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Using formative research with older adults to inform a community physical activity programme: Get
Healthy, Get Active

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Abstract

Aim: The purpose of this formative study was to explore current knowledge and attitudes towards physical activity, as well as perceived barriers, facilitators and opportunities for physical activity participation among older adults living in the community. The findings have subsequently informed the design, delivery and recruitment strategies of a local community physical activity intervention programme which forms part of Sport England’s national Get Healthy, Get Active initiative.

Background: There is a growing public health concern regarding the amount of time spent in sedentary and physical activity behaviours within the older adult population.

Methods: Between March and June 2016, 34 participants took part in one of six focus groups as part of a descriptive formative study. A homogenous purposive sample of 28 community dwelling white, British older adults (six male), aged 65-90 years (M=78, SD=7 years) participated in one of five focus group sessions. An additional convenience pragmatic sub-sample of six participants (three male), aged 65-90 years (M=75, SD=4 years), recruited from an assisted living retirement home participated in a sixth focus group. Questions for focus groups were structured around the PRECEDE stage of the PRECEDE-PROCEDE model of health programme design, implementation, and evaluation. Questions addressed knowledge, attitudes and beliefs towards physical activity, as well as views on barriers and opportunities for physical activity participation. All data were transcribed verbatim. Thematic analysis was then conducted with outcomes represented as pen profiles.

Findings: Consistent views regarding both the potential physical and psychosocial benefits of physical activity were noted regardless of living status. The themes of, opportunities and
awareness for physical activity participation, cost, transport, location and season/weather varied between participants living in an assisted living retirement home and community dwelling older adults. Further comparative research on the physical activity requirements of older adults living in assisted living versus community settings are warranted.

[Abstract word count: 300]

Keywords: Ageing; Focus Groups; Formative; Physical Activity; Community groups; Primary care
Introduction

In the United Kingdom (UK) there are over 11 million older adults aged 65 years and over who make up 18 per cent of the population (UK Office for National Statistics, 2017). Aligning with the United States (US) and other developed countries (United Nations, 2015) this proportion is projected to increase to at least 24 per cent by 2039 (UK Office for National Statistics, 2017). Although prolongation of life remains an important public health goal, of even greater significance is that extended life should involve preservation of the capacity to live independently, function well and quality of life (Rejeski et al., 2013). The purpose of this formative descriptive study was to explore current knowledge and attitudes towards physical activity (PA), as well as perceived barriers, facilitators and opportunities for PA participation among older adults living in the community. The findings were used to inform the design, delivery, and recruitment strategies of an ongoing three-year community PA intervention project, Get Healthy, Get Active (GHGA), which forms part of Sport England’s national GHGA programme (Sport England, 2012).

Background

Guidelines issued by the UK Chief Medical Officers and the US Surgeon Generals recommend that older adults (≥65 years) engage in at least 150 minutes of moderate (or 75 minutes of vigorous) PA per week in bouts of at least 10 minutes, with muscle-strengthening and balance activities included on at least two of those days (Department of Health, 2011; Centers for Disease Control and Prevention (CDC), 2015). Despite the recognised evidence base for the benefits of regular PA (CDC, 2015; Reid and Foster, 2017; World Health Organization (WHO), 2017), objective summaries of PA levels among older adults show that only 15 per cent of males and 10% of females within the UK, and 9.5% of males and 7% of
females within the US meet the recommended PA guidelines (Tucker, Welk and Beyler, 2011; Jefferis et al., 2014). Given that current PA guidelines remain the same for both adults (18-64 years) and older adults (≥65 years), such high levels of inactivity suggests that PA guidelines appear too demanding for the latter population (Booth and Hawley, 2015).

Accumulating evidence suggests that prolonged and continuous bouts of sedentary behaviours (SB; defined as waking behaviours in a sitting, reclining or lying posture with energy expenditure ≤1.5 metabolic equivalents (Tremblay et al., 2017)) have similar physical (e.g., premature mortality, chronic diseases and all-cause dementia risk) and psychosocial (e.g., self-perceived quality of life, wellbeing and self-efficacy) risk factors to that of physical inactivity (Wilmot et al., 2012; Edwards and Loprinzi, 2016; Falck, Davis and Liu-Ambrose, 2016; Kim, Im and Choi, 2016). In fact, SB is now an identifiable risk factor independent of other PA behaviours (Tremblay et al., 2017). Spending on average 80% of their time in a seated posture, and with 67% being sedentary for more than eight and a half hours per day (Shaw et al., 2017), older adults are the most sedentary segment of society and seldom engage in moderate-to-vigorous PA (Chastin et al., 2017).

Several social (e.g., social awkwardness and peer/family support), behavioural (e.g., ageing stereotypes and lack of time), physical (e.g., improved balance and flexibility), and environmental (e.g., transport and neighbourhood safety) correlates of PA among older adults have been noted in recent formative (Schijndel- Speet et al., 2014; Banerjee et al., 2015) and qualitative research (Franco et al., 2015; Devereux-Fitzgerald et al., 2016; Phoenix and Tulle, 2017). Such findings are a first step in enabling policymakers and healthcare professionals to implement effective PA interventions and promote active ageing (Franco et al., 2015). Given the potential benefits associated with PA outlined, such interventions have the potential to
reduce, age-related morbidity and declines in activities of daily living, maintain muscle
strength and mass, improve quality of life, and thus reduce the primary and total health care
costs associated with SB and physical inactivity among this population (Bauman et al., 2016).

Prior research notes that interventions aimed at promoting PA participation should adopt an
appropriate conceptual health promotion model to prioritise the key assets of the target group
(Plotnikoff et al., 2014). The PRECEDE-PROCEED model of health programme design,
implementation, and evaluation (Green and Kreuter, 2005) provides the target population
with a comprehensive and structured assessment of their own needs and barriers to a healthy
lifestyle. The PRECEDE component of the model comprises of, predisposing, enabling, and
reinforcing factors has previously been used as a formative framework to guide PA
intervention content and design (Mackintosh et al., 2011; Banerjee et al., 2015). This model
has also been adopted as a method for the identification of perceived PA barriers and
facilitators among older adults (Banerjee et al., 2015; Gagliardi et al., 2015) and other
populations (Makintosh et al., 2011; Emdadi et al., 2015; Susan et al., 2017).

The purpose of this formative study was to (i) explore current knowledge and attitudes
towards PA, as well as the perceived barriers, facilitators and opportunities for PA
participation among older adults living in the community who had agreed to take part in an
ongoing PA programme; and (ii) use this data to inform the design, delivery and recruitment
strategies of an ongoing community PA intervention programme, as well as international PA
interventions among this population. Given the purpose and aims outlined, the Evidence
Integration Triangle (Glasgow, 2012) was adopted as the overarching theoretical framework.
Through the prompt identification of success and failures across individual-focused and
patient–provider interventions, as well as health systems and policy-level change initiatives,
the framework allows for the exploration of the three main evidence-based components of intervention program/policy, implementation processes, and measures of progress. Hence, this framework enabled a steep learning cycle through an initial 12-week pilot GHGA programme delivered by the Metropolitan Borough Council within the chosen local authority. Results and analysis from this pilot were fed back to Sport England as the funder, as well as deliverers and participants in order to assess, evaluate and promptly inform adapted future iterations of the GHGA programme.

Methods

Participants and procedures

A descriptive formative study was undertaken from March to June 2016. Participants were recruited from one local authority in North West England recognised as having the highest percentage of inactive older adults (80%) compared to the UK national average, and the highest national health costs associated with physical inactivity (Active People Survey, 2014; Sport England’s Local Profile Tool, 2015). The first author facilitated six, mixed-gender focus groups. Representative of the uptake of participants within the target GHGA initiative, a homogenous purposive sample of 28 community dwelling white, British older adults (five male) participated in five of the focus groups, with an additional convenience pragmatic sub-sample of six participants (three male) recruited from an assisted living retirement home, participating in the sixth focus group. In total, 34 older adults (eight male), aged 65-90 years (M=78, SD=7 years), participated across the six sessions. Four focus groups involved a group size of six to ten participants, and two involved three participants (mean focus group size of 6 ± 5 participants). Previous focus groups in PA studies have been conducted effectively with as many as 12 (Moran et al., 2015), and as few as four (Schneider et al., 2016) participants. Focus groups took place in two church halls, an assisted living retirement home lounge, and a
theatre. All locations were free from background noise, and participants could be overlooked but not overheard. The inclusion criterion set out by Sport England as funders of the GHGA programme were that participants must be 65 years of age or over, reside within one local authority in North West England, could provide written informed consent to participate.

GHGA is an ongoing three-year project which seeks to increase the number of inactive older adults participating in PA at least once a week for 30 minutes, via a 12-week PA intervention delivered by the Metropolitan Borough Council within the assigned local authority. Participants due to participate in GHGA received a covering letter, participant information sheet, and consent form. Prior to the commencement of the study, institutional ethical approval was received (#SPA-REC-2015-329) and written informed consent was obtained for all participants prior to participation. All focus groups utilised the PRECEDE stage of the PRECEDE-PROCEDE model (Green and Kreuter, 2005) within their design allowing for the exploration of predisposing, enabling and reinforcing correlates of PA participation. To maximise the interaction between participants, focus group questions were reviewed by the project team for appropriateness of question ordering and flow. Subsequent minor additions were made to questions on social isolation and PA advertisement. The semi-structured discussion guide included open ended questions structured to prompt discussion with equal chance for participants to contribute (Stewart and Shamdasani, 2014). Focus groups were led by a trained facilitator and with an observer/ note taker also present. Questions addressed knowledge, attitudes and beliefs towards PA as well as views on barriers and opportunities for PA participation. An example question from a section exploring barriers to PA was: “Can you tell me about what stops you from participating in physical activity?” Questions therefore demonstrated aspects of face validity as they were transparent and relevant to both the topic and target population (French et al., 2015).
Data Coding and Analysis

Focus groups lasted between 20 and 45 minutes (M=29, SD=12), were audio recorded, and later transcribed verbatim, resulting in 66 pages of raw transcription data with Arial font, size 12 and double-spaced. Verbatim transcripts were read and re-read to allow familiarisation of the data and then imported into the QSR NVivo 11 software package (QSR International Pty Ltd., Doncaster, Victoria, Australia, 2017).

Previous research within this population has adopted analytical procedures including thematic analysis (Van Dyck et al., 2017), content analysis (Middelweerd et al., 2014) and used specialist qualitative data analysis packages, such as NVivo (Warmoth et al., 2016). In supporting new methodologies and data representation within qualitative research (Orr and Phoenix, 2015), the current study followed the pen profiling protocol. The pen profile approach has been used in recent child PA research (Mackintosh et al., 2011; Boddy et al., 2012; Knowles et al., 2013; Noonan et al., 2016b) and presents findings from content analysis via a diagram of composite key emerging themes. In summary, data were initially analysed deductively via content analysis (Braun and Clarke, 2006), using the PRECEDE component of the PRECEDE-PROCEED model (Green and Kreuter, 2005) as a thematic framework which reflects the underlying study purpose. Inductive analysis then allowed for emerging themes to be created beyond the pre-defined categories. Data were then organised schematically to assist with interpretation of the themes (Aggio et al., 2016). As akin to more traditional qualitative research, verbatim quotations were subsequently used to expand the pen profiles, provide context, and verify participant responses. Previous studies have demonstrated this method’s applicability in representing analysis outcomes within PA
research (Mackintosh et al., 2011; Boddy et al., 2012; Knowles et al., 2013; Noonan et al., 2016a) making it accessible to researchers who have an affinity with both quantitative and qualitative backgrounds (Knowles et al., 2013; Noonan et al., 2016a). Recent findings suggest that the discrepancy between objective isolation and felt loneliness may be associated with undesirable health outcomes such as cognitive dysfunction.

Three pen profiles were developed to display themes within the data aligned to the PRECEDE component of the PRECEDE-PROCEED model (Green and Kreuter, 2005). Quotations were labelled by focus group number (Fn) and subsequent participant number (Pn) within that focus group. Characterising traits of this protocol include details of frequency counts and extracts of verbatim quotes to provide context to the themes. A minimum threshold for theme inclusion was based upon comparable participant numbers within previous research adopting a pen profiling approach (Boddy et al., 2012; Noonan et al., 2016a) and hence, was set as ≥ n = 6, with n representing individual mentions per participant. However, multiple ‘mentions’ by the same participant were only counted once. Methodological rigour was demonstrated through a process of triangular consensus (Hawley-Hague et al., 2016) between the authors. This offered transparency, credibility, and trustworthiness of the results, as the data were critically reviewed using a reverse tracking process from pen profiles to verbatim transcripts, providing alternative interpretations of the data (Smith and Caddick, 2012). The process was repeated through cross verification and discussion until subsequent agreement on data themes in relation to verbatim extracts was reached (Aggio et al., 2016).
Findings and Discussion

Predisposing Correlates

Figure 1 displays the predisposing correlates of PA participation. In agreement with previous research (Gray et al., 2015; Kosteli, Williams and Cumming, 2016), the most highly cited theme of motivation (n=29) was perceived to be both a facilitator (n=15) and barrier (n=14) to PA participation throughout. Some participants were proactive in seeking out opportunities for PA.

I’m a lung cancer survivor and I just ran a mile last month and I raised £550. (Focus group (F) 1: Participant (P) 2)

Contrastingly, others expressed disinterest in PA altogether believing that they would not derive any health benefit.

I’ve pushed these PA classes to lots and lots of friends and they still ignore it, they will not come to anything like this. (F1: P3)

Participants also reported laziness or apathy to prevent participation.

It’s [lack of PA] apathy, just apathy, people can’t be bothered. (F4: P3)

The importance of pre-intervention intrinsic motivation (e.g., participating for enjoyment) among older adults is key for both initial adoption and maintenance of PA participation (Gray et al., 2015). Hence, future interventions could promote intrinsic motivation for PA through the adoption of socioemotional selectivity theory (Carstensen, Isaacowitz and Charles, 1999).
Recent findings support this theory’s notion that motivation for PA is more effectively promoted when paired with positive messages about the benefits of PA rather than with negative messages about the risks of inactivity (Notthoff et al., 2016).

The theme of age (n=20) was identified as a key barrier (n=13) to PA participation throughout.

They [older adults] get to a certain age and just give up. (F1: P7)

Social norms and cultural misconceptions often influence not only the type of PA in which older adults engage, but whether they participate at all (Greaney et al., 2016). Moreover, participants noted that lifestyle (n=20) often affects individual views regarding ageing stereotypes, and therefore PA participation. Some participants felt that physically active older adults were more likely to be habituated to PA engagement over many years.

Well if you’ve kept healthy, kept fit all your life, you can keep doing it. (F1: P4)

Conversely, it was felt that inactive older adults were reluctant to start exercising.

You see the ones who haven’t been doing it [PA] are not going to be able to start and do it now. (F2: P1)

Previous research has also reported prior PA behaviours (e.g., being sedentary or active) to be key correlates affecting older adults’ current PA participation levels (Franco et al., 2015).

Additionally, ageing is associated with a decrease in the size of social networks and hence,
older adults are at increased risks of isolation (Devereux-Fitzgerald et al., 2016; Greaney et al., 2016). Corroborating with prior research (Greaney et al., 2016), participants throughout perceived isolation (n=15) to be a key barrier (n=14) to PA participation.

It’s so easy to get trapped inside and not go out. People sit in front of the television from the moment they wake up to when they go to bed. (F6: P5)

Isolation is associated with decreased social and psychological wellbeing (Owen et al., 2010; Milligan et al., 2015) and increased SB among older adults (Nicholson, 2012). Certain targeted intervention strategies can reduce isolation by providing an opportunity for older adults from differing socio-economic areas to take part in PA within local community spaces (e.g., parks, leisure centres and churches), that promote social networking by encouraging camaraderie, adaptability, and productive engagement, without the pressure to perform (Milligan et al., 2015; Gardiner, Geldenhuys and Gott, 2016). Given that SB is an independent and modifiable behavioural target for interventions (Lewis et al., 2017), opportunities to replace SB with health-enhancing behaviours such as moderate-to-vigorous PA (Prince et al., 2014), light PA (McMahon et al., 2017; Phoenix and Tulle, 2017) and standing (Healy et al., 2015) should be promoted. However, none of the participants in the current study noted negative health effects of prolonged sitting, or the importance of breaks in sedentary time. Previous research has noted that older adults are not yet familiar with the concept of SB and hence, are not motivated to reduce such behaviours (Van Dyck et al., 2017). Hence, it is first crucial to increase knowledge about the negative health consequences of SB independent from PA among both older adults and other populations (Van Dyck et al., 2017).
Participants also emphasised the importance of having a wide range of choice and opportunities for PA (n=22), and in general their perceptions of community provision were positive (n=16).

Yes it’s quite a good place [the local authority where the study took place]. There are a lot of different physical activity sessions to try. (F2: P1)

However, in line with recent research (Baert et al., 2016; Träff, Cedersund and Nord, 2017), key barriers noted by the participants within the assisted living group included a lack of advertisement regarding PA opportunities, and few opportunities to take part in PA within the assisted living facility itself.

It’s hard to know what is on if you don’t read the noticeboards and to be honest most of us have even stopped looking at that [noticeboard] because there is never anything on it. (F3: P3)

Further research into the most effective advertisement strategies to engage older adults in assisted living facilities is warranted (Hildebrand and Neufeld, 2009). Regardless of living status, participants noted a strong preference not to engage with online and/or social media channels for advertising and awareness-raising.

A lot of people our age don’t like that technology stuff at all. I would not know where to start. (F5: P2)
These results suggest educational strategies outlining the potential benefits of technology in aiding PA participation are needed (Bird et al., 2015). This is especially salient given that recent research has shown technology-based interventions to have good adherence and provide a sustainable means of reducing SB and promoting PA participation among older adults (Garcia et al., 2016; Skjæret et al., 2016).

Enabling Correlates

Figure 2 displays the enabling correlates of PA participation. Consistent with previous research findings (Franco et al., 2015; Borodulin et al., 2016), cost (n=21) was perceived to be a key barrier (n=12) to PA participation exclusively among the community dwelling participants who were either unable, or unwilling to pay the perceived high costs associated with both attending and travelling to such programmes.

Money is the big bug bear [barrier to PA participation] isn’t it. (F2: P5)

Examples of competing programmes were also noted, with free and lower cost programmes taking precedence over the more expensive.

We like it [a local chair-based PA programme] because it’s free. (F4: P3)

Thus, to effectively increase PA participation within this population, health-promotion strategies should go further than merely educating and raising awareness about potential
health benefits, and should also advocate for the provision of low-cost, and easy reachable PA opportunities regardless of financial status (Petrescu-Prahova et al., 2015; Borodulin et al., 2016). It is worth noting that for the participants recruited from the assisted living retirement home, any PA sessions delivered were included within the cost of the overall living fee, and hence lack of financial resources was rejected as a potential barrier for PA participation (Baert et al., 2016).

Participants’ views on the theme of location (n=11) centered on neighbourhood safety. Declining health and physical impairments associated with ageing increase the time spent in ones’ neighbourhood and thus, neighbourhood environmental factors such as, PA provision, proximity, traffic volume, and overall neighbourhood safety are considered to be important correlates affecting older adults’ PA participation (Greaney et al., 2016). Perceived neighbourhood safety was identified as a barrier (n=7) to PA participation exclusively among the community dwelling older adults.

You wouldn’t go out on your own at night around here. (F1: P5)

Participants from the assisted living retirement home did not view neighbourhood safety to be either a barrier to or facilitator of PA. This neighbourhood environment was perhaps viewed as the norm and therefore they did not associate safety concerns so acutely (Moran et al., 2015). This association could have also affected results obtained for the theme time/day of the week as such participants did not recognise this to be a barrier to PA participation either.
Time of day wouldn’t make much difference to PA participation. To be fair you aren’t doing much at the weekend so day of the week isn’t going to make much difference [to PA participation] either. (F3: P1)

Conversely, community dwelling participants reported time/day of the week to be a barrier (n=15), with early morning or early evening sessions identified as reducing PA participation, especially during the winter months when daylight hours are more limited. These findings could have been further amplified by the neighbourhood safety concerns also identified by this group (Hoppmann et al., 2015; Prins and van Lenthe, 2015).

The theme of transportation (n=14) has been extensively reported to be both a barrier and facilitator to PA participation among older adults (Bouma, van Wilgen and Dijkstra, 2015; Haselwandter et al., 2015; Kosteli et al., 2016; Van Dyck et al., 2017). Within the current study transportation was identified as a barrier (n=10) restricting access to PA sessions regardless of living status.

I would like to go to the baths [swimming pool] but it’s difficult to get there and back so I just don’t bother. (F4: P5)

Transport is especially important for those lacking the ability to be more independently mobile as it allows individuals to bridge larger distances than they could by walking alone (Van Cauwenberg et al., 2016). Thus, lack of access to a car and inadequate availability, frequency and reliability of affordable public transport are all associated with decreased PA participation (Newitt, Barnett and Crowe, 2016). Additionally, being dependent upon others (e.g., family, friends and peers) for transportation has been identified as a barrier to PA
participation within this population (Baert et al., 2015). This was also noted in the current study.

I think the worst thing is having to rely on somebody else to take you [to a PA session] as anything can happen in your own life let alone somebody else's. (F5: P2)

Prior research suggests the promotion of walking for transportation to PA sessions among physically independent older adults (Chudyk et al., 2017). However, given the neighbourhood safety concerns noted by participants, and the varying levels of functional ability among this population, further research examining access to PA sessions including walking facilities (e.g., path and crossing quality), traffic safety, and safety from crime is warranted (Van Cauwenberg et al., 2016).

Reinforcing Correlates

Figure 3 displays the reinforcing correlates of PA participation. Peer support is associated with PA adherence in older adults (Brown et al., 2015), and was identified as a key theme (n=18) and subsequent facilitator (n=13) to PA participation in the current study.

I've got to know everybody now and I'm used to you all. I feel more comfortable and I don’t feel anxious or anything. (F3: P6)
Unsurprisingly, in light of the above several participants reported peers to be a barrier to PA participation (n=5) because of an unwillingness to attend other PA sessions due to anxieties about meeting new people.

*I wouldn’t like to go somewhere else as I wouldn’t like to walk in on a crowd of new people.* (F3: P6)

Although group-based activities offer older adults the chance to gain a sense of belonging, enjoyment and establish friendships, designing sustainable exit routes in order to retain the provision of group activities which continue to facilitate, build and retain social bonds post-intervention should be considered by PA programmers and policymakers (Wu et al., 2015).

In line with recent research (Devereux-Fitzgerald et al., 2016; Smith et al., 2017), family members were identified as being both barriers (n=2) and facilitators (n=4) to PA participation. Specifically, a barrier often reported is overprotectiveness, in which family members may not allow older adults to participate in PA out of concern for their safety or health (Greaney et al., 2016). Participants among the community dwelling groups also noted this.

*My sons in for a shock that we’re coming to this as he’s like, ‘no long walks, no boat rides’, he goes ‘you’re past it.’* (F6: P2)

Such results suggest a need to educate family members on the importance and benefits of PA among older adults. Educational resources such as the older adults PA guidelines infographics for the, UK (Reid and Foster, 2016), Canada (Canadian Society for Exercise
Physiology, 2016), Australia (Australian Government Department of Health and Ageing, 2013), New Zealand (Ministry of Health, 2013), and the United States (CDC, 2008) are appropriate tools advocating for older adults to be active safely, and can be understood by family members plus health care providers. Furthermore, the adoption of local/national mass media messages may be a cost effective educational solution at a time when there is a growing ageing population (United Nations, 2015; UK Office for National Statistics, 2017). However, given the resistance to technology-based PA noted in the current study, further educational strategies promoting enjoyable, easy-to-use technology within a family environment are needed for community dwelling older adults (Bird et al., 2015). Participants within the assisted living group did not perceive family members to be either barriers or facilitators to PA participation and thus, further research is needed to identify approaches to involve family members as additional facilitators of PA participation within this group.

Participants viewed the theme of perceived health benefits (n=23) to be both a facilitator (n=14) and barrier (n=9) to PA participation regardless of living status. Participants were knowledgeable regarding the potential benefits of PA for their physical health. It [PA] loosens all your limbs up. (F2: P2)

Participants also noted the potential benefits of PA for their psychological health. The wellbeing [from PA participation] makes you feel better. (F1: P3)

Despite the irrefutable evidence demonstrating the benefits of PA among older adults (CDC, 2015; Reid and Foster, 2017; WHO, 2017), participants also noted health to be a potential
barrier (n=14) to PA participation due to doubts about their capabilities, or fear of causing themselves harm, particularly if they were unfamiliar with it.

People have to be sure they can come to PA sessions because my sister had a heart attack... and she can’t do a lot of these exercises. (F1: P5)

To overcome such perceptions, educational strategies at a population level should focus on communicating the role of PA in gaining health benefits for all as well as how well-designed PA programmes can aid in the management of common comorbidities specific to this age group (Gillespie et al., 2012; Hamer, Lavoie and Bacon, 2013).

Taken together with the findings of recent qualitative studies examining correlates of PA participation among older adults living in both assisted living (Baert et al., 2016; Träff et al., 2017) and community dwelling older adults (Fisher et al., 2017; Phoenix and Tulle, 2017), results from this formative research study have been used to inform the design, delivery and recruitment strategies of an ongoing community PA intervention project. Specifically, changes implemented to programme design have included the introduction of, increased intervention duration from six to 12-weeks, maintenance sessions post-initial 12-week intervention, tea and coffee after each session to promote social interaction, and a reduction of early morning and late afternoon sessions. Changes to programme delivery have included the introduction of, participant choice in session activities, videoing participants at week 1 and week twelve to show participants their progression, and signposting participants to other local PA programmes. Finally, changes implemented to recruitment strategies have included,
improved relationships with general practitioners to enable them to refer participants onto the
programme, leafleting in church halls and charity shops, and deliverers attending and
subsequently advertising the programme at several Older Peoples’ Forums. Such methods
could also be adopted throughout similar community PA programmes elsewhere in order to
increase programme fidelity, representativeness and effectiveness.

Strengths and Limitations
Methodological strengths include the exploration of consensus and associated discussion
through the focus groups and subsequent analysis process which allowed insight into the
predisposing, enabling and reinforcing correlates of PA participation among older adults.
Consistency of themes, data credibility, transferability, and dependability were achieved
through the triangulation consensus of data between authors and methods. While this study
reiterates important insights into the perceived barriers, facilitators and opportunities for PA
participation among both community dwelling and assisted living older adults, value outside
of this to the wider research community may be limited due to programme funding which
only allowed for formative research strategies to recruit participants who had agreed to take
part in an ongoing PA programme. Consequently, sampling bias is a potential issue as it
could be assumed that a high proportion of the participants were already inclined to be and/or
currently physically active given the positive predisposing comments with regard to
motivation towards PA and current lifestyle choices (Costello et al., 2011). This is especially
important given that motivators and barriers toward regular PA vary among currently active
and inactive adults across the age range (Costello et al., 2011; Hoare et al., 2017).
Considering that less than 10% of older adults (≥ 65 years of age) meet the recommended PA
guidelines (Jefferis et al., 2014), future research should seek to identify barriers and
facilitators among larger sample sizes of currently inactive older adults living within both the community and assisted living facilities.

Additionally, a small convenience pragmatic sub-sample of participants from one assisted living facility were recruited and hence results cannot be considered representative. Furthermore, men tend to decrease participation in leisure-time PA as they get older; whereas this dose-response is not seen among women (Amagasa et al., 2017). Consequently, there is the possibility of gender bias given the higher number of female participants recruited. However, the sample size, participants’ ages and gender distribution are comparable to those reported in two recent studies examining barriers and facilitators to PA participation among older adults (Baert et al., 2015; Moran et al., 2015). Within these two studies the total number of participants was 15 (five male) and 40 (13 male) and the mean age of the respondents was 74 years, and 84 years, respectively. This compares to a total number of thirty-four participants (eight male) with a mean age of 78 years in the current study. Nevertheless, as well as exploring correlates of PA participation in relation to gender, functional status and age differences between the young-old (60-69 years), old-old (70-79 years), and oldest-old (80+ years) (Heo et al., 2017), future research should obtain additional participant characteristic data prior to the intervention including, participants’ current sedentary time and PA levels, history of PA, family history of PA, ethnicity, employment status, and educational achievements as such have been shown to potentially affect the perceived barriers and facilitators to PA participation among older adults (Greaney et al., 2016; Keadle et al., 2016).
Conclusions

Older adults acknowledged the benefits of PA, not only for health but also those relating to socialising, enjoyment, relaxation, and physical and psychological wellbeing. The themes of opportunities and awareness for PA participation, cost, transport, location and season/weather varied dependent upon living status. These findings suggest current living status to be a separate correlate of PA participation among older adults. This data can be used to further strengthen the design, delivery and recruitment strategies of both the target GHGA PA intervention programme and international PA intervention programmes among older adults.

Future interventions should consider educational strategies to communicate the role of PA in gaining health benefits for all, reducing SB, and countering the negative implicit attitudes that may undermine PA within this population. Given the small sample of participants in the current study, further comparative research exploring the barriers and facilitators between assisted living and community dwelling, and active and inactive older adults on both national and international levels is warranted.

Disclosure statement

No potential conflict of interest was reported by the authors.
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