen an advert about Tai Chi, I'll try that"... there's plenty of things about Tai Chi, I'll try that". (Pam, F, 72, inactive)</p>
<p>Perceives general lack of value of older adults in society. "This world isn't built for old people... nobody respects you". Old people are invisible and seen as stupid. "But it seems when you get past a certain age, you become invisible. You haven't got a brain, so why bother calling". Also further lack of value as low SES - people from her area are even as tough, loud, trouble.</p>	<p>Unaware of activities. Only hear about them if you're attending at the facility itself. Need to go out to find out if there's anything on as not on computer. Lack of advertising and older adults overlooked in favour of others. "If they were to advertise it more for people of our age that that sort of thing is available... you'd sort of think 'Oh, I'll try that'... I've never seen an advert about Tai Chi, I'll try that"... there's plenty of things about Tai Chi, I'll try that". (Pam, F, 72, inactive)</p>
<p>Needs more instrumental help to get to services but its not available. No acceptable PA near her "There's nowhere round here to dance any more". Facilities have closed down and never been replaced.</p>	<p>Unaware of activities. Only hear about them if you're attending at the facility itself. Need to go out to find out if there's anything on as not on computer. Lack of advertising and older adults overlooked in favour of others. "If they were to advertise it more for people of our age that that sort of thing is available... you'd sort of think 'Oh, I'll try that'... I've never seen an advert about Tai Chi, I'll try that"... there's plenty of things about Tai Chi, I'll try that". (Pam, F, 72, inactive)</p>
<p>Others think that only the older old need more help to access services (e.g. 75+ for some services) but she would like to attend but can't as she's younger, but she has reduced mobility and is very unfit and would be suited to it</p>	<p>Unaware of activities. Only hear about them if you're attending at the facility itself. Need to go out to find out if there's anything on as not on computer. Lack of advertising and older adults overlooked in favour of others. "If they were to advertise it more for people of our age that that sort of thing is available... you'd sort of think 'Oh, I'll try that'... I've never seen an advert about Tai Chi, I'll try that"... there's plenty of things about Tai Chi, I'll try that". (Pam, F, 72, inactive)</p>
<p>Facilities close down and nobody replaces them. No knowledge of PA in her area, even though there are lots of subsidized activities in some of the same locations the mentions attending previously.</p>	<p>Unaware of activities. Only hear about them if you're attending at the facility itself. Need to go out to find out if there's anything on as not on computer. Lack of advertising and older adults overlooked in favour of others. "If they were to advertise it more for people of our age that that sort of thing is available... you'd sort of think 'Oh, I'll try that'... I've never seen an advert about Tai Chi, I'll try that"... there's plenty of things about Tai Chi, I'll try that". (Pam, F, 72, inactive)</p>

<p>Participant Susan, 7, 80, inactive, hardly ever walked, No Car</p>	<p>Doesn't know most of her neighbours anymore. "Well I've done enough" had active jobs and looked after grandchildren, now it's time to rest. "I think I'm past it."</p>	<p>Colles from Framework with summaries and Examples Across All Perspectives Harmous about coming home on her own in the evening so would go out at night. Likes to get out in the day do a bit of shopping and see the bus. Doesn't like being in town when the school children get out so only goes in the morning.</p>	<p>Theme Had strong social and family connections which seemed to possibly impact her sense of being valued. Didn't want to engage in any physical activity, felt her needs were met just staying mobile and independent.</p>
<p>Diane, 7, 71, Active, Some isolation, Shared Car</p>	<p>No evening provision in the area - all gone by the wayide, nothing for senior citizens. Would like a social dancing class but they do in the afternoon but have it on in the evening so they could go together rather than it missing they are walking groups round the corner get cars and they can't walk to the bus stop. They would like to go to a different class for the walk, then go for breakfast. Happy to go to new facility as has car. "Well I'd probably drive there, or we'd get the bus. We wouldn't cycle there, as (husband) won't cycle on the road or on the pavement, as we'd probably drive there if we were both going together, yeah."</p>	<p>Would like to do evening activities like dancing, but there's nothing available in the area. Evening would be good for cycling in the park or the walking groups. Would like to see something in the evening. Would like to see something in the evening. Would like to see something in the evening.</p>	<p>Design of facilities doesn't take into account needs of OA e.g. swimming pool ladders in new facilities, need to haul yourself out steps, newer pools with no ladders on the side)</p>
<p>Kate, 7, 71, Active, Some isolation, Shared Car</p>	<p>Use of shared facilities exacerbated problems of lack of value to the activities never given priority [in contrast to higher SES areas with dedicated spaces (e.g. tennis clubs)]</p>	<p>Whether seemed less of a barrier for active older adults on direct bus routes or with cars. "The game in when it's been so long and everything and/or"</p>	<p>Older adults felt they lost to others when it was always their activities that got cancelled. "Every time that the pool is needed, it's always the [older adults' equality] that get told 'Your exercise is cancelled'" [Lene, 81, 71, Active].</p>
<p>Ms. F, 88, inactive, Hardly ever walked, No Car</p>	<p>Older age does slow you down but doesn't mean you can't still be active. Friend gave her a state BT but she only uses it to get the vacuum cleaner upstairs.</p>	<p>PA gives you energy. It's good when they give you enough time in a class to sit down if you need to. Enjoys driving walks in the summertime with friends. "I wouldn't dream of going out" - If it was slippy. Not keen on being out in the rain.</p>	<p>Lots of classes cancelled and never told why. She was very proactive in accessing other PA but no car and reliance on others for transport hinders this now. Would like to see more leisure based classes but none currently on offer: "Oh Tai Chi would be lovely."</p>
<p>Tina, 7, 81, Travels/Provider, Solely Owns</p>	<p>Comes with lack of resources to "high quality" her PA onto existing community services - e.g. her walking group attended a local community library coffee morning (free) halfway through their walk and then carried on with the walk. Refreshments. Utilising community resources helps support their continued provision and gives multi-layered experience to create more value and enjoyment for those taking part. Also lack of trust in some communities of being organised.</p>	<p>Needed to go to talk to older adults about PA where they already congregate e.g. coffee mornings, support groups etc. Put adverts frequent, e.g. Doctors, chemists. Do open days - get people in who didn't know you existed until then even though we'd been open a year. Difficult to get the word out, have to do it slowly, just trickle it out as we can.</p>	<p>Need to add value to PA activities by utilising existing resources and adding these on to make a day of it. Also offered her OA desirable PA such as Tai Chi and got more walkers coming on "big walks" through offering them days out to museums, parks, art galleries etc. This increased the sense of being valued as many had lost other days out of this due to funding cuts. She didn't provide cost, but rather using public transport and a lot of planning to secure five or six cost staff.</p>

Participant	Comments from Focusgroups with Summary and Examples Across All Participants	Themes
Paul, M, 46, Trainer, Wellbeing/Charity	<p>So long at the sound of providing somebody they don't worry about what it is they are actually providing (the service) they were provided consistent with the OA in order to progress. Lack</p> <p>Many OA only social life is attending their PA so need to make it special for them. give them an experience.</p>	<p>When older adults don't feel they are being valued by a service, they drop out. Has lots of fun interacting with group members and this adds to the feeling of being valued within the group. Turning up for any portion of the class was okay, didn't matter about being late, and didn't matter what you could or couldn't do, it was important just to try and they felt like they belonged.</p>
Henry, F, 82, Trainer/Provider, Charity/Voluntary	<p>Some low SES areas were better provided for than others. For OA in low SES areas, they had a lack of PA. They were often told to go to a place to get warm when walking with in low SES areas.</p>	<p>Lack of parity of provision as some low SES areas are more highly valued than others it seemed to her. OAs generally lack value in society and OAs in low SES areas seem to lack value even more if provision of resources is anything to go by. Also OAs in low SES areas define themselves as older at a younger age, meaning they lose value in society earlier on than older adults in higher SES areas.</p>
Jill, F, 48, Trainer, Leisure	<p>Yoga and Zumba Gold are on in the high SES areas but not on in the low SES areas even though same provider. She works in both areas and doesn't understand why this is. Room for social activity (tea and biscuits) get taken away in low SES venue as the council wanted to use it for office space. High SES area has a bar/cafe in the venue they provide PA in so no cut backs on social activity there.</p>	<p>This trainer had been involved in the This Girl Can campaign and felt this would be helpful to show older adults that they were valued and that physical activity was something for them to value too. "If they can do that for girls, why can't they do it for older people...trying them see older people doing it"</p>
Frank, M, 44, Trainer/Provider, Leisure	<p>Good provision in low SES areas it more than just PA. He offers tea and toast as well as walking football for just £2.</p>	<p>Looking out for your members and checking in with how they are doing, especially if they don't seem to be coming to feel valued and happy. This has been a challenge. Offering extras such as tea and toast at the evening sessions is highly valued and allows team members time to socialise and helps the group to bond together, for every little effort.</p>
James, M, 30, Trainer, Leisure	<p>Physical activity sessions were seen by some older adults (providers as an opportunity to show older people that they were valued for society as a more personal level. Respected OAs. He was responsible for other trainers and knew when he had to remove people from older adult classes when the trainer wasn't right. Some OAs limit themselves through their own low expectations. His job was to change these perceptions.</p>	<p>Really get to know his OA class members and seemed to genuinely care for them. Wanted to empower OA so that they were not reliant on services, as he was all too aware of the impact of closures in low SES areas. Really wanted to give them a valuable experience, not only so that they would keep coming, but so that they stayed connected to the community. "Older adults need more: talk to them, ask them how they are doing... listen to what they are getting to say... they don't get their instructions at all as they get older and it's just to say. And that's why I try my best to get them a great experience"</p>
Leslie, F, 32, Trainer/Provider, Healthy/Leisure	<p>Being in smaller classes makes OAs feel more valued as they get to chat as much as they want to. The instructor OAs need for routine and structure can be difficult to deal with but needs to be treated sympathetically</p>	<p>Understood that providers still needed to take into account the different needs of older adults and valued them enough to do this. Management complaints of leisure facilities however did not understand this and often acted in ways that meant the programme providers such as herself were left being unable to provide the level of services they wanted in order to ensure that the OAs did feel valued, such as showers, short notice on changes etc. Funding cuts often impacted badly on the sense of being valued in low SES areas. Being offered things like yoga always went down well. Also being in small groups meant that they got lots of one to one attention from trainers and OAs tended to talk this as the interaction made them feel valued.</p>
	<p>He kept a close eye on facial expressions and body language of the group as well as reading their verbal feedback (whether direct or indirect). Changing and changing of classes causes frustration.</p> <p>Don't follow people up who dropped out of her walks. No feedback sought either.</p> <p>Often OA with no experience of PA will need showing, not just telling, how to do a movement. The concept of PA is often alien to them and they cannot isolate parts of their body to do certain moves without being guided into place. Need to take the time to do this and also to watch all of the class at all times for any signs of struggle or misunderstanding.</p> <p>Call it inside net physical activity. Follow up if people don't show up for class. Show your care. You might be the only one. Build up trust. Doctors arguments for physical activity also includes tea and toast. Don't have to compromise the health benefits: should focus on the fun and enjoyment to get them interested. Also tell them they'll get tea and toast!</p> <p>OAs may not get out much and so have lost the ability to communicate and socially interact. Important to help them regain this skill and support them until they feel comfortable communicating within the group. He understood the power of listening and showing the older adults they were valued by him, by remembering what was important to them. Built their trust through good advice and clear communication - teaching OAs much more about building trust so they feel safe enough to engage and trust you so they can hear you when you challenge them.</p> <p>Still need to provide incentives to older format even though they have moved on with technology as OAs don't find social media acceptable mostly. No use putting flyers out trying to use website for details, need to have them and when on the flyer. No clear information online about what's on offer within the area as all offered by different programmes, under different management. Very confusing for anyone but especially for older people. Programme providers not made aware of needs of older people. Programme providers not made aware of needs of older people. OAs will be before so can't provide enough notice to OAs to help them get used to the idea. He's shocked, then disgruntled with providers - not good for trust. Need to specify for OAs even if not just to get them there as they don't always respond to "low impact, low intensity" but all activities open to all ages as mostly based on ability, just that they feel they should market easier PA to OAs</p>	<p>He kept a close eye on facial expressions and body language of the group as well as reading their verbal feedback (whether direct or indirect). Changing and changing of classes causes frustration.</p> <p>Don't follow people up who dropped out of her walks. No feedback sought either.</p> <p>Often OA with no experience of PA will need showing, not just telling, how to do a movement. 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<p>Participant Emma, 1, 31, Provider, Social/Finance</p>	<p>GA (particularly socially isolated) do not tend to come forward seeking out physical activity. GAs don't want anything strenuous, just something basic they can do but that also makes them feel part of the community.</p>	<p>Let's turn their physical activities that they're already doing into a GA. In the SES we do feel valued - they were people wanting their cost a lot of money normally and other people wanted to do but they were getting it for a subsidised price. GAs disagree when their regular class is cancelled due to changing numbers - only if they do and now they have nothing.</p>	<p>Chairs from firms worth with Sustainable and Energy Aware All Providers Aware of 'Reduced Day' effect with older adults.</p>	<p>Advertisements where they already go for other activities: "They will see something that's on at a centre where they're already attending and then probably go from there." Flyers, posters etc reach some but most effective is word of mouth. Don't get negative feedback, but don't ask those who have stopped coming. GAs often say they want to go swimming - she doesn't know whether they don't know about free swimming for GAs or if they can't access the [controlled] pools - no follow up to check.</p>	<p>Themes Recognition of a brand or knowledge of the usual cost which they were getting at a substantially discounted rate helped low SES GAs to feel valued more in society. "Junkies really popular - because it's quite expensive normally to pay for if you were just to go into a gym... So, when we put those on locally, they're received well. Can it's something that they have heard about"</p>
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