

Physical Activity and Older Adults

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**Motives and Barriers to Physical Activity Among Older Adults of Different Socio-  
Economic Status**

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### **Abstract**

This study explored motives and barriers to physical activity (PA) among older adults of differing socio-economic status (SES) utilising a Self Determination Theory (SDT) and Self-Efficacy Theory framework. Focus groups (n = 4) were conducted with older adults (n = 28) from two SES groups, using thematic analysis to identify motives and barriers. Integrated and identified regulations, and to a lesser extent intrinsic motives were evident across SES groups. Verbal persuasion and affective and physiological states emerged as prominent efficacy sources regardless of SES. More barriers were reported by the low SES group, with health conditions, neighbourhood safety, and PA guidelines knowledge emerging as most salient. Time emerged as a prominent barrier for the high SES group. Integrated and identified regulations should be fostered in future interventions and policy regardless of SES. Barriers to PA varied across SES groups, thus future interventions and policy should account for such differences.

*Keywords:* physical activity, older adults, socio-economic status, motives, barriers

## **Motives and Barriers for Physical Activity Among Older Adults of Different Socio-Economic Status**

An ageing population is a worldwide phenomenon (World Health Organisation, 2012). Within Northern Ireland, those aged over 75 years and 85 years is projected to increase by 40% and 58% respectively by 2020 (Department of Health, Social Services and Public Safety, 2011). As a consequence of increased longevity, a greater proportion of the population may develop age related disease such as cancer, sarcopenia, cardiovascular disease, and dementia (Partridge, 2010), placing a financial burden upon the National Health Service (Department of Health, Social Services and Public Safety, 2011) and a social burden on individuals and their families. Promoting physical activity (PA) may be one effective means of preventing or delaying age related disease among the elderly (Department of Health, 2011). Despite the plethora of established health benefits of being sufficiently active, only 25% of older Northern Irish adults aged 61-70 years old and 18% of those aged over 71 years old adhere to current PA recommendations of 150 minutes of moderate or 75 minutes of vigorous per week in bouts of 10 minutes or greater (Department Of Health, 2011; Sport Northern Ireland, 2010). A decline in PA across the lifespan is consistent with trends found in other European countries (Simpson et al., 2005). Additionally, older adults of higher socio-economic status (SES) consistently report higher levels of PA than their lower SES counterparts (Ashe, Miller, Eng, & Noreau, 2008; Sport Northern Ireland, 2010). This SES gradient in PA engagement widens with age (Farrell, Hollingsworth, Propper, & Shields, 2013) and may contribute to SES inequalities in morbidity observed amongst the elderly (Schöllgen, Huxhold, & Tesch-Römer, 2010).

Quantitative research has identified a range of modifiable factors that may contribute to SES differences in PA engagement including attitudes (Kamphuis et al., 2009), perceived control over health behaviours (Droomers, Schrijvers, & Mackenbach, 2001), social support

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1 (Ball et al., 2007), neighbourhood aesthetics and safety (Kamphuis et al., 2008), and the  
2 availability and cost of facilities (Moore, Diez Roux, Evenson, McGinn, & Brines, 2008).  
3 Yet, a paucity of qualitative research examining the SES gradients in PA with older adults  
4 exists. Qualitative research can complement quantitative research by probing the personal  
5 context of health behaviours and gathering information on lived experiences (Murray &  
6 Chamberlain, 1999). A recent review of 132 qualitative studies suggests that social  
7 influences, physical limitations, competing priorities, access difficulties, personal benefits of  
8 PA, and motivation and beliefs are prominent factors influencing older adults PA  
9 participation (Franco et al., 2015). However, only a low proportion (3 studies, 2.27%) of  
10 studies included within this review specifically investigated how these factors may differ  
11 according to SES. Cassou et al. (2011) identified cost, household chores, a lack of time, and  
12 safety as prominent barriers for older Brazilian adults of low SES, whereas high SES  
13 participants cited insufficient social support, weather, social isolation, and poor health as  
14 influencing their PA engagement. Nevertheless their findings may not be generalizable to  
15 more developed countries given that older adults' perceptions of PA are known to vary across  
16 cultures (Belza et al., 2004). Moreover, Cassou et al. (2011) focused on barriers to PA  
17 whereas information on motives for participation may equally be useful in informing PA  
18 interventions and policy. Additionally, Cassou et al. (2011) was atheoretical. Theory based  
19 research can elucidate key constructs theorised to impact PA behaviour, thus affording a  
20 bases for which constructs to target during future interventions among this age group  
21 (Michie, Johnston, Francis, Hardeman, & Eccles, 2008).

22 The theoretical tenets of Self Determination Theory (SDT) (Deci & Ryan, 1985) and  
23 Self-Efficacy Theory, a sub-theory of Bandura's Social Cognitive Theory (Bandura, 1977)  
24 were utilised in the current research. Autonomous motivations and self-efficacy have  
25 consistently been associated with PA engagement and maintenance (Ashford, Edmunds, &

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1 French, 2010; Teixeira, Carraça, Markland, Silva, & Ryan, 2012) and the complementarity of  
2 constructs from the two theories has previously been exemplified in cross sectional research  
3 among adults (Senécal, Nouwen, & White, 2000). SDT suggests motivation can vary  
4 according to how much individuals value an activity and find it inherently interesting  
5 (intrinsic motivation) or engage in the activity to obtain outcomes that are separate from the  
6 behaviour itself (extrinsic motivation). Moreover as depicted in figure 1, SDT distinguishes  
7 various forms of extrinsic motivation differing in quality. Individuals may engage in PA to  
8 satisfy an external demand or reward (external regulation), to avoid feelings of guilt or to  
9 attain ego enhancements (introjected regulation), because it is an important goal (identified  
10 regulation), or consistent with one's other aspirations in life (integrated regulation). SDT,  
11 proposes to facilitate autonomous motivations individuals need to feel volitional (need for  
12 autonomy), capable of achieving desired outcomes (need for competence), and connected  
13 with others (need for relatedness). The needs are theorised to be universal, thus consistent  
14 across SES, age, gender, and cultures (Deci & Ryan, 2000). Additionally, the theory suggests  
15 that environments can be either autonomy supportive (e.g. providing autonomy, structure and  
16 involvement) and thereby conducive to the three needs of autonomy, competence, and  
17 relatedness or autonomy controlling and thwarting them. SDT may be particularly relevant to  
18 older adults given that aging often results in perceptions of reduced autonomy and  
19 competence (Dacey & Newcomer, 2005), thus it is surprising that a paucity of research  
20 employing SDT among this cohort exists.

21         Self-efficacy refers to an individual's belief about their ability to successfully perform  
22 an action (Bandura, 1977). Individuals who exhibit high levels of self-efficacy exert more  
23 effort and persist readily in the pursuit of behavioural goals. As depicted in figure 2, the  
24 theory details four sources of self-efficacy including previous successful experiences of PA  
25 (performance accomplishments), observing others of similar characteristics undertaking PA

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1 (vicarious learning), encouragement from significant others (verbal encouragement), and  
2 physiological and affective feedback (physiological and affective states). However a dearth of  
3 qualitative research concerning efficacy sources exists (Samson & Solmon 2011),  
4 information which can elucidate how self-efficacy evolves and thus this study aimed to  
5 address this research gap.

6 This study aimed to provide a unique contribution to the literature by investigating  
7 both the motives and barriers to PA engagement among older adults of differing SES in a  
8 developed country, Northern Ireland. Previous research investigating motives and barriers to  
9 PA is typically atheoretical (e.g. Cassou et al., 2011), thus this study aimed to provide insight  
10 into the mechanisms of the SES gradient of PA based within a theoretical framework, thereby  
11 offering a richer understanding of how best to promote PA in this age group (Michie et al.,  
12 2008).

## 13 Methods

### 14 Ethics

15 Prior to data collection, ethical approval was granted from the Ethics Committee of  
16 the School of Psychology, University of Ulster. All participants provided informed consent  
17 and were given reassurances of confidentiality.

### 18 Participants

19 A convenience sampling approach was used to recruit participants from two different  
20 SES groups (i.e. high and low SES). The inclusion criteria required participants to be  
21 University of the Third Age [U3A] members (high SES) or attend a healthy living centre  
22 (low SES) in Northern Ireland, and aged 50 years or over (to reflect U3A membership). An  
23 assumption was made that members of U3A would be of high SES, whereas the members of  
24 the healthy living centres, low SES (Institute of Public Health in Ireland, 2007). **Participants**  
25 **who were non-English speaking, aged below 50 years, and those who were not free living,**

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1 community dwelling older adults were excluded from the study. Study recruitment ceased  
2 when data saturation had occurred. Four focus groups were conducted, two with each SES  
3 group: one in Belfast, the other in Londonderry, Northern Ireland. Participants were recruited  
4 with the assistance of leaders of their respective organisations and all of those approached  
5 agreed to participate in the research.

### 6 **Procedure**

7 Each focus group was conducted in a comfortable and familiar environment, with  
8 only the participants and researcher present, using the same format, and lasted 40-50 minutes.  
9 All focus groups were audiotaped with the participants' consent. Prior to the commencement  
10 of the focus groups a brief questionnaire was administered to assess participants'  
11 sociodemographic characteristics including age, gender, and educational level. Each focus  
12 group included introductions, an overview of the research, assurances of confidentiality, and  
13 an explanation of ground rules designed to maximise participation and encourage  
14 confidentiality. Subsequently, each focus group was asked a series of 10 open-ended  
15 questions from a semi-structured schedule to probe motives and barriers to PA in older adults  
16 (table 1). The researcher (P.G.), who had experience of conducting focus groups within the  
17 National Health Service and had received three, one day training courses in qualitative  
18 methods prior to the current study, facilitated the discussion by prompting less vocal  
19 members to contribute and minimise deviation from the topic. The researcher had no prior  
20 relationship with participants, nor held any other interests for undertaking the focus groups  
21 other than research purposes. Finally, participants were provided with a summary and review  
22 of issues raised during the process and asked to comment on accuracy and identify any gaps  
23 before the session closed.

### 24 **Data Analysis**



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1 female (71.4% and 85.7% respectively). Educational attainment of participants was  
 2 significantly different between the two SES groups ( $p < 0.01$ ), with the majority of  
 3 participants in the high SES group educated to a tertiary level (85.7%) and the majority of  
 4 participants in the low SES focus group educated only to primary level (78.6%). All  
 5 participants were community dwelling and physically independent. Although PA levels of  
 6 participants were not measured, it could be inferred from the focus groups that participants  
 7 were not sedentary given they reported engaging in activities such as walking, Tai Chi,  
 8 badminton, and line-dancing.

### 9 **Thematic analysis**

10 Thematic analysis yielded an array of themes and subthemes which are presented in  
 11 table 2 (motives for PA) and table 3 (barriers to PA). Intercoder agreement produced a kappa  
 12 score of 0.93 indicating a high level of agreement between the independent researchers.

#### 13 **Motives for physical activity.**

14 *Motives salient across both SES groups.* The anticipated health benefits of PA  
 15 including maintaining physical functioning in old age, reducing sedentary behaviour,  
 16 psychological wellbeing, and disease prevention were cited by both SES groups:

17 “You know it’s like what they say if you don’t use your muscles, you lose it” (P8,  
 18 LG1).<sup>1</sup>

19 [...] “It (PA) has definitely changed my life. It has lifted the depression big time” (P2,  
 20 LG1).

21 “You are sitting about less and you are a wee bit more active, I would be able to up  
 22 and down stairs more than you would be if you were sitting in the house watching TV  
 23 all day” (P1, HG1).

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<sup>1</sup>P = Participant; LG1 = Low SES Group 1; LG2 = Low SES Group 2; HG1 = High SES Group 1; HG2 = High SES Group 2

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1            “I think that exercise is very good mentally, you know if you have any form of stress,  
2            it’s a relaxation as well as the exercise, it allows you to focus on something else, so I  
3            think for people generally its bound to have benefits for people mentally” (P3, HG2).

4            Moreover enjoyment derived from PA was identified as a motive for engagement for both  
5            SES groups. There was a belief, particularly among the high SES group that enjoyment  
6            facilitated not only PA initiation, but also maintenance:

7            “No I think it helps that when you enjoy it, you wouldn’t be doing it otherwise. It’s a  
8            big factor” (P2, LG2).

9            [...] “Like the salsa I do, I go back and have been doing it for years now because I  
10            enjoy it you know” (P6, HG2).

11           Moreover enjoyment and satisfaction was regarded as influencing their perceptions of their  
12           abilities to perform PA:

13           “Aye you have to enjoy it encourages you to do it, when you are feeling good it spurs  
14           you on, gives you that confidence to know you are doing it right” (P8, LG1).

15           [...] “It’s after you engage and become confident, you get the enjoyment, but then  
16           again, the enjoyment and satisfaction builds into that confidence to further take part,  
17           you then know you are doing well, it is kind of like a cycle” (P8, HG1).

18           The opportunity to socialise was a prominent influence on PA engagement in both SES  
19           groups. A number of participants of high SES expressed that PA was a mechanism to sustain  
20           or enhance social networks after retiring:

21           “That would be the top reason for me, certainly, meeting friends and enjoying  
22           yourself, meeting new people” (P1, LG1).

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1            “The social side of physical activity is quite important to most of us, because once  
2            you leave work, you could become quite isolated if you stayed within the house, that’s  
3            my reasons for coming down here” [...] (P1, HG1).

4            Many participants stated that they received or provided support to friends in regards to PA  
5            and felt they had a commitment to attend activities. They also spoke about how their social  
6            relationships provided them with friendly competition, an additional motive to engage in PA:

7            “When I started the exercising it was a one on one, then [a healthy living centre  
8            member] started, it was better fun than when there was one person, because you  
9            encouraged each other on, a wee bit of friendly competition bit of a laugh and all”  
10           (P7, LG1).

11           “It’s easier if you know somebody who’s doing it already and can tell you a bit about  
12           it” (P2, HG1).

13           ***Motives salient only to the high SES group.*** In addition there were a number of  
14           motives for PA that were exclusively advocated by the high SES group. A number of  
15           participants indicated that older people maintained PA from youth or adulthood:

16           “I think that a lot of people and I think that most people around this table did sports  
17           activities in their youth. You know what I mean there’s some people who there just a  
18           continuity thing and this is an opportunity to keep active because you have been  
19           active most of your life anyway” (P2, HG1).

20           Additionally there was a belief among a number of adults of high SES that seeing others of a  
21           similar age group participating in certain physical activities gave them confidence that they  
22           too could engage in the activity:

23           “Perhaps if I seen other people my age doing the exercise that would encourage me to  
24           start it” (P6, HG1).

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1 Rehabilitation from health conditions was described as a motivator among the high SES  
2 group. They stated that coronary heart disease and strokes often encouraged older adults to  
3 initiate PA:

4 “They can be great encouragers, heart conditions and strokes, bypasses; it [PA]  
5 changes your attitude to physical activity. Sometimes you won’t do it until you start  
6 some exercise” (P2, HG1).

7 Moreover they were influenced by PA presented within the media. Participants were inspired  
8 to engage in new PA as a result from viewing major events on television. One participant  
9 suggested that although media coverage influenced participation, it was short lived:

10 “I was watching the darts there when they were on TV, I got interested in the darts  
11 then. There’s darts board out there but it hasn’t been used for a long time I think” (P7,  
12 HG1).

13 Having a choice of physical activities to engage in was an additional motivator cited by the  
14 high SES group. They stated that a range of opportunities would enable them to find a PA  
15 they enjoyed and suitable for their capabilities:

16 “You could try 10 sports and only like one of them, you need to find one you are  
17 comfortable with” (P8, HG1).

### 18 **Barriers to physical activity.**

19 ***Barriers salient across both SES groups.*** Participants in both groups identified a  
20 range of barriers to their PA engagement. A lack of recreational facilities within the locality  
21 was a barrier frequently cited by both SES groups. They expressed that limited opportunities  
22 for PA in their neighbourhoods constrained their participation:

23 “[...] we don’t have anything local, nowhere to go to, we only have this wee centre  
24 here and there’s only a certain amount of things you can do” (P2, LG2).

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1            “I think one of the negative things that I find about it is getting the facilities, and  
2            access to the facilities to do physical activity” (P8, HG1).

3            Additionally, when facilities were available, a number of participants stated that they would  
4            abstain from utilising such resources owing to the admission price:

5            [...] “People around here would rather spend their money on other stuff, you know, like  
6            the cost of living is so high nowadays, it’s hard to find money for activities, especially  
7            with us older people” (P6, LG2).

8            [...] “There are some leisure centres about, but even in the older age, you still have to pay  
9            to get in. if you book a court, you have to pay.., what is it we pay? £5.50 an hour, for one  
10           court for four people, you know” [...] (P8, HG1).

11           A lack of transport to and from PA facilities emerged as a barrier for both groups. Many  
12           perceived public transport as unreliable or incompatible with their needs. One participant  
13           from the high SES group recalled how a friend ceased her PA engagement as a result of bus  
14           timetables being contrary to her needs:

15           “Sometimes the bus times don’t suit you because they only run every hour “(P5,  
16           LG1).

17           “People like [an ex-member of U3A] for instance who used to be very active down  
18           here, they have changed the bus times and they don’t suit her anymore and she has  
19           gradually has drifted away” (P1, HG1).

20           ***Barriers salient only to the low SES group.*** Several barriers salient to the low SES  
21           group were identified. Despite being identified as a motivator for PA, paradoxically health  
22           conditions were cited as a barrier. They detailed how older adults in their community had a  
23           range of health problems including arthritis, diabetes, poor joint health, restricting the  
24           frequency, intensity, duration, and mode of PA engaged in:

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1           “A whole lot of them are diabetic [member of the healthy living centre] is diabetic.

2           [Member of the healthy living centre] because she is not fit she doesn't exercise, she

3           would love to exercise. It's her health that keeps her from doing it" (P8, LG1).

4           Additionally they cited safety concerns as a barrier to their PA engagement, highlighting

5           issues with antisocial behaviour, which often intensified at night:

6           “They stand about in gangs too. I definitely wouldn't feel safe going out at night

7           especially if there are drugs about. No way" (P2, LG2).

8           Moreover reported safety concerns extended to local infrastructure:

9           “Even some of the footpaths when walking, you go up and down like a yo-yo on

10          them, you would break your neck very easily on them, they are not very safe you

11          know. They would need to be new tarmacked. Round where we live" (P2, LG2).

12          A limited knowledge of the current PA guidelines emerged as a barrier to PA among the low

13          SES group, with the majority unaware of the guidelines and the remainder stating PA should

14          be tailored to individual capabilities:

15          “I think it depends on the person you know, depends what they can do” (P5, LG2).

16          In contrast, knowledge of PA guidelines within the high SES group appeared comprehensive:

17          “I think it may be 30 minutes five times a week” (P5, HG2).

18          Lastly, the weather was a barrier frequently cited by the low SES group. Many felt that

19          adverse weather, especially during the winter months restricted their PA engagement:

20          “You were saying about the winter, I suppose it might be a wee bit too cold to

21          exercise you know when it's rainy and that” (P6, LG2).

22          ***Barriers salient only to the high SES group.*** Time constraints was a barrier to PA

23          exclusively cited by the high SES group. Several stated that family commitments including

24          looking after grandchildren and caring for relatives restricted their PA participation:



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1 reported that employed younger adults of high SES were more likely to cite this as a  
2 motivator and utilised PA as a means to spend time with their family and friends and network  
3 with colleagues, which may partly explain the discrepant findings, given the participants in  
4 the current study were retired older adults. Nonetheless, the findings from the current study  
5 are encouraging for practitioners and policy makers given that positive health beliefs,  
6 enjoyment, social support, and the opportunity to socialise are associated with PA  
7 engagement in past quantitative research (Ball et al., 2007; Gristwood, 2011).

8         The findings are consistent with the tenets of SDT (Deci & Ryan, 1985). According to  
9 SDT, engaging in PA for autonomous reasons such as enjoyment (intrinsic motivation), or  
10 personally valued social and health benefits (integrated and identified regulations) is likely to  
11 result in adaptive behaviours. Despite previous concerns regarding the classification of the  
12 health and social benefits of PA as autonomous extrinsic motivation (Segar, Eccles, &  
13 Richardson, 2011), this categorisation is warranted in the current study given participants  
14 expressed personal endorsement of these benefits. Both intrinsic and self-determined  
15 extrinsic motivations are consistently associated with PA engagement (Teixeira et al., 2012).  
16 However as illustrated in table 2, personally valued health and social benefits, both forms of  
17 self-determined extrinsic motivation, were stronger influences upon older adults PA than  
18 intrinsic motives. Indeed, this is consistent with past quantitative research (Edmunds,  
19 Ntoumanis, & Duda, 2006) and supports claims that individuals are unlikely to maintain PA  
20 solely for enjoyment purposes given the organisation and commitment it entails (Mullan &  
21 Markland, 1997). Thus, fostering autonomous extrinsic regulations may potentiate older  
22 adults PA adoption (Kirkland, Karlin, Stellino, & Pulos, 2011). It is encouraging that  
23 participants from neither group cited introjected nor external motivations for PA engagement  
24 given the negative association between these regulations and PA participation (Teixeira et al.,  
25 2012). Moreover, the provision of encouragement and feedback in both SES groups is

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1 theorised to satisfy one's need for competence, and belonging to a social milieu is likely to  
2 satisfy the need for relatedness, both necessary for intrinsic motivation, internalisation of  
3 extrinsic regulations, and positive health behaviours (Deci & Ryan, 2000).

4         From a Self-Efficacy Theory perspective, the provision of aid, encouragement, and  
5 guidance from significant others reported by both SES groups is a source of self-efficacy,  
6 which Bandura terms verbal persuasion. However verbal persuasion is theoretically purported  
7 to be the weakest self-efficacy source (Bandura, 1997) and evidence within the PA domain  
8 supports this proposition (Ashford et al., 2010). Nonetheless, as Lee, Arthur, & Avis (2008)  
9 note, as individuals age, there may be greater perceived or actual requirement for guidance in  
10 appraising their physical capabilities, and the findings of this study support this proposition.  
11 As well as being cited as a motive, positive affective states (enjoyment and satisfaction) were  
12 identified by older adults in both SES groups as influencing perceptions of their capabilities  
13 to perform PA. There is a dearth of research specifically investigating the effects of  
14 physiological and affective states as an efficacy source (Samson, 2014), which is surprising  
15 among older adults given such states can often be construed as poor performance, lack of  
16 ability, or health scares (Lee et al., 2008). Thus the current findings, add to the literature by  
17 suggesting this is an efficacy source pertinent to older adults of both SES groups.

18         The findings also highlight a number of motivators salient to the high SES group, the  
19 most prominent being previous PA participation, the media, and observing others of a similar  
20 age participating in PA. From a Self-Efficacy Theory perspective (Bandura, 1997) older  
21 adults' participation is primarily dependant on previous successful experiences. Similarly  
22 from a SDT viewpoint (Deci & Ryan, 1985) continual successful experiences are postulated  
23 to result in greater internalisation of motivation to partake in PA (Vallerand, Pelletier, &  
24 Koestner, 2008). In the current study, in accordance with previous research among younger  
25 adults (Ball, Salmon, Giles-Corti, & Crawford, 2006) participants in the high SES group

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1 reported favourable PA experiences in childhood as influencing their current behaviour.  
2 Children of high SES are more likely to engage in PA with their parents and be exposed to  
3 parental PA and therefore more likely to emulate these behaviours (Richards, Poulton,  
4 Reeder, & Williams, 2009). Additional factors including a lack of material resources may  
5 also limit participation in low income families. Thus, individuals of high SES are more likely  
6 to be exposed to positive PA experiences and resources during childhood, which may  
7 contribute to SES disparities in PA in old age and explain the continuity of social inequalities  
8 in health (Huisman, Read, Towriss, Deeg, & Grundy, 2013). A second source of self-  
9 efficacy, vicarious learning emerged as motivator for those of high SES. Observing others of  
10 similar characteristics (e.g. age, SES) successfully participating in PA serves to increase self-  
11 efficacy (Ashford et al., 2010; Bandura, 1997). The current findings suggest that vicarious  
12 learning may be an efficacy source more salient to those of high SES, a finding consistent  
13 with quantitative research among older adults (Warner, Schüz, Knittle, Ziegelmann, &  
14 Wurm, 2011). Older adults of high SES are more physically active; therefore there is a  
15 greater pool of individuals who can serve as models among this cohort (e.g. within their  
16 neighbourhood or social network). Moreover high SES individuals may be more likely to  
17 have models with whom they could identify within the sporting elite (Coakley, 2007),  
18 potentially rationalising the finding that media influences were more salient to the high SES  
19 group.

20 A lack of facilities and transport, and cost constrained PA participation in both SES  
21 groups. From an SDT perspective, these environmental barriers constrain the fulfilment of the  
22 three basic needs of autonomy, competence, and relatedness, resulting in non-optimal  
23 regulations, behaviours, affect, and wellbeing (Deci & Ryan, 2000). Similarly from a Self-  
24 Efficacy Theory perspective, such barriers minimise availability of the four self-efficacy  
25 sources. These reported environmental barriers are concerning given their reported

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1 association with reduced PA participation, quality of life, health status, and physical  
2 functioning (Balfour & Kaplan, 2002; Sugiyama, Thompson, & Alves, 2009).

3 Health limitations, neighbourhood safety, and a limited knowledge of PA guidelines  
4 emerged as prominent barriers to the low SES group. The influence of health limitations and  
5 safety on PA participation for low SES groups has previously been reported among younger  
6 adults (Kamphuis et al., 2007). The higher prevalence of chronic conditions among older  
7 adults of low SES (Menec, Shooshtari, Nowicki, & Fournier, 2010) and the association  
8 between chronic disease and reduced PA participation (Ashe et al., 2008) may reconcile the  
9 SES discrepancies in regards to health barriers evident in the current study. Alternatively, it is  
10 plausible that participants of low SES may lack awareness of the benefits of PA for  
11 individuals with chronic disease, through deficient health literacy (Furuya, Kondo, Yamagata,  
12 & Hashimoto, 2013). As illustrated in table 2, only older adults of high SES regarded PA as a  
13 means to rehabilitate from health conditions. Conceivably, regularly exposing older adults of  
14 low SES to another older person with similar physical limitations walking could assist in  
15 improving self-efficacy for exercise via increased opportunities for vicarious learning (Lee et  
16 al., 2008). The deficient health literacy among individuals of low SES was also evident in  
17 their paucity of knowledge regarding PA guidelines, a finding congruent with quantitative  
18 literature (Moore, Fulton, Kruger, & McDivitt, 2010). The findings also suggest that safety  
19 concerns are a barrier prominent to those of low SES. Objectively measured neighbourhood  
20 safety has been shown to partially mediate the relationship between neighbourhood SES and  
21 PA (Kamphuis et al., 2008). However, Wilson, Kirtland, Ainsworth, and Addy (2004)  
22 exhibited that perceptions of neighbourhood crime among low SES participants was not  
23 substantiated by objective measures, suggesting that other factors that extend beyond  
24 neighbourhood characteristics, such as individuals psychosocial attributes may contribute to  
25 their perceptions (Kamphuis et al., 2010). Hence strategies to improve perceptions of safety

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1 must move beyond altering the physical environment and consider psychosocial processes  
2 (e.g. self-efficacy and social cohesion). Thus we acknowledge the complexity of factors that  
3 influence PA engagement, that it is a function of a range of psychological, social,  
4 environmental, and biological influences. Therefore the removal of one or more barriers or  
5 the emphasis of certain motivators may not necessarily translate into greater PA engagement  
6 (Biddle, Mutrie, & Morley, 2015). Future research needs to consider the complexity of PA  
7 determinants among older adults who refuse participation, even after the removal of barriers.

8         The current findings also suggest that time is a barrier pertinent to high SES groups,  
9 which is inconsistent with Cassou et al., (2011) who reported this as a prominent barrier for  
10 older adults of low SES. Caussou and colleagues (2011) asserted that in their Brazilian  
11 sample, it is a social norm for older adults of low SES to care for grandchildren given parents  
12 cannot afford babysitters when working. To combat perceived time barriers health promotion  
13 campaigns should reinforce that PA can be accumulated in short bouts (Murphy & Hardman,  
14 1998).

### 15 **Strengths and limitations**

16 The present study is not without limitations. The urban, predominantly female, and Caucasian  
17 sample limits generalizability and should be replicated in more representative populations.  
18 Secondly, SES was not determined for participants prior to each focus group, but assumed.  
19 However, given the observed differences in educational attainment of the two SES groupings,  
20 it is likely that the method of recruitment achieved focus groupings with disparate SES.  
21 Moreover, PA levels of participants were not measured directly, however were inferred from  
22 the focus groups, a limitation given motives and barriers for physically active individuals  
23 may differ from those who are sedentary (Casey, Eime, Ball, & Payne, 2011). In addition,  
24 following data analysis participants were not afforded the opportunity to comment on the  
25 findings, which may have strengthened the validity of the researcher's interpretation of their

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1 perspectives (Tong, Sainsbury, & Criag, 2007). Lastly although research concerning Self-  
2 Efficacy Theory and older adults is abundant (Lee et al. 2008), less research attention has  
3 been afforded to establishing the generalisability of SDT among this cohort, particularly  
4 experimental evidence (Teixeira et al., 2012), and it is argued that much of the research  
5 among younger adults is methodologically flawed (Buchan, Ollis, Thomas, & Baker, 2012).  
6 Thus this research forms the basis of further scientific investigation of this theory as a  
7 possible means of increasing our understanding of PA in older adults. Despite these  
8 limitations, the current study also possesses a number of strengths and provides a unique  
9 contribution to the literature. Past qualitative research has investigated factors influencing  
10 older adults' PA participation, however only a limited number have considered how they may  
11 differ according to SES (Franco et al., 2015). Thus this study contributes to the literature by  
12 identifying how both motives and barriers to PA engagement compare and contrast among  
13 older adults of differing SES groups and is strengthened by its theoretical basis and high  
14 intercoder agreement.

### 15 **Implications for research, clinicians, and policy makers**

16 The results may assist future researchers to develop hypotheses, design interventions,  
17 or generate theory. The findings suggest that integrated and identified regulations proved the  
18 strongest influences upon older adults PA, regardless of SES, followed by intrinsic motives,  
19 therefore we reiterate calls that future research and policy should attempt to foster  
20 autonomous motivation among this age group (Kirkland et al., 2011). This could be achieved  
21 by emphasising the enjoyment of PA, and assisting older adults with internalisation of the  
22 health and social benefits of PA through the provision of autonomy, structure and  
23 involvement (see Kilpatrick, Hebert, and Jacobsen (2002) for a practitioners guide). All four  
24 efficacy sources were cited by the high SES group as influencing their perceptions of their  
25 capabilities to perform PA, with verbal persuasion and positive and affective states most

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1 frequently cited. Among older adults of low SES only verbal persuasion and positive and  
2 affective states were regarded as efficacy sources. Thus future interventions among older  
3 adults should take cognisance of these findings by incorporating these efficacy sources into  
4 the intervention design (e.g. verbal feedback, and assisting older adults with interpreting  
5 physiological and affective states). The disparate barriers identified across SES groups may  
6 provide researchers with a richer understanding of how to tailor interventions and policy to  
7 specific SES groups. For example targeting perceptions of neighbourhood safety and  
8 improving health literacy among low SES groups in future interventions and policy may be  
9 an effective means of reducing PA barriers among this cohort. Similarly, taking cognisance  
10 of time barriers for older adults of high SES, one could incorporate these factors in future  
11 interventions (e.g. emphasising that PA can be accumulated in bouts or employing higher  
12 intensity, shorter duration exercise sessions) to maximise participation and retention of  
13 participants.

### 14 **Future directions**

15 The current study provides a unique contribution to the literature by investigating how both  
16 motives and barriers to older adults PA may differ according to SES, and addresses the need  
17 for qualitative research exploring efficacy sources and SDT among this age group. However  
18 unanswered questions warranting future research remain. The findings suggest that deficient  
19 health literacy among those of low SES including a lack of awareness of the benefits of PA  
20 for rehabilitating from health conditions, and a limited knowledge of PA guidelines may  
21 constrain their PA. Through the medium of a mixed method approach, future research could  
22 quantitatively compare health literacy across SES groups, and qualitatively investigate the  
23 underlying mechanisms for any discrepancies in knowledge exhibited. Moreover the current  
24 findings suggest that only older adults of high SES consider vicarious learning and  
25 performance accomplishments as efficacy sources, thus future research is required to clarify

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1 these findings. Lastly, older adults of low SES reported greater environmental barriers to PA  
2 including neighbourhood safety. From a SDT perspective, an interesting avenue of research  
3 concerns the investigation of how the physical environment may support or thwart older  
4 adults need satisfaction, and the subsequent effects on motivation. Given the universality of  
5 basic needs, thus evident across social class, one would assume that greater environmental  
6 barriers among low SES groups would translate into need thwarting and non-optimal  
7 regulations. Moreover regardless of SES, greater attention must be afforded to older adults  
8 within SDT research. The theoretical tenets of SDT have considerable support within the PA  
9 domain, particularly among younger adults (Edmunds et al., 2006; Puente & Anshel, 2010),  
10 however its generalisability to older adults is limited without greater research attention  
11 afforded to this cohort.

## 12 **Conclusion**

13 The findings of the current study suggest that motives for older adults PA participation are  
14 comparable across SES groups. Integrated and identified regulations (health benefits and  
15 enhancing social networks) emerged as primary motives for PA engagement across SES  
16 groups. Intrinsic motives (enjoyment) were less salient, nonetheless common across SES  
17 groups. Thus autonomous motivations should be fostered in future research and policy.  
18 Verbal persuasion and affective and physiological states emerged as prominent efficacy  
19 sources regardless of SES, thus future interventions and policy should take cognisance of  
20 such findings. Barriers to PA varied across SES groups and as such future interventions and  
21 policy should target different SES groups to account for such differences.

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Table 1

*Semi Structured Focus Group Schedule*

Questions	
1.	In your view, what are the benefits of physical activity for older adults?
2.	What in your view are the disadvantages or drawbacks of physical activity for older adults?
3.	In your view, how much physical activity do you believe is required per week to gain some of the benefits discussed?
4.	What would be the main reasons for you to try physical activity in the first place?
5.	In your view, what are the circumstances that would enable older adults to take part in physical activity?
6.	In your view, what circumstances would make it impossible for older adults to take part in physical activity?
7.	Do you think that having belief in one's self to be able to successfully undertake physical activity is important factor when older adults commence physical activity for the first time? In your view, is this self-belief important for older adults to continue taking part in an activity over a longer period of time? E.g. 6 months to a year.
8.	In your view, is enjoyment of an activity the most important factor for older adults when undertaking physical activity or are there other factors that are more important? In your view, would enjoyment of the activity be an important factor for older adults to continue talking part in an activity over a longer period of time e.g. 6 months to a year?
9	In your view what may be the benefits for older adults undertaking Physical activity in groups, with a friend or partner?
10.	Are there any other issues in relation to physical activity that you would like to raise or any questions for me?

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Table 2

*Themes and Subthemes Identified From Thematic Analysis (Motives for PA)*

High SES (n = 14)				Low SES (n = 14)			
Theme	F	Subtheme	F	Theme	F	Subtheme	F
Health benefits	27	Physical functioning/ reducing sedentary behaviour	7	Health benefits	24	Physical functioning/ reducing sedentary behaviour	11
		Psychological wellbeing	5			Psychological wellbeing	9
		Disease prevention	5			Disease prevention	4
		Flexibility	5				
		Increased energy	3				
		Quality of life	2				
Enhancing social networks	18			Enhancing social networks	16		
Enjoyment	13			Enjoyment	12		
Social support	10			Social support	11		
Past performance	6						
Media	5						
Vicarious learning	4						
Health conditions	4						
Choice of activities	3						
Total	90				63		

Note. F = frequency of theme reported; SES = Socio-economic status

Table 3

*Themes and Subthemes Identified From Thematic Analysis (Barriers to PA)*

High SES (n = 14)				Low SES (n = 14)			
Theme	F	Subtheme	F	Theme	F	Subtheme	F
Time	13			Health conditions	16		
Facilities	12			Neighbourhood safety	12	Fear of crime	10
Transport	9					Infrastructure	2
Health conditions	9			Facilities	10		
Cost	9			Guidelines knowledge	9		
Weather	2			Transport	7		
Injury	2			Cost	7		
Age barrier	2			Weather	6		
				Injury	2		
Total	58				69		

Note. F = frequency of theme reported; SES = Socio-economic status



