



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

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

1 **Abstract**

2 Perceptions of time and energy and their role in physical activity engagement were examined in older

3 adults living in lower SES areas. Semi-structured interviews were conducted with 19 participants aged

4 67-94 years. A thematic framework analysis identified four themes: Time is Energy (older adults

5 conflate time and energy in relation to physical activity); Reduced Day (engaging in activities outside a

6 certain timeframe is deemed unacceptable); Being Given Enough Time (need for time to socialise and

7 go at own pace); and Seasonal Impact (seasonal differences affecting access). Enjoyment appears to

8 mitigate the perceived energy drain and increase the capacity for physical activities for many.

9 Conflation of time and energy may explain observed discrepancies between older adults' actual and

10 perceived available time. Having locally-based physical activities means less time/energy is required

11 to attend, leaving more resources for physical activity itself. A limited availability of resources in lower

12 SES areas is therefore problematic.

13

14 Abstract Word Count: 150/150

15

16 **Keywords:** acceptability; enjoyment; deprivation; ageing; qualitative

17

## 1 Introduction

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

8 Those living in a deprived or lower socioeconomic status (SES) area are twice as likely to be  
9 inactive as those in higher SES areas (Public Health England, 2014). Deprivation has been defined as a  
10 lack of resources resulting in unmet basic needs, measured across several socioeconomic factors e.g.  
11 income, employment, health, education, housing, access to local services, local environment, safety  
12 and crime (Department for Communities and Local Government (DCLG), 2011). Individual SES is  
13 commonly measured on factors such as education, occupation and income. Low individual SES  
14 throughout the life course has been shown as a determinant of low physical activity in older adults  
15 (Hillsdon, Lawlor, Ebrahim, & Morris, 2008).

16 In addition to individual SES factors, living in a more socioeconomically deprived area in older  
17 age is also an independent risk factor of lower physical activity levels for older people, regardless of  
18 previous individual SES (Hillsdon et al., 2008). The disparity in physical activity levels for older adults  
19 according to deprivation of the area in which they live has been explained as being due to both  
20 environmental aspects (e.g. lack of safe, pleasant amenities) and social aspects (e.g. feeling of not  
21 fitting in) of more deprived areas (Annear, Cushman & Gidlow, 2009). Budgetary constraints  
22 impacting provision of physical activity programmes in deprived areas may decrease opportunities for  
23 engagement in physical activity by older adults in such areas (King, 2001). It has also been proposed  
24 that lower levels of physical activity may have more to do with individual characteristics of those living

1 in deprived areas, such as being older, having lower physical function, higher body mass index and a  
2 reduced tendency to leave the home (Fox et al., 2011).

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

14           Physical activity promotion for older adults is often focused on health risks or long-term health  
15 outcomes (e.g. Public Health England, 2014; UK Department of Health, 2011). However, interventions  
16 to encourage physical activity in older adults using information on risks or consequences of behaviour  
17 to encourage physical activity lack efficacy (O'Brien et al., 2015). This may be due to older adults  
18 perceiving such risk related-health information as negative or not salient (McGowan et al., 2017). The  
19 lack of efficacy of previous physical activity interventions may be explained by Socioemotional  
20 Selectivity Theory (SST) in which "the perception of time plays a fundamental role in the selection and  
21 pursuit of social goals" (Carstensen, Isaacowitz, & Charles, 1999, p. 165) with those having less time  
22 (e.g. reduced lifespan in older age) protecting this valued resource by focusing more on emotionally  
23 satisfying goals. To maintain emotional balance, and not waste time, older adults may therefore be  
24 more motivated to ignore negative information (Löckenhoff & Carstensen, 2004). Focusing on

1 negative health risks in physical activity promotion may also be damaging to self-identity in older age,  
2 as it emphasises decline as an inevitable part of ageing (Phoenix & Orr, 2015).

3 A more promising approach to physical activity promotion relates to the observation that  
4 older adults experience numerous types of enjoyment around physical activity: social interaction,  
5 intrinsic fun, sense of achievement, increased confidence (Devereux-Fitzgerald, Powell, Dewhurst &  
6 French, 2016); structure/routine, sense of purpose, pleasure of total immersion in an activity (Phoenix  
7 & Orr, 2014). Csikszentmihalyi (1990) sees enjoyment as pleasure coupled with a sense of  
8 achievement, which leads one to an optimal flow state. When in this flow state, enjoyment appears  
9 to impact on perception of time, (e.g. perceiving only minutes to have passed when hours have, or  
10 vice versa), in line with the saying 'time flies when you are having fun'. The importance of enjoyment  
11 was discussed in two recent meta-syntheses of qualitative studies, where physical activity was  
12 deemed more acceptable and relevant to older adults when perceived as enjoyable and social  
13 (Devereux-Fitzgerald et al., 2016; McGowan et al., 2017). By contrast, most interventions to date have  
14 not targeted these factors (French, Olander, Chisholm, & McSharry, 2014).

15 A key limitation of the primary qualitative studies identified in the meta-syntheses on  
16 acceptability of physical activity in older adults is that there is little data from older adults within low  
17 SES environments. To develop interventions or services that are engaging to older adults within low  
18 SES populations, we need to ascertain which factors affect older adults' acceptability of physical  
19 activity in such areas. To address this issue, we have undertaken a multi-perspective research project  
20 on acceptability of physical activity to older adults living within lower SES areas. The aim of this  
21 project was to explore factors relating to acceptability from the perspectives of those older adults  
22 living in lower SES areas, trainers/group leaders delivering physical activities within these areas, and  
23 physical activity providers who organise such activities. The present paper focuses on a set of findings  
24 discovered in older adults' interviews during the larger research project which merited further analysis  
25 in its own right: the conflation of time and energy relating to their engagement in physical activity.

1 Although previous research has looked at the impact perceived time can have on being physically  
2 active (e.g. Venn & Strazdins, 2017; Justine et al., 2013), such research has considered time at face  
3 value. The aim of the present paper was to address this lack of in-depth analysis by exploring different  
4 perceptions of time and energy around physical activity in older adults, and any factors which  
5 impacted these perceptions in lower SES environments.

## 6 **Method**

7 **Participants.** Adults were eligible if aged 65 years or older, lived independently in identified  
8 lower SES areas, had sufficient English language skills to be interviewed and who could walk  
9 continuously for 10 minutes unassisted by another person. Participants were recruited from council  
10 wards (local government areas) of Manchester (UK) that scored in the highest 50% across the city in  
11 terms of deprivation specifically for older adults. Actual ward deprivation figures ranged from 38.5% -  
12 54.8% of older adults living in poverty, compared to the English national average of 18.1% (DCLG,  
13 2011). Deprivation figures were based on factors including income, crime risk, access to local  
14 amenities, and living environment (DCLG, 2011). Purposive sampling was used to ensure a broad  
15 variation in the sample in terms of residential area, age and activity levels (see Table 1) and allowed  
16 for a wider range of views to be gathered than random sampling may have produced. After initial  
17 interviews, males and immigrant participants were particularly sought, as these proved less accessible  
18 at initial recruitment drives.

19 **Procedure.** Institutional ethical approval was granted. Recruitment was publicised via local  
20 government and research newsletters, libraries, age-related charities, and a snowballing approach.  
21 The first author attended coffee mornings, library groups, physical activity sessions and craft groups  
22 for older adults, to discuss the research with them and promote recruitment. Eligibility was  
23 established using short screening questions regarding walking ability and residence. The first author  
24 then conducted private face-to-face interviews, at a time and place convenient to participants, with  
25 no financial remuneration beyond travel expenses. Informed consent was taken in person at the start

1 of the interview session. A pre-interview questionnaire was completed with participants for  
2 demographic and background data. Data from previous interviews were considered when  
3 undertaking subsequent interviews so that emerging topics could be addressed. Interviews lasted  
4 between 31 and 77 minutes (median 54 minutes) and were audio-recorded.

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

15 **Analysis:** Data were analysed using Thematic Analysis (Braun & Clarke, 2006) utilising indexing  
16 and matrix principles of the Framework Approach (Ritchie & Spencer, 1994) to permit a  
17 comprehensive analysis with transparent, accessible organization of the data. Interviews were  
18 transcribed verbatim, read and re-read to achieve familiarisation, and relevant topics were identified  
19 in relation to the research question. Initial codes were systematically generated and collated into a  
20 hierarchical thematic framework of potential themes and sub-themes, with both latent and extant  
21 themes being explored. All instances of themes were re-considered, with themes merged or split as  
22 necessary. The data were indexed and framework matrices were constructed to enable thematic and  
23 case-based analysis, and to assist with identification of linkage between same or different phenomena  
24 (Spencer, Ritchie, O'Connor, Morrell & Ormston, 2014).

25



1 **Results**

2 Of 25 older adults who expressed interest, 19 participated. Of the six remaining candidates

3 two were ineligible due to residential location, two withdrew due to ill health and two declined to take

4 part without any reason given. The 19 participants (see Table 1) were aged 67-94 years (15 female, 4

5 male) and represented eight council wards across all areas of the city of Manchester: North

6 Manchester ( $n=4$ ); East Manchester ( $n=4$ ); South Central Manchester ( $n=5$ ); South Manchester ( $n=6$ ).

7 One participant identified as British Pakistani; four as White Irish, and 14 as White British. Two

8 participants were educated to PhD level, five had attended further education, seven completed high

9 school, and five had some high schooling. Of the married participants ( $n=7$ ), two married couples took

10 part (interviewed separately). The non-married participants were widowed ( $n=6$ ), divorced ( $n=3$ ) and

11 single ( $n=3$ ), with ten living alone, whilst the remaining two lived with family members. Three of the

12 participants had full-time caring responsibilities for a family member who lived with them. Some

13 participants had regular weekly care of grandchildren ( $n=4$ ), but the majority reported only social visits

14 with no caring responsibilities ( $n=15$ ). Most participants had no work-related commitments ( $n=12$ ),

15 however seven undertook voluntary work with a variety of hours per week: 10+hours ( $n=2$ ), 4-6 hours

16 ( $n=3$ ), and 2 hours ( $n=2$ ). Most participants did not have their own transport ( $n=15$ ); the remaining

17 participants ( $n=4$ ) were married and shared use of household cars with their spouse (three cars in total

18 in the sample). Participants were categorized as active ( $n=8$ ) or inactive ( $n=11$ ) based on self-reported

19 physical activity (pre-interview questionnaires). Some participants also met guidelines on flexibility

20 ( $n=6$ ), of whom one was inactive and one was male. One male and one female participant met the

21 recommendations on strength training two days per week. Ten participants did not feel at risk for

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

23 weather).

24 **(PLEASE INSERT TABLE 1 AROUND HERE)**

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

#### 6 ***Time is Energy***

7           Some participants referred to a lack of time for physical activity, despite most participants  
8 having indicated that there was time available in their schedule due to low working or caring  
9 commitments: *"It's having the time, isn't it [laughs]"* (Shirley, F, 70, inactive). Often time and energy  
10 seemed to be conflated, or merged into one concept, particularly when discussing time spent getting  
11 to and from activities *"I have to get there... and that's walking and on buses... you know, I want  
12 something easier really, within easy reach"* (Claire, F, 67, inactive). Time and energy were viewed as  
13 precious, limited resources which older adults did not wish to waste on physical activity that they  
14 found irrelevant or unenjoyable, or on getting to their preferred activity: *"I would tap dance all day,  
15 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  
16 start doing it. I'm not a walker"* (Olive, F, 70, active). However, when an enjoyable activity was  
17 anticipated, this offset the added energy expenditure of getting ready *"You're up and out, and you  
18 don't care"* (Sally, F, 78, active), making the whole concept more acceptable: *"[then] I enjoy the whole  
19 activity of, 'Right it's time to get ready now, I'm going to have my shower' [] knowing I'm going to be  
20 doing something that I enjoy"* (Olive, F, 70, active).

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

1 previously enjoyed physical activities became unacceptable due to the time and energy required for  
2 travel:

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

6 The more active older adults felt they had a higher level of energy *"I don't FEEL like a*  
7 *pensioner, you know, because I've got so much energy and I'm always on the go and I'm always*  
8 *looking for new things to do"* (Olive, F, 70, active). This was viewed as a sign of youth and a direct  
9 result of being physically active *"I just feel a bit younger than what I am. Probably it's because I'm*  
10 *doing all these exercises"* (Julie, F, 72, active). There was also a fear of losing this energy and vitality  
11 through time spent being inactive:

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

15 Inactive participants seemed more aware of their energy expenditure, with forms of physical  
16 activity they classed as exercise deemed to take more energy compared with more social physical  
17 activities: *"How can I put it, more energy, ...type of thing, isn't it, swimming than dancing"* (Shirley, F,  
18 70, inactive). The least active older adults also seemed to perceive a higher energy and time  
19 expenditure requirement of light or moderate intensity activities such as walking to the local shop, e.g.  
20 perceiving locations to be further away than they were *"it's about quarter of a mile to the shops, it's*  
21 *about half a mile to [activity venue]"* (Ben, M, 74, inactive) (actual distances 0.1 mile and 0.3 miles  
22 respectively). This may be due to the amount of time it took those with low physical fitness to reach  
23 their destination. Health problems could indeed mean that they were expending more energy than a  
24 fitter person to engage in basic tasks.

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

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

## 1 **Reduced Day**

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

7 *“by the time you’ve done what you wanted to do here [at home] in the morning, and then we go*  
8 *to the [sedentary activity], and then by the time we come home we get our tea and so that’s the*  
9 *day gone. And when I go for the [physical activity] on a Tuesday and I’m there from about half*  
10 *past nine til maybe half past twelve, and then by the time we come home and have a bit of lunch*  
11 *and there’s another day gone”* (Ben, M, 74, inactive).

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

1 For those who were open to engaging in multiple activities per day, there was not always  
2 enough time to get from one activity to another without their own transport, as activities for older  
3 adults also tended to be provided within a reduced window of time: *“But it’s so awkward for us. We  
4 don’t finish till twelve o’clock and they start at one...and you have to get the bus to both places”* (Sally,  
5 F, 78, active). Lack of local amenities and public transport issues also fed into this, as earlier activities  
6 which needed to be reached by bus could not be engaged in freely:

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

10 More active participants seemed happy to engage in walking as active transport to overcome this,  
11 although this was related to an individual’s mobility, enjoyment of walking, and financial situation: *“it  
12 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  
13 just walk [laughing] cos I won’t pay the money”* (Sally, F, 78, active).

14 Earlier in the day seemed optimal for many non-structured physical activities in order to miss  
15 the crowds, especially children, whether cycling in the park: *“It’s the safest time to go because there’s  
16 nobody around... it’s not like if you go in the afternoon there’s kids and everything running out in front  
17 of you”* (Diana, F, 71, active); or walking around town: *“half ten in the morning I’m usually out there...  
18 because it gets crowded in the afternoon. It’s more young people isn’t it”* (Susan, F, 80, inactive).  
19 Active participants noted that older adults were generally in the minority later in the day, as noted by  
20 this regular gym user: *“the old people had gone by 4 o’clock or 5 o’clock”* (Al, M, 77, active).

21 However, some participants wished for more social physical activities in the evenings, such as  
22 dancing in local community centres: *“Cos there’s no alcohol involved, you know. That would appeal”*  
23 (Diana, F, 71, active). Others were happy to go out at night to evening physical activities or to  
24 pubs/social clubs where they could dance, but they tended to have their own transport or money for

1 taxis. Those without such resources spoke of the difficulties in engaging in activities in the evenings or  
2 night times: *"I'd love to go to aqua fit... it's at half eight at night... so everything's a taxi. Well I don't*  
3 *have the money to get taxis"* (Linda, F, 68, inactive). Many older adults with limited resources found  
4 their day constrained by factors beyond their control rather than by choice, which was not understood  
5 by others with more resources: *"they're saying 'You should go' but it's all people sitting with cars"*  
6 (Linda, F, 68, inactive). Daylight was an important consideration, particularly for those with reduced  
7 mobility and could explain such reticence in engagement later in the day for some: *"how do I get there*  
8 *and how do I get back... Trying to cross the road in a [mobility] scooter, cos they just don't care... No, I*  
9 *don't want to go out at night time and when it goes dark"* (Jo, F, 69, inactive). Others were fearful of  
10 crime in their neighbourhood after dark *"you can't go out in the evening and come back on your own...*  
11 *you've got to be careful"* (Julie, F, 72, active), particularly if waiting around for transport *"[it's a] bit of*  
12 *a rough area up there, if you know what I mean. So you don't want to be stood outside"* (Linda, F, 68,  
13 inactive).

#### 14 ***Being given enough time***

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

21 *"Everybody laughs... there's no, 'Be there on time', or restrictions... and you think 'Oh, I'm gonna be*  
22 *late', you don't think 'Oh I won't go'. You go... cos you want to go and it's not gonna interrupt the*  
23 *class or anything"* (Sara, F, 74, inactive).

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

8           Time and encouragement to socialise around an activity was valued by many. One participant  
9 now has twice weekly lunch sessions after class with his exercise classmates: *“Well they said to me*  
10 *‘Why don’t you just stay? Why do you go home?’”* (Kevin, M, 71, active). A walking group  
11 accommodated all members by ensuring even the slowest had time to stop for tea and cake without  
12 rushing: *“But [friend] and I were well behind. And we just took our time and caught them up”* (Sally, F,  
13 78, active). Unreliable community transportation (i.e. free door-to-door services for eligible residents)  
14 often encroached on physical activities and any possibility of socialising: *“well they never get the*  
15 *chance to socialise after. They always come picking them up too early”* (Claire, F, 67, inactive). Such  
16 services seemed notorious for leaving without their pick-up, and several older adults reported leaving  
17 their activities before their scheduled finish for fear of being stranded, leaving them standing outside,  
18 often alone: *“You’ve got half an hour waiting, whatever the weather, cos if you’re inside... he goes”*  
19 (Linda, F, 68, inactive).

## 20 **Seasonal Impact**

21           Seasonal differences in time and energy perceptions, and the impact these perceptions had on  
22 engagement in physical activity, were apparent. Many older adults in low SES neighbourhoods found  
23 it easier to access physical activities during the lighter evenings of summer, but not all older adults  
24 found the warmer weather conducive to being physically active: *“I wouldn’t over exert in the heat, cos*



1 *I think that's silly*" (Pam, F, 72, inactive). Some however felt it took less time and energy to prepare for  
2 physical activity in the warmer months:

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

7 Certain physical activities (e.g. walking, swimming) seemed less appealing in the coldest  
8 months for some, and many reported classes and groups taking an extended break around  
9 December/January. However, some older adults were disappointed when services were not  
10 reinstated more quickly, as one participant noted in May: *"[the walking group] finished like for the*  
11 *winter, and they've not got it sorted out yet again"* (Julie, F, 72, active). Making small  
12 accommodations in different seasons increased acceptability, such as exercising in a warmer room in  
13 winter: *"they would want it cosy and warm in winter"* (Linda, F, 68, inactive) and being understanding  
14 of weather-related travel issues: *"it's got to be very, very relaxed in the winter class, where you can*  
15 *just stroll in if you're late"* (Sara, F, 74, inactive). The increased depletion of energy just to get to  
16 physical activities was a major concern for many: *"...walking in the rain. It takes it out of you"* (Sara, F,  
17 74, inactive); and even the most active struggled: *"normally it takes me 15 minutes and it took me an*  
18 *hour [walking in the snow] ...I never attempted it again"* (Sally, F, 78, active).

19 The impact of closed local facilities in low SES areas was even more keenly felt by those without  
20 cars throughout the year. In the summer, those who relied on other older adult friends for transport  
21 or company at physical activities were less likely to attend if these friends went away for prolonged  
22 periods: *"She goes [abroad] quite a lot you see, so she wasn't around and I'd say, "If she's not going, I*  
23 *won't bother" you know"* (Mo, F, 89, inactive). Whereas in the winter, inclement weather magnified  
24 public transport issues: *"that's a big issue, really... waiting around for buses, especially in the winter if*

1 *your hair's wet*" (Claire, F, 67, inactive). Weather seemed less of a barrier for active older adults on  
2 direct bus routes or with cars *"I've gone in when it's been snowing and everything and ice"* (Kevin, M,  
3 71, active).

#### 4 **Discussion**

5 This study found that when older adults spoke of 'not having time' to be physically active they  
6 often seemed to be referring more to the perceived energy expenditure required to engage in physical  
7 activity, which included getting ready, and travelling to and from activities. For those who engaged  
8 regularly in enjoyed physical activities, anticipation of attending often seemed to offset negative  
9 perceptions of such energy expenditure. Lack of local amenities in low SES areas was often  
10 compounded by a lack of individual resources, such as own transport or taxi fares. This made  
11 engaging in physical activities outside of the home more onerous, and therefore less acceptable, than  
12 for those with such resources. This was particularly apparent during inclement weather, when further  
13 energy expenditure was required merely to attend an activity, and on dark nights when fears for  
14 safety were an issue. Physical activity in the evening tended therefore to be pursued only by those  
15 with their own car or sufficient finances for taxis, despite those without such resources professing an  
16 interest. Many, particularly inactive, older adults viewed multiple activities per day as unacceptable.  
17 Basic chores were also seen as a drain on time and energy for the less active, leaving them with fewer  
18 perceived resources than active older adults. However, losing oneself in a physical activity, whether  
19 through intrinsic enjoyment or the enjoyment and distraction of the social nature of the group,  
20 seemed to enable even the most inactive to increase their capacity for physical activity. A lack of  
21 flexibility and rigidity of thinking was more apparent with some inactive older adults, which meant  
22 that activities had to occur on set days or times to be acceptable, even giving up desired physical  
23 activities if they fell outside these times. Having a relaxed, sociable atmosphere within organized  
24 physical activities encouraged attendance, particularly when tackling weather or transport difficulties.  
25 Being encouraged to socialize within and beyond classes or groups was highly valued, and this added

1 to the enjoyment and increased acceptability of regular physical activity for many. However,  
2 unreliable transport services severely constrained such socializing, or even completing an activity for  
3 some, meaning those without personal resources were again negatively impacted.

4 ***Strengths and limitations of study.*** This study addresses the lack of data in the literature on  
5 acceptability of physical activity from older adults living in deprived areas. The study took place in  
6 Manchester, a city ranked third highest for deprivation in England (DCLG, 2011). Recruitment focused  
7 on areas with higher deprivation specifically for older adults. Recruitment was primarily achieved by  
8 going into communities to talk with older adults about the research. Purposive sampling was used to  
9 ensure that active and inactive older adults' views were gathered. Activity levels were derived from  
10 data given over multiple questions, using recommended guidelines for activity levels, rather than older  
11 adults self-identifying as active or inactive. However, the self-report of this data, with the problems of  
12 retrospective reliability and social desirability, is noted as a weakness. The sample consisted mainly of  
13 white British and Irish females, so is not fully representative of the wider older adult population.  
14 Although males and ethnic minorities were specifically sought, they were difficult to access within the  
15 study timeframe. As this study took place within a city, there may be unidentified issues relating to  
16 older adults and physical activity within deprived rural areas.

17 ***Relationship to literature.*** Our findings that a perceived lack of time is a substantial barrier to  
18 physical activity for older adults in lower SES environments is in line with previous studies in the  
19 general adult population (Venn & Strazdins, 2017) and in middle-aged and older adults (Justine et al.,  
20 2013; Franco et al., 2015). Further, our findings support those of Venn and Strazdins (2017), in that  
21 perceptions of being time poor seemed compounded by a lack of financial resources. However, in  
22 contrast to previous studies, our findings suggest that it is not simply time that is a factor for older  
23 adults, but rather a combination of time and energy, which were often conflated by participants. This  
24 could explain the disparity between perceived and actual free time older adults had in which to be  
25 physically active, as they were also referring to their energy levels. Our findings concur with previous

1 work on the impact of reduced amenities in low SES environment on older adults' levels of physical  
2 activity (Annear, Cushman & Gidlow, 2009; King, 1999; Fox et al., 2011) but expand on this by  
3 identifying explanatory factors. Most participants in the current study spoke of issues *attending*  
4 physical activities outside the home, with very few older adults commenting on incidental physical  
5 activity within the home or neighbourhood. Participants experienced a lack of local and individual  
6 resources which increased the time/energy required just to get to a venue. This lowered the  
7 acceptability of engaging in physical activity in low SES areas, as many older adults perceived this extra  
8 expenditure to be beyond their capabilities. Although some older adults expressed a desire to be  
9 more active, few engaged in specific physical activity within the home or local neighbourhood, even  
10 though this would remove some of the time/energy barriers. This could suggest that older adults  
11 wanted something more than just the physical activity itself, or that they do not conceptualise  
12 incidental activities in the home and local neighbourhood as relevant to physical activity. Increased  
13 time/energy expenditure also negatively impacted the acceptability of multiple activities in a day,  
14 whether physical or not, as the energy required to get to *any* activity was perceived as a substantial  
15 drain on limited resources. Those with greater individual resources (e.g. cars/money for transport)  
16 experienced reduced expenditure and easier accessibility as most environmental issues such as lack of  
17 local amenities, safety, and weather were negated. If time and energy are conflated, by both  
18 participants and researchers, interventions may fail to adequately address the factors responsible for  
19 older adults' low engagement levels in physical activity.

20 In line with previous studies (Jallinoja, Pajari & Absetz, 2009; McGowan et al., 2017), many of  
21 our inactive participants perceived physical activity only as exercise, or hard work which could deplete  
22 energy, rather than something they associated with leisure or pleasure. However, in the current study  
23 many older adults who enjoyed regular physical activities seemed to utilise anticipated pleasure to  
24 negate the energy expenditure of getting ready and getting to the venue. This is in line with the  
25 findings of Phoenix and Orr (2014) where participation in enjoyable activities can be related beyond

1 the activity itself, to the environment and the habit of it recurring. Our results suggest that having  
2 both social and physical needs met within the same time/energy expenditure meant that physical  
3 activity was not abandoned in favour of more emotionally satisfying social interaction when faced  
4 with limited resources, in agreement with SST (Carstensen et al., 1999). For the majority of our  
5 participants, social interaction increased their perceived enjoyment and seemingly increased the  
6 ability of even the most inactive to increase the time they were able and willing to be physically active.  
7 This alteration in perception of time is in common with Csikszentmihalyi's (1990) flow state which is  
8 achieved when individuals are immersed in enjoyable, achievable activities.

9 ***Implications for practice.*** Basing physical activities locally in low SES areas, and aligning them  
10 with free fare periods on public transport, could help reduce the time and energy expenditure  
11 required to access them. Training is needed within community door-to-door transport services on the  
12 importance of giving older adults enough time for completion of activities and socialising, and on  
13 providing reliable evening coverage, when barriers are greater. Providing physical activities in  
14 neighbouring areas at different times may help accommodate those with less flexible schedules, as  
15 well as increasing older adults' social circles, giving them more choice and perhaps increasing the  
16 acceptable window of time for activities to take place, so long as they are easily accessed. Physical  
17 activity services could be provided throughout the year, with seasonal accommodations made rather  
18 than taking a hiatus (e.g. walking indoors during winter, perhaps at art galleries, shopping centres,  
19 etc). Raising awareness of increased energy through being regularly physically active, rather than  
20 focusing on negative health risk information may encourage engagement. Local provision of social  
21 physical activities (e.g. dancing, walking groups), promoted as fun, relaxing pastimes, may help to  
22 dispel the perception that physical activity needs to be hard work, undertaken at the expense of  
23 leisure time.

24 ***Implications for research.*** To establish the role that perceived available energy plays in  
25 physical activity engagement in older adults, it needs to be studied separately from time. For

1 instance, longitudinal research could examine differences in perceived energy before, during and after  
2 physical activity interventions with older adults (alongside measures of perceived and actual time  
3 passed), using both quantitative and qualitative assessments. Becoming aware of the hypothesised  
4 increased energy could increase older adults' acceptability of physical activity as first-hand experience  
5 has high value to them (Devereux-Fitzgerald et al., 2016). Exploring the acceptability of accumulation  
6 of incidental physical activity through everyday activities (e.g. heavy housework, walking to shops)  
7 may be useful for those who do not perceive they have the resources to engage in organised external  
8 physical activity and are not looking to increase their social interaction. As emotional regulation is a  
9 primary goal for older adults according to SST (Carstensen et al., 1999) exploring energy and affect in  
10 relation to lower intensity social activities typically preferred by many older adults could be beneficial,  
11 as less vigorous physical activity has been related to higher affect and adherence in the general adult  
12 population (Ekkekakis, Parfitt & Petruzzello, 2011). The importance of self-efficacy in physical activity  
13 is well known, and the perception of having enough time to go at a comfortable pace is integral to this  
14 confidence in ability, however perceived energy also needs to be explored as a possible related factor.  
15 As energy is an internal resource, it may be an important self-sufficient factor in maintenance of  
16 physical activity for older adults in lower SES areas who have limited external resources (e.g.  
17 transport, money). Further investigation into the perception of utilising less resources (e.g. altered  
18 time perception) when in a flow state, and whether this also includes energy expenditure, could be  
19 pertinent to older adults with limited resources.

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

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