

## Volunteer motivation and retention of older peer walk leaders

Kritz, Marlene; Ntoumanis, Nikos; Mullan, Barbara; Stathi, Afroditi; Thøgersen-Ntoumani, C

DOI:

[10.1093/geront/gnaa159](https://doi.org/10.1093/geront/gnaa159)

License:

None: All rights reserved

*Document Version*

Peer reviewed version

*Citation for published version (Harvard):*

Kritz, M, Ntoumanis, N, Mullan, B, Stathi, A & Thøgersen-Ntoumani, C 2021, 'Volunteer motivation and retention of older peer walk leaders: a 4-month long investigation', *The Gerontologist*, vol. 61, no. 7, pp. 1118–1130. <https://doi.org/10.1093/geront/gnaa159>

[Link to publication on Research at Birmingham portal](#)

### **Publisher Rights Statement:**

This is a pre-copyedited, author-produced version of an article accepted for publication in *The Gerontologist* following peer review. The version of record: Marlene Kritz, PhD, Nikos Ntoumanis, PhD, Barbara Mullan, PhD, Afroditi Stathi, PhD, Cecilie Thøgersen-Ntoumani, PhD, Volunteer Motivation and Retention of Older Peer Walk Leaders: A 4-Month Long Investigation, *The Gerontologist*, Volume 61, Issue 7, October 2021, Pages 1118–1130, is available online at: <https://doi.org/10.1093/geront/gnaa159>

### **General rights**

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

### **Take down policy**

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact [UBIRA@lists.bham.ac.uk](mailto:UBIRA@lists.bham.ac.uk) providing details and we will remove access to the work immediately and investigate.

**Volunteer Motivation and Retention of Older Peer Walk Leaders:**

**A 4-month Long Investigation**

**IN PRESS**

Marlene Kritz, PhD <sup>1,2</sup> E-mail: [Marlene.kritz@curtin.edu.au](mailto:Marlene.kritz@curtin.edu.au)

Nikos Ntoumanis, PhD <sup>1,2</sup> E-mail: [Nikos.Ntoumanis@curtin.edu.au](mailto:Nikos.Ntoumanis@curtin.edu.au)

Barbara Mullan, PhD <sup>1</sup> E-mail: [Barbara.mullan@curtin.edu.au](mailto:Barbara.mullan@curtin.edu.au)

Afroditi Stathi, PhD <sup>3</sup> E-mail: [A.Stathi@bham.ac.uk](mailto:A.Stathi@bham.ac.uk)

Cecilie Thøgersen-Ntoumani, PhD <sup>1,2</sup> E-mail: [C.thogersen@curtin.edu.au](mailto:C.thogersen@curtin.edu.au)

<sup>1</sup> *Health Psychology and Behavioral Medicine Research Group, School of Psychology,*

*Curtin University, Perth, Western Australia*

<sup>2</sup> *Physical Activity and Wellbeing Research Group, School of Psychology,*

*Curtin University, Perth, Western Australia*

<sup>3</sup> *School of Sport, Exercise and Rehabilitation Sciences*

*University of Birmingham, United Kingdom*

**Address correspondence to:**

Professor Cecilie Thøgersen-Ntoumani,

Curtin University, Perth, GPO Box U1987, Western Australia.

E-mail: [C.thogersen@curtin.edu.au](mailto:C.thogersen@curtin.edu.au)

**Funding**

This work was supported by a Curtin University PhD Scholarship awarded to M.K., and research project funding awarded by the Western Australian Health Promotion Foundation (Healthway) (grant number 24258) to C.T.-N. and N.N.)

**Conflict of interest**

We have no conflicts of interest to declare.

## Abstract

BACKGROUND AND OBJECTIVES: Peer volunteers offer a promising avenue for promoting physical activity in older adults. However, recruiting and retaining such volunteers is challenging. We aimed to examine longitudinally factors that determine whether older volunteer walk leaders will persist in their role. RESEARCH DESIGN AND METHODS: We recruited older adults volunteering as walk leaders, from retirement villages in Perth, at the start of a 16-week walking intervention. Using a mixed-methods multiple case-study design, informed by self-determination theory, we examined the motivational processes of three profiles: Dropouts, Completers and Extenders. One male and ten female ( $Mdn_{Age} = 75$  years, age range: 66 – 83 years) peer walk leaders were interviewed twice over four months, and data were analyzed using thematic analysis. Questionnaires provided information on volunteer characteristics, leadership confidence, and volunteer motivation. RESULTS: Self-orientated goals, obligation and guilt, emotional exhaustion, lack of psychological need satisfaction, and perceived a lack of support were barriers to volunteer persistence. Social confidence and relatedness satisfaction motivated volunteers to persist until program completion (Completers). Altruistic goals, using sustainable helping strategies, psychological need satisfaction, optimism, and enjoyment, were important for continuing the role after the program (Extenders). DISCUSSION AND IMPLICATIONS: Results describe how differences in volunteer motives, personal characteristics, and training may affect motivational processes that determine persistence as an older peer walk leader. We provide suggestions on selecting, training, and supporting older volunteer walk leaders to facilitate their retention.

Keywords: health promotion, physical activity, multiple case study design. longitudinal

## Introduction

Group walks can provide older adults with a safe opportunity to meet physical activity recommendations, become socially integrated, and improve their health (Hanson & Jones, 2015). Peer leaders, who are individuals sharing characteristics such as health, age, and living circumstances, taking on a leadership role, can effectively promote physical activity behavior in others (Hulteen et al., 2019; Kritz et al., in press). For older adults, volunteering as a peer leader can provide a sense of role identity and purpose after retirement (Same et al., 2020). Volunteering is linked to positive outcomes such as better psychological well-being, a broader social network (Kragt & Djurre, 2019; Niebuur et al., 2018), and improved physical health in later life (Anderson et al., 2014). Peer-led walking programs may benefit the health and well-being of older volunteers (Anderson et al., 2014) while creating social benefits for the community (Burton et al., 2017; Kritz et al., 2020). However, recruiting and retaining older volunteer walk leaders is challenging (Thøgersen-Ntoumani et al., 2019).

The general volunteering literature suggests that lack of time, declining health, and competing priorities often stops older adults from volunteering (Petriwskyi & Warburton, 2007; Tang et al., 2010). Perceiving the role as meaningful and receiving adequate support can help older adults maintain their volunteer role, while inadequate support is associated with dropout (Tang et al., 2010). However, the reasons for volunteer dropout vary across programs, indicating that findings from the general volunteering literature may not be generalizable to peer walk leaders (Tang et al., 2010). The barriers to and facilitators of older adults volunteering as peer walk leaders are unknown.

## Motivation for Volunteering

While there is consensus that self-efficacy and intention to volunteer predict volunteering in older adults, little is known about underlying motivational processes (Grano et al., 2008; Jiang et al., 2019). Researchers often distinguish between altruistic motives (i.e., desire to help others) and egoistic motives (i.e., self-orientated) (Konrath et al., 2012; Stukas et al., 2016). Volunteering for altruistic reasons is positively linked to intentions to continue volunteering (Stukas et al., 2016) and improved psychological well-being (Konrath et al., 2012). However, the altruistic/egoistic categorization does not explain *why* altruistic motives are more strongly related to positive outcomes than egoistic ones (Guntert et al., 2016).

Self-determination theory (SDT; Deci and Ryan, 2017) lends itself well to understanding motivational processes, as it proposes a comprehensive framework explaining antecedents and outcomes of motivation. The theory suggests that motives lie along a continuum ranging from controlled (i.e., lacking a sense of autonomy or choice) to autonomous (i.e., acting out of choice) forms of regulation. Outside the continuum lies amotivation, which means a person is not motivated and does not intend to act. Similar to previous volunteering studies (Bidee et al., 2013; Haivas et al., 2012), we did not focus on amotivation, as our participants had the motivation to sign up as volunteers.

SDT distinguishes between four types of extrinsic motivation. The most controlled form of extrinsic motivation is external regulation, whereby the individual engages in a behavior to comply with external pressures or obtain approval from others (e.g., volunteering to please others). Externally regulated behaviors can be potent initiators of behavior but are associated with poor behavior maintenance (Ryan & Deci, 2017). Next is introjected regulation, a partly internalized form of extrinsic motivation. For example, volunteering to maintain self-esteem, or to avoid negative affective states such as feelings of guilt. High levels of introjection are usually

associated with unstable self-esteem, which fluctuates in response to outcomes (Ryan & Deci, 2017). The most autonomous forms of extrinsic motivation are identified regulation (e.g., perceiving volunteering as important) and integrated regulation (e.g., volunteering is part of one's identity).

A longitudinal study found that older adults who volunteered for integrated or identified reasons exhibited positive attitudes towards volunteering, showed confidence in overcoming difficulties, perceived support from others, and experienced personal control over their behavior (Grano et al., 2008). In contrast, introjected regulation was negatively linked to beliefs endorsing volunteering (Grano et al., 2008). At the most autonomous end of the continuum lies intrinsic motivation, which refers to doing an activity out of self-interest and because one finds it enjoyable (Ryan & Deci, 2017). Cross-sectional evidence suggests that autonomous motivation is linked to positive volunteering outcomes such as work-effort, optimism, resilience, psychological well-being of volunteers, and intention to volunteer (Bidee et al., 2013; Wu & Chunxiao, 2019).

SDT proposes that autonomous motivation is determined by the extent to which the psychological needs for competence, relatedness, and autonomy are satisfied (Ryan & Deci, 2017). Competence represents the need to feel capable of achieving desired outcomes and has been associated with intrinsic volunteer motivation (Wu et al., 2016) and sustained volunteering (Jones et al., 2015). Feedback, adequate training, ongoing support, receiving recognition, and opportunities for skill acquisition can foster feelings of competence and have been linked to positive attitudes towards volunteering in older adults (Jongenelis et al., 2019; Sellon, 2014). Relatedness pertains to the degree to which an individual experiences social connection and has been linked to older volunteer recruitment and retention (Sellon, 2014). For example, older

adults who began volunteering in a socially satisfying role, for a minimum of 60 minutes/week over six months, improved their attitudes towards volunteering (Jongenelis et al., 2019). Autonomy entails experiencing a sense of control or free will. Activities that permit self-initiation and allow choice can create situations that support autonomy (Oostlander et al., 2014). Autonomy has been positively linked to perceived choice, enjoyment, interest, and volunteer satisfaction (Oostlander et al., 2014; Weinstein & Ryan, 2010). Individuals who helped others by choice (i.e., experienced autonomy) were more likely to be effective and persist with the activity (Weinstein & Ryan, 2010). Role flexibility (e.g., perceiving choice on the level of commitment) is particularly important for recruiting older volunteers, highlighting the importance of autonomy in this group (Sellon, 2014).

In sum, cross-sectional research suggests that autonomously motivated (Bidee et al., 2013; Wu & Chunxiao, 2019) and need-satisfied (Jones et al., 2015) volunteers are more likely to persist in their role. Potential antecedents of need satisfaction and volunteer motivation include a socially satisfying and supportive environment (Jongenelis et al., 2019), perceiving the role as enjoyable or interesting (Wu & Chunxiao, 2019), perceiving a sense of autonomy or choice (Sellon, 2014), and feeling competent in the role (Jones et al., 2015). Further research has associated specific personal attributes (e.g., self-esteem, being agreeable) with an increased likelihood of experiencing need satisfaction (Ryan et al., 2019).

Few studies have used SDT to explain volunteer motivation (Bidee et al., 2013; Wu & Chunxiao, 2019). Only one study has specifically focused on older adults ( $n = 615$ , aged 60 - 90 years) of whom most (76%) were experienced in their role as a volunteer which included engaging in a variety of tasks for organizations such as schools (Grano et al., 2008). Existing volunteering research is primarily cross-sectional (Kragt & Djurre, 2019) and focused on



experienced volunteers (Grano et al., 2008). However, research suggests that different forms of regulation may co-occur and change over time, highlighting the importance of a multi-dimensional and longitudinal understanding of the processes leading to volunteering persistence (Kragt & Djurre, 2019; Ryan & Deci, 2017). Past research has also not examined older adults who volunteer in physical activity settings. An in-depth understanding of barriers, facilitators, challenges, and motivational processes of older adults volunteering in such settings is needed to facilitate their retention (Thøgersen-Ntoumani et al., 2019). Therefore, our overarching aim was to explore longitudinally the factors explaining variations in persistence among older adults volunteering as part of a 16-week walking intervention. We specifically examine the usefulness of SDT for clarifying motivational processes that determine whether older volunteers new to the walk leader role will persist.

## **Research Design and Methods**

### **Research Design.**

We conducted a longitudinal multiple case-study using a concurrent mixed methods design (Creswell, 2018). Multiple case-studies are useful for analyzing individual processes within and across situations while considering the context of individual cases (Baxter & Jack, 2008). The concurrent mixed-methods component allowed triangulating in-depth qualitative data with descriptive quantitative data during the same phase of research (Creswell, 2018). The longitudinal and qualitative-driven design provided us with comprehensive insight on the complexity and variability of difficulties faced by older volunteers while explaining the “how and why” of different behavioral outcomes, which we present as profiles (Kinnaefick et al., 2014).

### **Procedure**

*Ethical Statement.* We obtained approval from the Human Research Ethics Committee of an Australian University. Interested participants were provided with an information sheet and asked to sign a consent form.

*Recruitment and Context.* We purposively recruited older adults (i.e., aged 60 and over and in good health) who had signed up as volunteer walk leaders for the Residents in Action Trial – a peer-led 16-week walking intervention- from ten different retirement villages in Western Australia (Thøgersen-Ntoumani et al., 2019). Volunteers interested in the role ( $n = 36$ ) were personally invited to participate in the present study during an initial information session. After obtaining written consent, participants were interviewed individually and provided with a brief questionnaire at pre-intervention. Volunteers who signed up for the role ( $n = 21$ ) received general walk-leader training and phone support. Volunteers who had been allocated to the experimental condition of the walking intervention (11/21) received additional motivation training in communication strategies that promote self-determined motivation in group members. All training was conducted by members of the research team. Details on provided training are provided in supplementary file B1 and described elsewhere (Thøgersen et al. 2017). The walk leader role entailed leading a walking group three times per week for ten weeks, without pay. At post-intervention, volunteers were interviewed again and provided a brief questionnaire. We included individuals who agreed to be interviewed at both time-points, who had led a walking group at least once, and who had reported maintaining good health ( $n = 1$  males;  $n = 10$  females). Further details on recruitment procedures, and on excluded participants are provided in supplementary files A1 and B.

**Measures.**

An overview of all measures, including the interview schedule and example items, is provided in Table 1.

**Questionnaires.** The pre-intervention questionnaire measured participant characteristics, leadership confidence, and volunteer motivation. The post-intervention questionnaire asked participants to indicate their intention to continue volunteering. Details on questionnaires are provided in supplementary file A1.

**Interviews.** The semi-structured interview schedules included broad, open-ended questions for each time-point. Follow-up prompts asked participants to provide details, to obtain greater insight into perceived challenges, resources, and coping strategies. The first author conducted interviews via phone or in a quiet place chosen by the participants (e.g., the village community hall). Interviews ranged from 50 to 138 minutes, were audio-recorded and transcribed verbatim. Pseudonyms are used in the results.

## **Data Analysis**

We created longitudinal profiles differing in levels of volunteer persistence. For each profile, we used the interview data to obtain information on participants and examine motivational processes. Questionnaire data were used to verify and enhance profile descriptions. Details on how profiles were determined are provided in supplementary file B2.

**Interviews.** Grounded in SDT, we used NVivo for Mac to conduct abductive thematic analysis (i.e., integrating data-driven codes with codes derived from SDT) for each profile (Braun et al., 2014; Fereday and Muir, 2006). Guided by the SDT framework, volunteer motives were classified as autonomous or controlled types. Motivational processes (e.g., factors that satisfy/undermine psychological needs, for example, feeling competent at helping) were analyzed within each profile. For example, barriers/facilitators were classified as being either

competence, relatedness, or autonomy-supportive/undermining. Braun and Clarke's 6-phase approach to thematic analysis was used to identify data-driven codes. This included familiarization with the data, initial coding, generation of themes, reviewing themes, and naming themes, and producing the report. Data-driven codes included, for example, motives that could not be classified as autonomous/controlled or factors that did not directly satisfy/undermine needs but were important for persistence/motivation, such as optimism. Themes and analytical decisions were discussed with the research team at each phase. Further information on analytical procedures and on researchers are provided in supplementary file B2.

We present one case for each profile using a previously used approach (e.g., Kinnaick et al., 2014). Presented cases were chosen based on their clarity, depth, and breadth at representing all of the themes identified within each profile. To increase transparency (Fereday and Muir, 2006), we provide tables with detailed information on all profiles in supplementary file A1.

**Questionnaires.** We used SPSS for Mac (Version 25) to calculate scale scores and descriptive statistics for each profile.

## Results

### Participant characteristics and profiles

All participants (1 Male, 10 Female,  $Mdn_{Age} = 75.00$  ( $IQR = 8$ ), age-range 66 – 83 years) were retired and new to the walk leader role. We identified three profiles: those who dropped out before the end of the program (Dropouts,  $n = 4$ ), those who discontinued after 16 weeks (Completers,  $n = 4$ ), and those who intended to continue as a volunteer after the program (Extenders,  $n = 3$ ). The participant characteristics within each profile are presented in Table 2.

## Motivational processes

Themes derived from interviews and questionnaire data on volunteer motives and leadership confidence are presented in Table 3. Additional information on results and on profiles excluded from the present analyses is presented in supplementary file A1. Motivational processes pertaining to each profile are described below.

### Profile 1: Dropouts

Profile 1 represents four women who discontinued their role as a walk leader after four to six weeks. Members of this profile (Dropouts) prioritized meeting self-orientated goals (e.g., increasing their physical activity levels). Overall, Dropouts perceived a lack of support, didn't experience the satisfaction of psychological needs and failed to internalize their volunteer motivation throughout the program. We identified four key themes for this profile (See Table 3).

#### Focus on self-orientated goals throughout the program.

Controlled volunteer motives (e.g., complying with others) were prominent in this group (Table 3). Judy, aged 75 years, had lived in the village for eight years, was asked to be a walk leader by other residents, and felt obligated to volunteer due to her experience as a leader. She hoped that volunteering would help her increase her physical activity levels. At the pre-intervention interview, she explains that linking social interactions with walking is important for determining her motivation to walk:

*When you are walking with a friend ... you don't even realize you are walking.*

*As long as you can stop and have a cup of coffee. That makes it seem like an outing rather than a chore.*

Like other members of this profile, Judy focused on meeting self-orientated goals (e.g., increasing her physical activity) throughout the program.

271 **Basic psychological needs not satisfied.**

272 Reasons for dropout primarily pertained to experiencing a lack of competence,  
 273 relatedness, and autonomy. At post-intervention, Judy explained that she did not feel the desired  
 274 relatedness when she walked as part of a group due to experiencing environmental barriers  
 275 making communication with other walkers stressful:

276 *We had three people, and it didn't work. It wasn't a pleasant thing. One of us*  
 277 *had to lag behind so that we just go along the pavement. Or somebody had to*  
 278 *walk on the road, which is not ideal.*

279 Adapting to a group setting undermined her autonomy during the walk:

280 *The people, they might walk too fast for me or not fast enough. I want to be*  
 281 *able to stop, have a look at a garden, pinch a bit of something out of*  
 282 *someone's garden. I want to be in control of myself. Waiting for some and*  
 283 *some would go too fast. That's just put me off.*

284 Another reason for not enjoying her role as a volunteer was that she did not want to  
 285 commit to a schedule: “*I don't want to say, “I have to go at five o' clock every night.” I'm not a*  
 286 *regimented person like that”.*

287 Low levels of perceived competence were common among members of this profile and  
 288 included being unable to organize and manage a group while meeting their own needs.

289 **Perceived lack of support/resources to meet role demands.**

290 Members of this profile described perceiving a lack of support (e.g., lack of help with  
 291 encouraging walkers) or limited personal resources (e.g., inability to volunteer three times a  
 292 week). At post-intervention, Judy indicated that she felt overwhelmed with the expected level of

293 commitment: *“It would be really lovely if somebody else had taken on this walk leader role, and*  
 294 *had sort of backed me up”*.

295 **Lack of internalization of motives throughout the program.**

296 When Judy was asked why she discontinued her role as a walk leader, she indicated low  
 297 levels of autonomous volunteer motivation and an unwillingness to adapt: *“It just got too hard*  
 298 *for me because I’m not a group person. I am my own person...but what made me say I’d be a*  
 299 *leader, I probably could, but I wouldn’t enjoy it”*.

300 When asked about the future likelihood of volunteering, Judy emphasized her need for  
 301 autonomy and relatedness:

302 *Not group walking. Walking on my own, I enjoy, or I could go walking with*  
 303 *someone I like. But not with someone I don’t like. If I want to stop and look at*  
 304 *something, they’ve got to put up with that sort of thing...I have to be able to*  
 305 *have a conversation with that person.*

306 **Profile 2: Completers**

307 Profile 2 represents four volunteers who persisted until the end of the walking  
 308 intervention but decided to discontinue volunteering after the program. Barriers to continuing  
 309 involvement included using unsustainable helping strategies, the inability to provide the desired  
 310 help, and failure to internalize volunteer motives fully. We identified five key themes for this  
 311 profile (See Table 3).

312 **Dominance of obligation and guilt throughout the program.**

313 Cindy, aged 80, had recently moved to her retirement village, had been physically active  
 314 all her life, and was looking for opportunities to get socially involved (*“I just like a bit of*  
 315 *company when I am walking.”*). In contrast to Dropouts, all Completers recognized the value of

the peer leader role within their community, indicating identified regulation. Cindy articulated this during the pre-intervention interview: *“I feel that the older generation gets stuck in their ways, but if there is somewhere, one to just take them and just start on short walks, just round the block. I think it’s good for them”*.

At the post-intervention interview, all Completers described helping slower walkers as an obligation and expressed feelings of guilt, indicating high levels of introjected regulation. Similar to Judy, Cindy showed signs of obligation at pre-intervention (*“I was asked to be a walk leader. I used to work as a schoolteacher, and I sort of know how to motivate people.”*). Cindy explains that walking with slower walkers *“feels like just another chore”*. With regard to not being able to provide the desired help, she adds: *“I feel very guilty about it all and everything”*.

#### **Temporary satisfaction of psychological needs (mainly relatedness and competence).**

In contrast to Dropouts, all Completers experienced some relatedness with other walkers and satisfied self-orientated desires. At post-intervention, Cindy recalls that socialization was her main drive to adhere to the program:

*When I started it, I was fairly new in the village. Personally, it has helped me. I walk along by myself, but I think walking with the company .. I have enjoyed it and getting to know a few more people, instead of staying by myself, because I will quite often stay by myself. So, it has made me come out.*

All Completers felt effective at attracting experienced walkers to join the group but struggled with getting “new walkers” and “those who need help” to commit to the program.

#### **Unsustainable helping strategies reducing perceived autonomy.**

All Completers segregated slower walkers from faster walkers to overcome the challenge of leading walkers with diverse capabilities, often leading to slower walker dropout.



339 At the post-intervention interview, Cindy described how she offered individual support to  
 340 inexperienced walkers: *“The other walk leader and I had sort of worked it out between us. I’ll*  
 341 *take one group and go with them, while she’ll [other walk leader] take a slower peer, and then*  
 342 *we’d alternate “.*

343 She then explained how having to adapt to the time-schedule and needs of walkers  
 344 undermined her need for autonomy:

345 *You got to fit in with them. They can’t fit in with you. And it’s very exhausting*  
 346 *in that respect. If you say 10 o’clock, somebody will say “Oh look I can’t come*  
 347 *today, can you come another time?” ....well it makes it very difficult. Also, I*  
 348 *haven’t got 24 hours a day to say, “Oh I’ll fit in with you.”*

349 She further articulated the above experience as *“emotionally exhausting”*, which suggests  
 350 that it had reduced her autonomous volunteer motivation.

### 351 **Inability to provide the desired help reducing perceived competence.**

352 All Completers felt unsuccessful at helping those who needed help, which led to a  
 353 reduction in perceived competence as a walk leader. Cindy explains how she felt frustrated with  
 354 inexperienced walkers not attending individualized walks:

355 *It’s just almost impossible to encourage people to attend. They always have*  
 356 *got an excuse “Oh it’s too hot or it’s too wet”. You know little things like “I*  
 357 *got no time” or “I got a doctor’s appointment.*

358 The above account suggests that at this point, Cindy lacked a sense of competence for motivating  
 359 less experienced walkers.

### 360 **Motives to volunteer as a walk leader not fully internalized.**

At post-intervention, all Completers indicated low levels of autonomous motivation for helping those who “need help”, due to leaders experiencing a lack of competence and autonomy. While unsuccessful with inexperienced walkers, Cindy’s implementation of a social group was successfully attracted experienced walkers: *“Those of us who are left are walkers anyway. We walk regardless of whether there is a program going or not”*.

### **Profile 3: Extenders**

Three female peer leaders matched this profile, all of whom stated that they intended to continue volunteering as a walk leader after the intervention. For Extenders, the key to persisting as a volunteer included social support, autonomous motivation, altruistic goals, compassion, sustainable helping strategies, the satisfaction of all three basic psychological needs, optimism, and enjoyment. We identified five key themes for this profile (See Table 3).

#### **Dominance of altruistic desires throughout the program.**

When the walk leader role was advertised in her village, Nancy, aged 70, was the first to volunteer. Like Cindy, Nancy indicated being physically active. She pre-dominantly emphasized altruistic desires, which she articulated as *“I am interested in people, and I like helping people”*. During the post-intervention interview, she explained that she did not rely on the group walks to fulfill a social need (like Cindy) or to meet physical activity goals (like Judy). To keep fit, she engaged in separate walks:

*I still walk every morning with my husband. We do 6 km every day. But the other walk is good for me because I enjoy walking and I think the sense of being able to help people, makes me feel good. It made me feel good that I could do that.*

Prioritizing helping over meeting self-orientated goals was common among Extenders.

384 **Use of effective and sustainable helping strategies.**

385 In contrast to other profiles, Extenders followed an inclusive group management approach and  
 386 indicated high compassion and optimism. For example, instead of segregating slower walkers  
 387 from faster walkers, everybody stayed in one group, with the walk leader adapting to slower  
 388 walkers. Nancy made her group accessible to all kinds of walkers, which she managed using an  
 389 inclusive approach: *“I just found its best to go to the front once, talk to them for a while, then*  
 390 *come back and talk to the ones that are going slower.”*

391 Nancy emphasized the importance of helping slow walkers feel good at their pace:

392 *I adjust my walking to their walking. I don't go bouncing off ahead of them or*  
 393 *anything. They might say they were sorry for not being able to walk too fast,*  
 394 *and you just have to tell them that's the whole point of it -we walk at the*  
 395 *slowest pace. If the other ones want to race ahead, that's fine.*

396 Other strategies mentioned by Extenders were to encourage struggling walkers to take a  
 397 break, pick them up on the way back, and include them in the subsequent social event.

398 Contrary to Cindy, Nancy stuck to a clear time-schedule but remained flexible, optimistic, and  
 399 understanding with attendance:

400 *I feel confident that if they can't make it, they can't make it for a reason. They*  
 401 *are not just saying, “Ok, look, I can't make it next Wednesday”. They always*  
 402 *say because they have an appointment. Or some of them do voluntary work.*

403 **Use of social support to meet role demands.**

404 All Extenders were successful at sharing responsibilities (e.g., having other group  
 405 members check on slower walkers) and achieving group cohesion among members. Nancy

406 explained that she felt supported by walkers taking over her role when she was unable to walk  
407 with the group: “(Peer) took over on two occasions when I couldn’t be there. That made it easy  
408 for me”.

409 **Satisfaction of all basic psychological needs.**

410 At the pre-intervention interview, Nancy explained that experience as an aerobics  
411 instructor and her personality, which she describes as outgoing, empathetic, and positive,  
412 enhances her confidence as a walk leader:

413 *I think you know, taking the role of a walk leader, you really have to be a*  
414 *certain type of person who can lease with people and understand them. I think*  
415 *it’s no good if you are a very serious, regimented person. I have always done*  
416 *quite a bit of instructing. And my role here at the village is a very social role. I*  
417 *know a lot of people. So, I don’t find to do it difficult in any way to do*  
418 *something like that, whereas some people might.*

419 All Extenders described feeling successful at establishing a sense relatedness with the  
420 walkers, which was facilitated by including walkers in decisions, showing interest in walkers’  
421 lives, being inclusive and positive. At post-intervention, Nancy indicated that a sense of  
422 relatedness with walkers helped her keep walkers engaged during the walk:

423 *I had long chats on the walks with a couple of ladies, and they told me what*  
424 *they have done in their lives... you know, walking along half an hour or 40*  
425 *minutes are just gone before they know it.*

Nancy indicated a sense of autonomy by explaining her initiative of making the walks interesting and using her skills: *“We do balance exercises. They got to stand on one leg, and we rotate our ankles one way and the other way and turn those up and down, heels and toes”*. She also provided walkers with advice on exercises to do after the walk, suggesting that she felt confident in her role.

### **Enjoyment and optimism.**

Nancy articulated satisfaction with her role as a volunteer walk leader, which she attributed to her positive experiences with the walkers and feeling competent in her position. At post-intervention, autonomous motivation was apparent and supported by accounts describing success at helping others walk more and the intention to continue:

*I found it was really great that the people joined, especially a couple of them that probably wouldn't have walked very much...I found that very rewarding for myself that you know they were very happy. I'd be happy to continue a walking group.*

## **Discussion**

We aimed to examine the motivational processes implicated in differential levels of persistence as an older volunteer walk leader. Dropouts (Profile 1) volunteered for extrinsic and self-orientated reasons, failed to experience the satisfaction of basic psychological needs, and perceived a lack of support. Completers (Profile 2) indicated high levels of guilt and obligation, used unsustainable helping strategies leading to emotional exhaustion, achieved socialization with active walkers, but felt ineffective at motivating inexperienced walkers. Extenders (Profile 3) were autonomously motivated volunteers, prioritized helping those who needed help, used sustainable helping strategies, experienced psychological need satisfaction, were optimistic,

received support from group members with meeting role demands, and enjoyed their role as volunteer.

In line with SDT, we found that need satisfaction and the quality of motivation was crucial for persisting as a volunteer (Ryan & Deci, 2017). Consistent with past research, the persistence of older adults who volunteered for controlled reasons was motivated by self-orientated needs and introjected regulation (Guntert et al., 2016), which did not lead to behavioral maintenance (Ryan & Deci, 2017). The importance of role flexibility for older volunteer retention aligns with past research (Sellon, 2014).

Confirming past research, we found that an inability to provide the desired help led to emotional exhaustion and dropout (Morrow-Howell & Mui, 1989; Tang et al., 2010). Perceiving a lack of resources and support was common among Dropouts. All Dropouts, unlike Completers and Extenders, were participants who had not received training in motivational communication strategies. Differences in training (due to volunteers either being in the control or experimental group of the intervention) may have influenced initial competence levels and subsequent volunteer persistence. These findings are consistent with research linking inadequate training to volunteer dropout (Tang et al., 2010). Extending past research, we suggest that adequate training for volunteers may include teaching motivational communication strategies (Thøgersen et al., 2019), which may increase perceived competence and persistence as a volunteer.

However, variations in persistence between Completers and Extenders (both receiving similar training) may be explained by additional factors. Our findings support studies suggesting that altruistically (Convey et al., 2010; Stukas et al., 2016) and autonomously (Grano et al., 2008; Weinstein & Ryan, 2010) motivated volunteers enjoy and maintain their role. We add the insight that autonomously motivated volunteers may use helping strategies that facilitate the

satisfaction of needs, prevent emotional exhaustion, and lead to sustained volunteering. These findings may explain research associating health benefits with autonomous (Weinstein & Ryan, 2010; Wu & Chunxiao, 2019) and altruistic (Konrath et al., 2012) volunteering motives.

Our results confirm volunteering research linking autonomous motivation to receiving social support, devoting work effort, optimism, and resilience (Bidee et al., 2013; Grano et al., 2008; Wu & Chunxiao, 2019). The characteristics of Extenders add to research suggesting that attributes of effective leaders include being optimistic, compassionate, and inclusive (Goleman et al., 2004; Kritz et al., 2020). Similar attributes may be linked to behaviors, skills, and perceptions that facilitate need satisfaction (Ryan et al., 2019), leading to volunteer persistence (Grano et al., 2008).

In contrast to cross-sectional research with older volunteers (Grano et al., 2008), our findings suggest that intrinsic motivation (i.e., enjoying the act of helping) is important for the intention to continue volunteering as a walk leader. This discrepancy may be explained by increasing levels of competence, role satisfaction, and optimism among Extenders (but not among Completers). While competence facilitates intrinsic motivation, role satisfaction may mediate the relationship between intrinsic motivation and the intention to continue volunteering (Wu et al., 2016).

### **Strengths and limitations**

To our knowledge, this is the first study to examine qualitatively and longitudinally the motivational processes implicated in the volunteering of older novice walk leaders. Our design allowed us to explore both the determinants (e.g., volunteer characteristics), cognitive outcomes (e.g., emotional exhaustion), and behavioral consequences (e.g., engaging in helping strategies) of motivational processes experienced by older walk leaders. Another strength includes using

quantitative and qualitative measures to assess volunteer characteristics, volunteer motivation, and leadership confidence at pre-intervention.

Using SDT, we offer only one perspective regarding the interpretation of the findings. Our findings may be biased towards older retired white women residing in retirement villages. While 11 cases may be insufficient to generalize outside retirement communities, we demonstrate the usefulness of SDT for understanding the role of motivation in the persistence of older volunteers in physical activity settings. While we obtained interviews from 11 (out of 12) volunteers who attempted leading a group, our findings are limited by excluding interested volunteers who did not lead a group (i.e., non-engagers). Detailed information on non-engagers is provided in supplementary file A1 and can be used to inspire future research. Our findings can also be used for generating hypotheses in future large-scale studies. We did not assess motivational processes beyond the program, which provides an exciting avenue for forthcoming studies. Researchers could use quantitative methods to track the motivational processes of older peer leaders over an extended period (i.e., six months or 12 months), and use SDT to examine volunteer retention in other settings.

### Implications

Our findings inform how older walk leaders may be selected, trained, and supported by organizations and volunteer managers. Recommendations are provided in Table 4 and below.

**Volunteer selection.** Older adults volunteering to increase their physical activity levels may benefit from initially joining as a walker or supporting smaller groups or walking partners. Peers who are physically active, outgoing, and volunteer to meet their social needs may be ideal for leading a group of experienced walkers (Kritz et al., 2020). Volunteers who are altruistic,



optimistic and compassionate may be most effective at helping those who need help (Kritz et al., 2020).

**Training and support.** Results align with research emphasizing the voluntary aspect of peer-led programs (i.e., serving out of free will as opposed to obligation or guilt) and the importance of support provided by volunteer managers (Martinson & Minkler, 2006). To support the motivation of older adults, organizations can offer flexible roles and adequate training (e.g., social skills and motivation training) to help volunteers succeed at helping walkers and avoid emotional exhaustion. Volunteer managers can also provide opportunities for feedback, reflection, socialization and volunteer recognition to support the internalization of volunteer motives (Van Schie et al., 2015; Withall et al., 2016).

Overall, our findings describe how volunteer motives, training and attributes may trigger behaviors that determine the satisfaction and retention of older volunteer walk leaders. The role of emotional intelligence (Goleman et al., 2004) and self-esteem (Ryan et al., 2019) for facilitating psychological need satisfaction and effective helping strategies is worth further exploration. Future research could use our findings to determine whether selecting suitable volunteers and providing them with the recommended support can increase their autonomous motivation and facilitate volunteer retention in future physical activity interventions.

## References

- Anderson, N. D., Damianakis, T., Kroger, E., Wagner, L. M., Dawson, D. R., Binns, M. A., Bernstein, S., Caspi, E., Cook, S. L., & Team, B. (2014, Nov). The Benefits Associated With Volunteering Among Seniors: A Critical Review and Recommendations for Future Research. *Psychological Bulletin*, 140(6), 1505-1533. <https://doi.org/10.1037/a0037610>
- Baxter, P., & Jack, S. (2008, Dec). Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. *Qualitative Report*, 13(4), 544-559. <http://www.nova.edu/ssss/QR/QR13-4/baxter.pdf>
- Bidee, J., Vantilborgh, T., Pepermans, R., Huybrechts, G., Willems, J., Jegers, M., & Hofmans, J. (2013). Autonomous Motivation Stimulates Volunteers' Work Effort: A Self-Determination Theory Approach to Volunteerism. *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, 24(1), 32-47. <http://www.jstor.org/stable/42629792>
- Braun, V., Clarke, V., & Terry, G. (2014). Thematic analysis. In P. Rohleder & A. Lyons (Eds.), *Qualitative research in clinical and health psychology*. Palgrave MacMillan.
- Burton, E., Farrier, K., Hill, K. D., Codde, J., Airey, P., & Hill, A. M. (2017, May 23). Effectiveness of peers in delivering programs or motivating older people to increase their participation in physical activity: Systematic review and meta-analysis. *J Sports Sci*, 1-13. <https://doi.org/10.1080/02640414.2017.1329549>
- Convey, M. R., Dickson-Gomez, J., Weeks, M. R., & Li, J. (2010, Nov). Altruism and peer-led HIV prevention targeting heroin and cocaine users. *Qualitative Health Research*, 20(11), 1546-1557. <https://doi.org/10.1177/1049732310375818>
- Creswell, J. W. (2018). *Designing and conducting mixed methods research*. 3rd ed. Thousand Oaks: SAGE Publications.
- Eisenhardt, K. M., & Graebner, M. E. (2007, Feb). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, 50(1), 25-32. <https://doi.org/10.5465/Amj.2007.24160888>
- Fereday, J.A., & Muir-Cochrane, E. (2006). Demonstrating Rigor Using Thematic Analysis: A Hybrid Approach of Inductive and Deductive Coding and Theme Development. *International Journal of Qualitative Methods*, 5, 80 - 92.
- Faulkner, G., & Biddle, S. J. H. (2004). Exercise and Depression: Considering Variability and Contextuality. *Journal of Sport & Exercise Psychology*, 26(1), 3-18. <https://psycnet.apa.org/record/2004-12032-001>

- Goleman, D., Boyatzis, R. E., & McKee, A. (2004). *Primal leadership: Learning to lead with emotional intelligence*. Harvard Business School Press.
- Grano, C., Lucidi, F., Zelli, A., & Violani, C. (2008). Motives and determinants of volunteering in older adults: an integrated model. *Int J Aging Hum Dev*, 67(4), 305-326. <https://doi.org/10.2190/AG.67.4.b>
- Guntert, S. T., Strubel, I. T., Kals, E., & Wehner, T. (2016, May 3). The quality of volunteers' motives: Integrating the functional approach and self-determination theory. *Journal of Social Psychology*, 156(3), 310-327. <https://doi.org/10.1080/00224545.2015.1135864>
- Hanson, S., & Jones, A. (2015, Jun). Is there evidence that walking groups have health benefits? A systematic review and meta-analysis. *Br J Sports Med*, 49(11), 710-715. <https://doi.org/10.1136/bjsports-2014-094157>
- Hulteen, R. M., Waldhauser, K. J., & Beauchamp, M. R. (2019, Nov 21). Promoting Health-Enhancing Physical Activity: a State-of-the-art Review of Peer-Delivered Interventions. *Current Obesity Reports*. <https://doi.org/10.1007/s13679-019-00366-w>
- Jiang, D., Warner, L. M., Chong, A. M. L., Li, T. Y., Wolff, J. K., & Chou, K. L. (2019, Sep). A Randomized Controlled Trial to Promote Volunteering among Older Adults in Hong Kong, China. *Journal of the American Geriatrics Society*, 67, S595-S595. <https://doi.org/10.1093/geront/gnz076>
- Jones, M., Forner, V., Parrish, D., Eidenfalk, J., Kiridena, S., Popov, N., & Berry, Y. (2015, 2-6 August). *Improving the retention of volunteers through the satisfaction of basic psychological needs* International Business Conference, New York City, USA.
- Jongenelis, M. I., Jackson, B., Warburton, J., Newton, R. U., & Pettigrew, S. (2019, Oct 9). Improving Attitudes to Volunteering Among Older Adults: A Randomized Trial Approach. *Res Aging*, 164027519877476. <https://doi.org/10.1177/0164027519877476>
- Kinnafick, F. E., Thogersen-Ntoumani, C., & Duda, J. L. (2014, May). Physical Activity Adoption to Adherence, Lapse, and Dropout A Self-Determination Theory Perspective. *Qualitative Health Research*, 24(5), 706-718. <https://doi.org/10.1177/1049732314528811>
- Konrath, S., Fuhrel-Forbis, A., Lou, A., & Brown, S. (2012, Jan). Motives for volunteering are associated with mortality risk in older adults. *Health Psychol*, 31(1), 87-96. <https://doi.org/10.1037/a0025226>
- Kragt, D., & Djurre, H. (2019). Volunteering research in Australia: A narrative review. *Australian Journal of Psychology*, 71(4). <https://doi.org/10.1111/ajpy.12251>

- Kritz, M., Thøgersen-Ntoumani, C., Mullan, B., McVeigh, J., & Ntoumanis, N. (2020, Aug 14). Effective Peer Leader Attributes for the Promotion of Walking in Older Adults. *Gerontologist*, 60(6), 1137-1148. <https://doi.org/10.1093/geront/gnaa014>
- Kritz, M., Thøgersen-Ntoumani, C., Mullan, B., Stathi, A., & Ntoumanis, N. (in press). "It's better together": A Nested Longitudinal Study Examining the Benefits of Walking Regularly with Peers Versus Primarily Alone in Older Adults. *Journal of Physical Aging and Physical Activity*.
- Martinson, M., & Minkler, M. (2006, Jun). Civic engagement and older adults: a critical perspective. *Gerontologist*, 46(3), 318-324. <https://doi.org/10.1093/geront/46.3.318>
- McCormick, M. J. (2002). Extending Self-Efficacy Theory to Leadership: A Review and Empirical Test. *Journal of Leadership Education*, 1(2).
- Millette, V., & Gagne, M. (2008, Mar). Designing volunteers' tasks to maximize motivation, satisfaction and performance: The impact of job characteristics on volunteer engagement. *Motivation and Emotion*, 32(1), 11-22. <https://doi.org/10.1007/s11031-007-9079-4>
- Morrow-Howell, N., & Mui, A. (1989). Elderly volunteers: Reasons for initiating and terminating service. *Journal of Gerontological Social Work*, 13(3-4), 21-34. [https://doi.org/https://doi.org/10.1300/J083V13N03\\_03](https://doi.org/https://doi.org/10.1300/J083V13N03_03)
- Niebuur, J., van Lente, L., Liefbroer, A. C., Steverink, N., & Smidt, N. (2018, Nov 2). Determinants of participation in voluntary work: a systematic review and meta-analysis of longitudinal cohort studies. *BMC Public Health*, 18. <https://doi.org/ARTN 1213 10.1186/s12889-018-6077-2>
- Niven, A. G., & Markland, D. (2016, 2016/03/01/). Using self-determination theory to understand motivation for walking: Instrument development and model testing using Bayesian structural equation modelling. *Psychology of Sport and Exercise*, 23(Supplement C), 90-100. <https://doi.org/10.1016/j.psychsport.2015.11.004>
- Oostlander, J., Guentert, S. T., van Schie, S., & Wehner, T. (2014, Oct). Leadership and Volunteer Motivation: A Study Using Self-Determination Theory. *Nonprofit and Voluntary Sector Quarterly*, 43(5), 869-889. <https://doi.org/10.1177/0899764013485158>
- Petriwskyi, A., & Warburton, J. (2007). Motivations and barriers to volunteering by seniors: A critical review of the literature. *The International Journal of Volunteer Administration*, 24
- Ryan, R. M., & Deci, E. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guildford Press.

- Ryan, R. M., Soenens, B., & Vansteenkiste, M. (2019, Feb). Reflections on self-determination theory as an organizing framework for personality psychology: Interfaces, integrations, issues, and unfinished business. *Journal of Personality*, 87(1), 115-145. <https://doi.org/10.1111/jopy.12440>
- Same, A., McBride, H., Liddel, C., Mullan, B., & Harris, C. (2020). Motivations for volunteering time with older adults: A qualitative study. *Plos One*, 15(5). <https://doi.org/10.1371/journal.pone.0232718>
- Sellon, A. M. (2014, Dec). Recruiting and Retaining Older Adults in Volunteer Programs: Best Practices and Next Steps. *Ageing International*, 39(4), 421-437. <https://doi.org/10.1007/s12126-014-9208-9>
- Stukas, A. A., Hoyer, R., Nicholson, M., Brown, K. M., & Aisbett, L. (2016, Feb). Motivations to Volunteer and Their Associations With Volunteers' Well-Being. *Nonprofit and Voluntary Sector Quarterly*, 45(1), 112-132. <https://doi.org/10.1177/0899764014561122>
- Tang, F. Y., Morrow-Howell, N., & Choi, E. (2010, Jul). Why do older adult volunteers stop volunteering? *Ageing & Society*, 30, 859-878. <https://doi.org/10.1017/S0144686x10000140>
- Thøgersen-Ntoumani, C., Quested, E., Biddle, S. J. H., Kritz, M., Olson, J., Burton, E., Cerin, E., Hill, K. D., McVeigh, J., & Ntoumanis, N. (2019, Jun 17). Trial feasibility and process evaluation of a motivationally-embellished group peer led walking intervention in retirement villages using the RE-AIM framework: the residents in action trial (RiAT). *Health Psychology and Behavioral Medicine*, 7(1), 202-233. <https://doi.org/10.1080/21642850.2019.1629934>
- Vagetti, G. C., Barbosa, V. C., Moreira, N. B., de Oliveira, V., Mazzardo, O., & de Campos, W. (2014, Jan-Mar). Association between physical activity and quality of life in the elderly: a systematic review, 2000-2012. *Revista Brasileira De Psiquiatria*, 36(1), 76-88. <https://doi.org/10.1590/1516-4446-2012-0895>
- van Schie, S., Guntert, S. T., Oostlander, J., & Wehner, T. (2015, Aug). How the Organizational Context Impacts Volunteers: A Differentiated Perspective on Self-determined Motivation. *Voluntas*, 26(4), 1570-1590. <https://doi.org/10.1007/s11266-014-9472-z>
- Washburn, R. A., Smith, K. W., Jette, A. M., & Janney, C. A. (1993, Feb). The Physical Activity Scale for the Elderly (PASE): development and evaluation. *Journal of Clinical Epidemiology*, 46(2), 153-162. [https://doi.org/10.1016/0895-4356\(93\)90053-4](https://doi.org/10.1016/0895-4356(93)90053-4)
- Weinstein, N., & Ryan, R. M. (2010, Feb). When Helping Helps: Autonomous Motivation for Prosocial Behavior and Its Influence on Well-Being for the Helper and Recipient. *J Pers Soc Psychol*, 98(2), 222-244. <https://doi.org/10.1037/a0016984>

Withall, J., Thompson, J. L., Fox, K. R., Davis, M., Gray, S., de Koning, J., Lloyd, L., Parkhurst, G., & Stathi, A. (2016, Dec 07). Participant and Public Involvement in Refining a Peer-Volunteering Active Aging Intervention: Project ACE (Active, Connected, Engaged). *Gerontologist*. <https://doi.org/10.1093/geront/gnw148>

Wu, Y., & Chunxiao, L. (2019). Helping Others Helps? A Self-Determination Theory Approach on Work Climate and Wellbeing among Volunteers. *Applied Research Quality Life*, 12, 1099-1111. <https://doi.org/10.1007/s11482-018-9642-z>

Wu, Y., Li, C., & Khoo, S. (2016). Predicting future volunteering intentions through a self-determination theory perspective. . *Voluntas*, 27(3), 1266-1279. <https://doi.org/10.1007/s11266-015-9570-6>

Table 1

**Questionnaires and Interview schedule Administered at Each Time-point.**

Assessment	Examples of Items/Questions
<b>Time 1 Baseline?</b>	
<b>Questionnaire Data</b>	
Demographic characteristics	<ul style="list-style-type: none"> <li>Gender, Age in years, BMI, Marital Status, Living status, Duration of living in retirement village, Highest level of education, Leadership experience.</li> </ul>
Physical activity, PASE (Washburn et al., 1993)	<ul style="list-style-type: none"> <li>Over the past 7 days, how often did you take a walk outside your home or yard for any reason? (0-<i>Never-Often</i>-3).</li> </ul>
Leadership traits, LTQ (Northouse, 2013)	<ul style="list-style-type: none"> <li>I talk freely and get along well with others (Outgoing) (1-<i>Strongly disagree</i> to -<i>Strongly agree</i>-5).</li> </ul>
Volunteer motivation from an SDT perspective, VMS (Millette & Gagne, 2008)	<ul style="list-style-type: none"> <li><i>Because I would really feel bad about myself if I didn't volunteer</i> (1-<i>Strongly disagree</i> to -<i>Strongly agree</i>-7).</li> </ul>
Leadership self-efficacy, LSE (Kane and Baltes, 1998)	<ul style="list-style-type: none"> <li>I can take charge when necessary" (1-<i>no confidence</i> to -<i>100% confident</i> -7).</li> </ul>
<b>Interview schedule</b>	
Past experience.	<ul style="list-style-type: none"> <li>Please describe any past experiences of being active/volunteering/being in a leadership role?</li> </ul>
Physical activity	<ul style="list-style-type: none"> <li>How active are you at the moment? What do you do?</li> </ul>
Motives to engage in walking and in group walking	<ul style="list-style-type: none"> <li>How much walking are doing at the moment?</li> </ul>
Volunteer motives	<ul style="list-style-type: none"> <li>What motivates you to walk/walk with others?</li> </ul>
Anticipated challenges, facilitators and barriers.	<ul style="list-style-type: none"> <li>Why do you want to volunteer as a walk leader?</li> <li>What, if anything, could stop you from continuing? What might help you continue?</li> </ul>
<b>Time 2 report when in relation to the 12 week program (after completion? 4 weeks after completion? That needs to be clearly reported</b>	
<b>Questionnaire Data:</b>	
Intention to continue	What is the likelihood that you will continue to volunteer as a walk leader? (1 = <i>Very unlikely</i> , to 5 = <i>Very likely</i> )
<b>Interview schedule:</b>	
Facilitators to volunteering	<ul style="list-style-type: none"> <li>What helped you continue in your role as a walk leader?</li> </ul>
Barriers to volunteering	<ul style="list-style-type: none"> <li>Why did you stop volunteering as a walk leader?</li> </ul>
Challenges and successes	<ul style="list-style-type: none"> <li>What challenges or difficulties did you experience?</li> </ul>
Intention and motives to continue volunteering and associated barriers/facilitators to continue.	<ul style="list-style-type: none"> <li>What successes did you have or what went well?</li> <li>What is the likelihood that you will volunteer as a walk leader in the future? Why? What might stop you/motivate you to volunteer as a walk leader in the future?</li> </ul>

*Note:* Further details on questionnaire items, how scores were determined and their validity are presented in supplementary file A2. BMI = Body Mass Index. LTQ = Leadership Traits Questionnaire, PASE = Physical Activity Scale for the Elderly. BRWQ = Behavioral Regulation in Walking Questionnaire, VMS = Volunteer motivation scale. LSE = Leadership self-efficacy scale. Detailed information on all questionnaires is provided in supplementary file A2.

745

**Table 2****Characteristics of Participants in Profiles**

	<b>Dropouts (<i>N</i> = 4)</b>	<b>Completers (<i>N</i> = 4)</b>	<b>Extenders (<i>N</i> = 3)</b>
<b>Gender</b>	Female: <i>n</i> = 4	Female: <i>n</i> = 3 Male: <i>n</i> = 1	Female: <i>n</i> = 3
<b>Age range</b>	66 -75 years old	75 - 83 years old	70 -78 years old
<b>Marital Status</b>	Separated: <i>n</i> = 2 Divorced: <i>n</i> = 2	Married: <i>n</i> = 2 Widowed: <i>n</i> = 1 Divorced: <i>n</i> = 1	Married: <i>n</i> = 1 Widowed: <i>n</i> = 2
<b>Living Status</b>	Living alone: <i>n</i> = 4	Living alone: <i>n</i> = 3 Living with spouse: <i>n</i> = 1	Living alone: <i>n</i> = 2 Living with spouse: <i>n</i> = 1
<b>Duration living in retirement village</b>	2.5 – 5.0 years	1.1 – 8.3 years	3.0-5.0 years
<b>Highest level of education</b>	Completed University: <i>n</i> = 2 Completed Secondary school: <i>n</i> = 2	Completed University: <i>n</i> = 2 Completed Vocational training: <i>n</i> = 2	Completed Secondary school: <i>n</i> = 3
<b>BMI range</b>	20.99 – 25.97	23.81 – 25.10	21.85 – 28.53
<b>Physical activity <sup>1</sup></b>	Physically active: <i>n</i> = 2 Physically less active: <i>n</i> = 2	Physically active: <i>n</i> = 2 Physically less active: <i>n</i> = 2	Physically active: <i>n</i> = 3
<b>Leadership experience range</b>	0 – 20 years Leadership experience in physical activity settings: <i>n</i> = 0	1 -60 years Leadership experience in physical activity settings: <i>n</i> = 1	2-30 years Leadership experience in physical activity settings: <i>n</i> = 2
<b>Leadership traits score range <sup>2</sup></b>	3.61 – 5.00, Median = 4.27	3.50- 4.11 Median = 3.75	3.33 -4.83 Median = 4.11
<b>Walk leader training received <sup>3</sup></b>	4/4 received general walk leader training	4/4 received general walk leader training and motivation training	3/3 received general walk leader training and motivation training

*Note:* BMI = Body Mass Index

1 = Scores represent ranges of self-reported activity levels computed from responses to Physical Activity Scale for Elderly (PASE; Washburn et al., 1993) at pre-intervention. The label “less active” and “active” indicated whether activity levels were below/above the norm for the respective age-group as defined by the scale developers.

2 = Scores were derived from the Leadership Traits Questionnaire (Northouse, 2013), Scores ranged from 1 -5, with higher scores indicating a higher overall level of agreement with leadership attributes. Further details on all questionnaires are provided in supplementary file A2.

3 = General walk leader training included general information on leading group walks, suggested walk routes and information on current physical activity recommendations. Motivation training encompassed an additional workshop that taught volunteers strategies on how to motivate group members. Further details are provided in supplementary file B1.

746

747



**Table 3**

**Questionnaire Data on Volunteer Motivation and Leadership Confidence at Pre-intervention and Themes Derived from The Interviews with Volunteer Walk Leaders**

<b>Profile 1: Dropouts</b>	
<b>Questionnaire data at pre-intervention</b>	<b>Themes derived from Interviews</b>
<b>Volunteer Motivation:</b> <sup>1</sup> 4/4 volunteers - high levels of controlled motivation 2/4 volunteers - high levels of autonomous motivation	1. Focus on self-orientated goals throughout the program (e.g., social rewards and increasing own physical activity levels)
<b>Leadership confidence:</b> <sup>2</sup> 3/4 volunteers - high levels of confidence	2. Basic psychological needs not satisfied 3. Perceived lack of support/resources to meet role demands 4. Lack of internalization of motives throughout the program
<b>Profile 2: Completers</b>	
<b>Questionnaire data at pre-intervention</b>	<b>Themes derived from Interviews</b>
<b>Volunteer Motivation:</b> <sup>1</sup> 4/4 volunteers- high levels of controlled motivation AND high levels of autonomous motivation	1. Dominance of obligation and guilt throughout the program 2. Temporary satisfaction of psychological needs (mainly relatedness and competence)
<b>Leadership confidence:</b> <sup>2</sup> 3/4 volunteers- high levels of confidence	3. Unsustainable helping strategies reducing perceived autonomy 4. Inability to provide the desired help reducing perceived competence 5. Motives to volunteer as a walk leader not fully internalized
<b>Profile 3: Extenders</b>	
<b>Questionnaire data at pre-intervention</b>	<b>Themes derived from Interviews</b>
<b>Volunteer Motivation:</b> <sup>1</sup> 3/3 volunteers - low levels of controlled motivation AND high levels of autonomous motivation	1. Dominance of altruistic desires throughout the program 2. Use of effective and sustainable helping strategies
<b>Leadership confidence:</b> <sup>2</sup> 3/3 volunteers - high levels of confidence	3. Use of social support to meet role demands 4. Satisfaction of all basic psychological needs 5. Enjoyment and optimism

*Note:* 1 = Scores represent ranges of scores computed from responses to the Volunteer Motivation Scale (Millette & Gagne, 2008) at pre-intervention. Scores for controlled regulation and autonomous regulation ranged from 0 and 7, with scores of 0 – 3.50 being labelled as “low” and scores of 3.51 or higher being classified as “high”.

2 = Labels were determined from of scores computed from responses to the Leadership self-efficacy scale (Kane and Baltes, 1998) at pre-intervention. Scores ranged from 0 and 7, with scores of 0 – 3.49 being labelled as “low” and scores of 3.50 or higher being classified as “high”. Further details on all questionnaires and additional data are provided in supplementary file A2.

Table 4

### Recommendations on How to Recruit, Select, Train and Support Older Adults Volunteering as Peer Walk Leaders

Recommendations	Illustrative quotes derived from interviews.
<b>Recruiting volunteers</b>	
<ul style="list-style-type: none"> <li>• Clarity on role tasks and role demands</li> <li>• Emphasizing the social aspect/intrinsic benefits of helping others</li> <li>• Manageable role demands</li> <li>• Shared responsibility (e.g., at least two walk leaders per group)</li> <li>• Role flexibility</li> </ul>	<p><i>"You could say, "Okay, now if you're a walk leader at the end of this when we do the workshop, you will be expected to." Dropout</i></p> <p><i>"You're dealing with older people and they have funny ... A lot of them haven't moved with the times and they have funny ideas about walking groups... Maybe call it social walking group which would suggest that you can chat or you're going to socialize as well as walk." Dropout</i></p> <p><i>"Smaller groups is the way to do it. You start off with a bigger group and fail." Dropout</i></p> <p><i>"If somebody else had taken on the role to do it and all I had to do is turn up and do the walks when I could." Dropout</i></p>
<b>Selecting volunteers</b>	
<ul style="list-style-type: none"> <li>• Positive attitude and flexibility</li> <li>• Interest in others, social confidence</li> <li>• Autonomous motivation to exercise</li> <li>• Altruism and willingness to adapt</li> <li>• Relevant past leadership skills</li> </ul>	<p><i>"It's just being positive yourself and knowing the benefits you gained from it [walking] and trying to impart that on them." Extender</i></p>
<b>Training volunteers</b>	
<ul style="list-style-type: none"> <li>• Establishing group cohesion (e.g., planning in opportunities for socialization during/after the walk)</li> <li>• Eliciting positive walker interest and initiating regular group walks (e.g., role modelling, makes it interesting, adapts to slower walkers)</li> <li>• Social skills and motivation training: Helping volunteers understand needs of walkers, motivate walkers, and create meaningful social interactions</li> <li>• Sustainable helping strategies and ways to avoid exhaustion, training volunteers to delegate tasks</li> </ul>	<p><i>"We certainly got to know each other and a bit of our life history so to speak. And we enjoy each other's company and have a cup of coffee together and that sort of thing." Completer</i></p> <p><i>"We've decided the sociability is really important. They can see we're really happy doing it, and they can say "Oh well I'll come along and I might be happy too." Completer</i></p> <p><i>"We got a very good group because even [slow walker], she walks with a frame. She really can walk quite well. I think you need to be able to understand their capabilities." Extender</i></p> <p><i>"The group was good. They made it easy for me and some... [peer walker] were willing to take over when I was away." Extender</i></p>
<b>Providing volunteer support during the program</b>	
<ul style="list-style-type: none"> <li>• <b>Organizing social events</b> (e.g., facilitating regular contact with other volunteers)</li> <li>• <b>Positive recognition for volunteers to promote volunteer identity</b> (e.g., providing positive feedback, celebrating achievements and efforts, organizing awards with certificates)</li> <li>• <b>Walk and talk friendly routes</b> (i.e., path has sufficient width to walk beside each other)</li> </ul>	

*Note:* Further details on recommendations is provided in supplementary file B5.

749

## Supplementary File A

## 750 Section A1- Further information on results and additional analyses

Table S1

**Description of Profiles, Collected Data and Primary Reasons Provided for Stopping or Continuing as A Volunteer Peer Walk Leader**

<b>Profile description</b>	<b>Data collection</b>	<b>Reasons to continue/dropout</b>
<b>Profile 1- Dropouts</b> Four females matched this profile. Included participants who had consented to the peer leader role, and attempted to lead a group (at least once) but who discontinued their role as a peer leader before program completion.	<b>All four were interviewed at T1 and T2.</b>	All described lack of enjoyment and inability to meet own goals. Two described perceived lack of support to meet role demands. Two described lack of time to meet role demands.
<b>Profile 2- Completers</b> Four females and one male matched this profile. All completed the program as a volunteer but indicated that they will not continue in their role as a peer walk leader.	<b>Four were interviewed at T1 and T2.</b> One (female) provided no data at T1 but provided questionnaire and phone information at T2.	All described socialization as primary motive to continue. All described inability to provide desired help or lack of enjoyment/exhaustion as a reason to stop.
<b>Profile 3- Extenders</b> Three female members matched this profile All expressed intention to continue as a volunteer after program completion.	<b>All three were interviewed at Time 1 and Time 2.</b>	All described enjoyment, socialization and success at helping as primary motives to continue.
<b>Non-engagers</b> 24 non-engagers: 4 male, 20 females Included participants who expressed interest but didn't start the peer leader role or attempt leading a group. 10 non-engagers quit the whole program: Nine female, one male. 14 early non-engagers who sustained as a walker: Three male, 11 females. 15/24 lost interest in the role after the initial information session of which 9 discontinued the program. 6/24 dropped out after receiving training workshop (of whom 2 had received additional motivation training). Among those who dropped out after the training 5 changed to the walker role.	Four were interviewed at T1 and T2.  Eight were interviewed only at T1 but provide questionnaire/verbal data at Time 1.  Twelve were not interviewed but provided verbal data at T2 explaining reasons for dropout.	Five mentioned a lack of walkers or were pessimistic about the acceptability of the program. Twelve indicated a lack of time/motivation to meet role demands. Two indicated poor fitness/physical confidence as a leader, all of who continued as a walker. Five described medical reasons (e.g., age, health) all of whom left the program.

Note: T1 = Time 1, pre-intervention 1, T2 = Time 2, post-intervention

Text in bold indicates cases that met the inclusion criteria (i.e., were interviewed at two time-points and had attempted leading a group), and were included in the analysis/described in the main text.

a = data is derived from interviews, verbal reasons provided via phone and responses to T2 questionnaires asking participants to provide reasons for dropping out or sustaining in the program

751

**Table S2**

**Further Details on Characteristics, Questionnaire Data and Themes Derived from Thematic Analysis of Interviews with Individuals Classified As Non-Engagers**

<b>Participant Characteristics</b>	<b>Motivation and Leadership Confidence</b>
3 female, 1 male, 63 -81 years old, BMI: 21.92 -28.70 2 divorced/separated, 1 widowed, 1 married, 3 living alone. 1 completed University, 2 completed School, 1.5- 17.8 years in village, 5- 15 years leadership experience <b>All classified as active:</b> PASE range: 83.21 – 217 <sup>1</sup>	<ul style="list-style-type: none"> <li>• <b>Motives to walk <sup>2</sup></b> <b>All High Autonomous</b> 2.50 -4.00 <b>All Low Controlled</b> 0.17 – 2.00</li> <li>• <b>Volunteer Motives: <sup>3</sup></b> <b>All High Autonomous</b> 3.67-5.17 <b>All Low Controlled</b> 1.33 – 3.00</li> <li>• <b>Leadership Confidence:</b> All high levels of leadership confidence at pre-intervention. <sup>4</sup></li> </ul>
<b>Themes derived from interviews</b>	<b>Illustrative quote</b>
Pessimism	<i>“When I first thought about it, I was quite keen. When I then thought about it, I thought it wouldn’t work. I wouldn’t waste my time trying to motivate.... there are a few ladies I know who you should, and I have been trying even to get them to walk down the corridor and back...and they won’t.”</i>
Role demands (e.g., volunteering 3 times/week) didn’t match lifestyle	<i>“Well, initially I like to walk, and I do it every day and I thought it was something I could combine with my walking, so I volunteered to do it. But then once I got into it more and it got to the criteria (walking three times a week) ... well the times I like to walk are early in the morning. I didn’t think that would be feasible. The other thing was, I like to walk at my pace. It wouldn’t have been suitable in a group activity”</i>
Declining health	<i>“I had to pull out. I had an injury on my ankle. I do apologize. I really apologize but I just can’t keep going. I just can’t. I would have loved to have been able to take part. I was really looking forward to this as you know.”</i>

Note: BMI = Body Mass Index

1 = Scores represent ranges of self-reported activity levels computed from responses to Physical Activity Scale for Elderly (PASE; Washburn et al., 1993). The label “active” indicated activity levels that were above the norm for the respective age-group as defined by the scale developers.

2 = Scores represent ranges of scores computed from responses to the Behavioral Regulations in Walking Questionnaire (Niven & Markland, 2016). Scores for controlled regulation and autonomous regulation ranged from 0 and 4, with scores of 0 – 2.50 being labelled as “low” and scores of 2.51 or higher being classified as “high”.

3 = Scores represent ranges of scores computed from responses to the Volunteer Motivation Scale (Millette & Gagne, 2008). Scores for controlled regulation and autonomous regulation ranged from 0 and 7, with scores of 0 – 3.50 being labelled as “low” and scores of 3.51 or higher being classified as “high”.

4 = Labels were determined from of scores computed from responses to the Leadership self-efficacy scale (Kane and Baltes, 1998). Scores ranged from 0 and 7, with scores of 0 – 3.49 being labelled as “low” and scores of 3.50 or higher being classified as “high”.

752

**Table S3****Additional Analyses and Medians and Ranges of Questionnaire Data Within Each Profile**

	Motivation to walk Median (Range) <sup>1</sup>	PASE range <sup>2</sup>	Volunteer Motivation Median (Range) <sup>3</sup>	Leadership Confidence Median (Range) <sup>4</sup>
Dropouts 4 members in profile	<b>Motivation to walk:</b> 3/4 volunteers- high levels of autonomous motivation. 0/4 volunteers - high levels of controlled motivation.  <b>Autonomous motivation</b> 2.92 (1.75 – 3.08) <b>Controlled motivation</b> 1.15 (1.08 – 1.96)	92.5 (68.50 – 148)	<b>Autonomous motivation:</b> 3.13 (2.83 – 3.86) <b>Controlled motivation</b> 4.33 (4.00 - 4.83)	5.10 (3.40- 6.20)
Completers 4 members in profile	<b>Motivation to walk:</b> 4/4 volunteers- high levels of autonomous motivation. 0/4 volunteers- high levels of controlled motivation.  <b>Autonomous motivation</b> 3.21 (2.67 – 3.83) <b>Controlled motivation</b> 1.43 (0.38-1.96)	162 (105 -239)	<b>Autonomous motivation</b> 4.46 (3.94 – 5.69) <b>Controlled motivation</b> 5.33 (4.67 – 5.50)	5.15 (1.70 - 6.50)
Extenders 3 members in profile	<b>Motivation to walk:</b> 3/3 volunteers - high levels of autonomous motivation. 0/3 volunteers - high levels of controlled motivation.  <b>Autonomous motivation</b> 3.92 (3.83-3.92) <b>Controlled motivation</b> 1.27 (1.21 – 2.00)	184 (64 – 237)	<b>Autonomous motivation</b> 5.81 (4.69 - 6.00) <b>Controlled motivation</b> 3.00 (2.67 - 3.00)	5.50 (4.20 - 6.90)

*Note:* 1 = Scores represent the median and range of scores computed from responses to the Behavioral Regulations in Walking Questionnaire (Niven & Markland, 2016).

2 = Scores represent the median and range of self-reported activity levels computed from responses to Physical Activity Scale for Elderly (PASE) at pre-intervention (Washburn et al., 1993).

3 = Scores represent the median and range of scores computed from responses to the Volunteer Motivation Scale at pre-intervention (Millette & Gagne, 2008).

4 = Scores represent the median and range of scores computed from responses to the Leadership self-efficacy scale at pre-intervention (Kane and Baltes, 1998).

753

Table S4

**Further Details on Themes Derived from Thematic Analysis of Interviews of Individuals Matching Profile 1 (Dropouts)**

Themes	Description and Examples
Focus on self-orientated goals throughout the program	<ul style="list-style-type: none"> <li>• Desire to increase own physical activity levels, obtain social rewards, ego-enhancement.</li> </ul>
Perceived lack of support/resources to meet role demands	<ul style="list-style-type: none"> <li>• Lack of time to volunteer three times per week</li> <li>• Perceived lack of support (e.g., with encouraging walkers to join, responsibility for group).</li> </ul>
Basic psychological needs not satisfied	<ul style="list-style-type: none"> <li>• <b>Perceived lack of Autonomy</b></li> <li>• Not wanting to adapt to other walker's needs (e.g., walking pace, time-schedule).</li> <li>• <b>Perceived lack of Relatedness</b> Lack of walker interest/motivation. Inability to create desired social connection during or after the walk.</li> <li>• <b>Perceived lack of Competence:</b> Inability to provide the desired help (e.g., walker dropout).</li> </ul>
Lack of internalization of motives throughout the program	<ul style="list-style-type: none"> <li>• Reduction of autonomous motivation, dominance of other priorities.</li> <li>• Not enjoying the role of a group leader/responsibility.</li> <li>• Satisfaction as a volunteer determined by meeting self-orientated goals.</li> </ul>

754

755

756

757

758

759

760

761

762

763

Table S5

**Further Details on Themes Derived from Thematic Analysis of Interviews of Individuals Matching Profile 2 (Completers)**

Dominance of obligation and guilt throughout the program	<ul style="list-style-type: none"> <li>• Desire to obtain social rewards (e.g., experience socialization with other walkers, experience recognition).</li> <li>• Guilt and obligation (e.g., feeling responsible as a village committee member)</li> </ul>
Temporary satisfaction of psychological needs (mainly relatedness and competence)	<ul style="list-style-type: none"> <li>• <b>Autonomy:</b> Enjoyment of organizing and leading a group (e.g., enjoying the initiative of making the walks interesting and choosing suitable routes).</li> <li>• <b>Relatedness:</b> Creating meaningful connections with walkers and other volunteers.</li> <li>• <b>Competence:</b> Perceived success at initiating a walking group.</li> </ul>
Unsustainable helping strategies reducing perceived autonomy	<ul style="list-style-type: none"> <li>• Provision of individual support/adaptation to needs of individual walkers leading to emotional exhaustion.</li> </ul>
Inability to provide the desired help reducing perceived competence	<ul style="list-style-type: none"> <li>• Use of ineffective group management strategies. For example, segregation of slower from faster walkers leading to walker dropout.</li> </ul>
Motives to help not fully internalized	<ul style="list-style-type: none"> <li>• Pessimism for helping (i.e., perceiving a walking group with inexperienced walkers not feasible).</li> <li>• Lack of enjoyment in helping inexperienced walkers (exhausting to adapt to slower walkers, can't provide desired help, can't relate to demotivated walkers, perceiving it a "chore" to help slower walkers.)</li> </ul>

764

765

766

767

768

769

770

771

Table S6

**Further Details on Themes Derived from Thematic Analysis of Interviews of Individuals Matching Profile 3 (Extenders)**

Dominance of altruistic desires throughout the program	<ul style="list-style-type: none"> <li>• Desire to help those who need help.</li> <li>• Compassion for inexperienced walkers.</li> </ul>
Effective and sustainable helping strategies	<ul style="list-style-type: none"> <li>• Inclusive group management.</li> <li>• Adapting to the needs of the slowest walkers.</li> <li>• Use of relevant previously acquired experience.</li> </ul>
Use of social support to meet role demands	<ul style="list-style-type: none"> <li>• Delegating leader role to other walkers/volunteers while away.</li> </ul>
Satisfaction of all basic psychological needs	<p><b>Satisfaction of need for Autonomy.</b></p> <ul style="list-style-type: none"> <li>• Enjoying helping others to walk more.</li> <li>• Perceived control of level of commitment through support from other walkers/volunteers.</li> </ul> <p><b>Satisfaction of need for relatedness</b></p> <ul style="list-style-type: none"> <li>• Perceiving support from other volunteers/group members.</li> <li>• Using social skills to create group cohesion (e.g., meaningful connection with walkers, socialization during and after the walk).</li> <li>• Leadership acceptance (e.g., being accepted as the group leader, perceived as role model, gets asked for advice).</li> </ul> <p><b>Satisfaction of need for competence</b></p> <ul style="list-style-type: none"> <li>• Leadership confidence and opportunity to use previously acquired skills (e.g., know-how in exercise, leadership and group management).</li> <li>• Successful at eliciting positive walker interest and initiating regular group walks</li> <li>• Positive feedback from walkers and ongoing walker commitment.</li> </ul>
Enjoyment and Optimism	<ul style="list-style-type: none"> <li>• Optimism and flexibility (e.g., not taking it personally if walkers don't attend regularly).</li> <li>• Intention to continue volunteering as a peer walk leader.</li> <li>• Intrinsic motivation to walk and help others.</li> </ul>

772

773

774

775



Table S7

**Preliminary Analysis Identifying Overall Factors That Support Versus Thwart the Motivation of Peer Walk Leaders**

Need-satisfaction	Example quote
<b>Autonomy</b> <ul style="list-style-type: none"> <li>• Positive attitude (i.e., optimism, flexibility).</li> <li>• Autonomous motivation to exercise.</li> <li>• Focus on meeting altruistic desires (e.g., desire to help)</li> <li>• Perceived role flexibility (e.g., can choose level of commitment)</li> </ul>	<i>"The group that I am with, there is a couple with walkers. They can still walk pretty fast when they have got those walkers too. It's fun."</i> Female member of Profile 3 (Extenders), [Positive attitude]
<b>Relatedness</b> <ul style="list-style-type: none"> <li>• Peer leader selection: interest in others, social confidence.</li> <li>• Social skills training: Training to help volunteers create meaningful social interactions, establishing group cohesion, compassion for slower walkers.</li> <li>• Social opportunities: Facilitating regular social contact with walkers/other volunteers, planning in opportunities for socialization during and after the walk, walk and talk friendly routes</li> <li>• Leadership acceptance (e.g., being accepted as group leader, get asked for advice).</li> </ul>	<i>"It's good company for me. Living on my own, it's good company to be able to get out with a group of people. Then we sit afterwards and have a cup of coffee...socializing as well."</i> Females member of Profile 2 (Completers) [Social opportunities]
<b>Competence</b> <ul style="list-style-type: none"> <li>• Leadership confidence and skill (e.g., opportunity to use previously acquired skills (i.e., applicable know-how in exercise, leadership and group management).</li> <li>• Successful at eliciting positive walker interest and initiating regular group walks (e.g., role modelling, sets a time, plans a route, structure, makes it interesting).</li> <li>• Effective at overcoming challenges without volunteer burnout.</li> <li>• Volunteer recognition (e.g., positive feedback from walkers)</li> <li>• Clarity on role tasks</li> <li>• Realistic tasks (e.g., smaller/manageable groups)</li> </ul>	<i>"Older people need to be told what is happening. Once they know what is happening, it's easy for them then to evaluate in their own mind what things that they need to do that would make the it all work."</i> Female member of Profile 1 (Dropouts) [Clarity on Role tasks]
<b>Need- frustration</b>	
<b>Autonomy</b> <ul style="list-style-type: none"> <li>• Controlled motivation to exercise.</li> <li>• Not enjoying helping others.</li> <li>• Having to adapt to inexperienced walkers.</li> <li>• Lack of perceived role flexibility/shared responsibility.</li> </ul>	<i>"It cannot be where it's going to have to be three days. I might only be able to do one day or maybe one and a half days or whatever, you know."</i> Female member of Profile 1 (Dropouts) [Role flexibility]
<b>Relatedness</b> <ul style="list-style-type: none"> <li>• Lack of walker interest/attendance and walker dropout.</li> <li>• Lack of opportunity to connect during or after walk.</li> <li>• Unable to create meaningful social interactions.</li> </ul>	<i>"Well you can't chase them up every week. You are thinking, well this is 'Come on you got to come'. Then someone else is down so you are running over to them and say, 'Come on'. It's exhausting."</i> Female member of Profile 1 (Dropouts) [Lack of walker interest/attendance].
<b>Competence</b> <ul style="list-style-type: none"> <li>• Use of unsustainable helping strategies.</li> <li>• Inability to provide the desired help.</li> <li>• Mismatch of demands of role and available resources and skills (e.g., unable to manage a group or volunteer 3 times a week)</li> </ul>	<i>"I might have started [volunteering] with an enthusiasm. But then when I tried the three [peers], I thought, 'no way.' It's too much, too hard and it just doesn't work for me."</i> Female member of Profile 1 (Dropouts) [Mismatch of role demands and skills].

## 777 Section A2. Further Details on Questionnaires.

Table S8

Scales Used To Measure Participant Characteristics At Pre-Intervention		
Scale Name	Description	Sample item/response options
Demographic characteristics: Gender, Age in years, BMI, Marital status ( <i>Never married, Married, Separated/Divorced, Widowed</i> ), Living status (Response options: <i>Alone, with partner</i> ), Living in village ( <i>Number or years/months</i> ), Highest level of education (Response options: <i>Secondary education, Vocational training, College or University</i> )		
Leadership experience ( <i>Number of years/months</i> )		
Leadership self-efficacy (LSE) (Kane and Baltes, 1998)	8-item questionnaire, asking respondents to rate their confidence to perform various leadership activities. The scale has been cited as reliable (McCormick, 2002)	<i>I can take charge when necessary" (1-no confidence to -100% confident -7).</i>
Self-perceived leadership traits LTQ (Northouse, 2010)	12-item leadership traits questionnaire, adapted to older walk leaders and cited as reliable (Northouse 2010).	<i>I talk freely and get along well with others" (Outgoing) (1-Strongly disagree to -Strongly agree-5).</i>
Self-reported physical activity levels PASE (Washburn et al., 1993)	11-item scale assessing the frequency and duration of various activities undertaken over the past seven days and cited as reliable and valid (Vagetti et al., 2014).	<i>Over the past 7 days, how often did you take a walk outside your home or yard for any reason? (0-Never-Often-3).</i>
Motivation to walk BRWQ (Niven & Markland, 2016) <sup>1</sup>	23-item scale measuring the level of self-determination with reference to walking. The scale has been cited as reliable and valid (Niven & Markland, 2016)	<i>I walk because it is fun." (Intrinsic regulation) (0 -Not true for me to Very true for me -4).</i>
Volunteer motivation from an SDT perspective VMS (Millette & Gagne, 2008) <sup>1</sup>	12-item scale adapted to older walk leaders. The scale has been cited as reliable and valid (Millette and Gagne, 2008).	<i>Because I would really feel bad about myself if I didn't volunteer" (1-Strongly disagree to -Strongly agree-7).</i>

*Note:* BMI = Body Mass Index. Weight (determined using a Tanita scale) in kilograms was divided by self-reported height in meters squared to determine BMI. LTQ = Leadership Traits Questionnaire. Items were summed and averaged by the no. of items to obtain a score ranging from 1-4. PASE = Physical Activity Scale for the Elderly. PASE scores were computed as described elsewhere (Washburn et al., 1993). <sup>1</sup> BRWQ = Behavioral Regulation in Walking Questionnaire, VMS = Volunteer motivation scale. We computed scores for controlled motivation/autonomous motivation by weighting subscales of volunteer and walking motivation scales and combining them as described elsewhere (Ryan & Deci, 2017). LSE = Leadership self-efficacy scale. Item responses were summed and averaged to result with an overall leadership self-efficacy score.

Table S9

## Physical Activity Scale For The Elderly (PASE)

Question	PASE Scale items (Washburn et al., 1993)
1 –	Over the <u>past 7 days</u> , how often did you participate in sitting activities such as reading, watching TV, or doing handcrafts? <sup>a</sup> What were these activities? (e.g. watching TV, sewing) (Open response)
1a	
1b	On average, how many hours per day did you engage in these sitting activities? <sup>b</sup>
2	Over the <u>past 7 days</u> , how often <u>did you take a walk</u> outside your home or yard for any reason? For example, for fun or exercise, walking to work, walking the dog, walking in a mall, treadmill walking etc? <sup>a</sup>
2a	On average, how many hours per day did you spend walking?
3 – 3a	Over the <u>past 7 days</u> , how often did you engage in light sport or recreational activities such as bowling, golf with a cart, shuffleboard, fishing from a boat or pier or other similar activities? <sup>a</sup> What were these activities? (open end question)
3b	On average, how many hours per day did you engage in these light sport or recreational activities? <sup>b</sup>
4 - 4a	Over the <u>past 7 days</u> , how often did you engage in moderate sport or recreational activities such as doubles tennis, ballroom dancing, hunting, ice skating, golf without a cart, softball or other similar activities? <sup>a</sup> What were these activities? (open end question)
4b	On average, how many hours per day did you engage in these moderate sport or recreational activities? <sup>b</sup>
5 – 5a	Over the <u>past 7 days</u> , how often did you engage in strenuous sport or recreational activities such as jogging, swimming, cycling, singles tennis, aerobic dance, skiing (downhill or cross country or other similar activities? <sup>a</sup> What were these activities? (open end question)
5b	On average, how many hours per day did you engage in these strenuous activities? <sup>b</sup>
6 – 6a	Over the <u>past 7 days</u> , how often did you do any exercises specifically to increase muscle strength or endurance, such as lifting weights or push-ups, etc.? <sup>a</sup> What were these activities? (open end question)
6b	On average, how many hours per day did you engage in exercises to increase muscle strength or endurance, such as lifting weights, push-ups, or physical therapy with weights, etc.? <sup>b</sup>
7	During the <u>past 7 days</u> , have you done any light housework, such as dusting, washing or drying dishes, or ironing? <sup>c</sup>
8	During the <u>past 7 days</u> , have you done any heavy housework or chores such as vacuuming, scrubbing floors, washing windows, or carrying wood? <sup>c</sup>
9a	During the <u>past 7 days</u> , how often did you engage in home repairs like painting, wallpapering, electrical work, etc.? <sup>c</sup>
9b	During the <u>past 7 days</u> , how often did you engage in lawn work or yard care, including snow or leaf removal, chopping wood, etc? <sup>c</sup>
9c	During the <u>past 7 days</u> , how often did you engage in outdoor gardening? <sup>c</sup>
9d	During the <u>past 7 days</u> , how often did you engage in caring for another person such as a child, dependent spouse, or another adult? <sup>c</sup>
10	During the <u>past 7 days</u> , how often did you work for pay or as a volunteer? <sup>a</sup>
10a	How many hours per week did you work for pay and/or as a volunteer? <sup>b</sup>
10b	Which of the following categories best describes the amount of physical activity required on your job and/or volunteer work? CATEGORY 1 (“Mainly sitting with slight arm movements”) includes examples such as: office worker, watchmaker, seated assembly line worker, bus driver, etc.) CATEGORY 2 (“Sitting or standing with some walking”) includes examples such as: cashier, general office worker, light tool and machinery worker.) CATEGORY 3 (“Walking, with some handling of materials generally weighing less than 50 pounds”) includes examples such as: mailman, waiter/waitress, construction worker, heavy tool and machinery worker.)

Note. The questionnaire items were validated and obtained from “*The Physical Activity Scale for the Elderly (PASE): development and evaluation.*” by R.A. Washburn et al., 1993, *Clinical Epidemiology*, 46 (2), p.153-162. [https://doi.org/10.1016/0895-4356\(93\)90053-4](https://doi.org/10.1016/0895-4356(93)90053-4)

a = Response options: 1 = Never, 2 = Seldom (1-2 days), 3 = Sometimes (3-4 days), 4 = Often (5-7 days)

b = Response options: 1 = Less than 1 hour, 2 = 1 but less than 2 hours, 3 = 2-4 hours, 4 = More than 4 hours

c = Response options: 1 = Yes. 2 = No

**Table S10****Behavioural Regulations In Walking Questionnaire**

<b>Questionnaire Items (Niven &amp; Markland, 2008)</b>	
1	I think it is important to make the effort to walk regularly
2	I don't see why I should have to walk .
3	I take part in walking because my friends/family/work colleagues say I should
4	I walk because it's fun
5	I think walking is a waste of time
6	I value the benefits of walking
7	It's important to me to walk regularly
8	I can't see why I should bother walking
9	I consider walking consistent with my values
10	I don't see the point in walking
11	I walk because it is consistent with my life goals
12	I walk because others will not be pleased with me if I don't
13	I get pleasure and satisfaction from participating in walking
14	I feel under pressure from my friends/family/work colleagues to walk
15	I find walking a pleasurable activity
16	I feel guilty when I don't walk
17	I consider walking to be part of my identity
18	I feel ashamed when I miss a walking session
19	I enjoy my walking sessions
20	I feel like a failure when I haven't walked in a while
21	I get restless if I don't walk regularly
22	I walk because other people say I should
23	I consider walking a fundamental part of who I am

*Note.* The questionnaire items were obtained from “*Using self-determination theory to understand motivation for walking: Instrument development and model testing using Bayesian structural equation modelling.*” by A. G. Niven & D. Markland, 2008, *Psychology of Sport and Exercise*, 23, p. 94. <https://doi.org/10.1007/s11031-007-9079-4> a = Participants were asked: Using the scale below, please indicate to what extent each of the following statements are true for you. Response options: 0 = Not true for me – 4 = Very true for me

780

**Table S11****Volunteer Motivation Scale****Scale Items (Millette et al., 2008) <sup>a</sup>**

- 1 I am volunteering so other people would approve of me.
- 2 I am volunteering to get recognition from others.
- 3 I am volunteering because my friends and family insist that I do.
- 4 I am volunteering because I would really feel bad about myself if I didn't.
- 5 I am volunteering because I would feel guilty if I didn't.
- 6 I am volunteering because it makes me feel proud and like a worthy person.
- 7 I am volunteering because it really feels personally important for me to do.
- 8 I am volunteering because volunteering has become a fundamental part of who I am.
- 9 I am volunteering because volunteering is part of the way I've chosen to live my life.
- 10 I am volunteering because it is fun.
- 11 I am volunteering because it is interesting and enjoyable for me to volunteer.
- 12 I am volunteering for the enjoyment I feel when I volunteer.

781

*Note.* The scale was adapted from “*Designing volunteers' tasks to maximize motivation, satisfaction and performance: The impact of job characteristics on volunteer engagement.*” by V. Millette et al., 2008, *Motivation and Emotion*, 32(1), p. 15.

<https://doi.org/10.1007/s11031-007-9079-4>

a = Participants were asked: Why are you volunteering as a walk leader?

Response options: 1 = Completely disagree – 7 = Completely agree

782

783

784

785

786

787

788

789 **Table S12****Leadership and Volunteering Experience**

<b>Construct</b>	<b>Question</b>
<b>Leadership experience <sup>a</sup></b>	<ol style="list-style-type: none"> <li>How often have you occupied leadership positions in groups, associations, institutions, etc. (e.g. leader in a sports team, coordinator of cultural or political groups, etc.)? (Response option: No leadership experience = 1 – 5 = More than 6 experiences)</li> <li>If you have previously been in a leadership position please specify: <ol style="list-style-type: none"> <li>The context/role (e.g. community, work) (Open response)</li> <li>The duration in years, months (Open response)</li> <li>Whether you are still active in a leadership role (Response Option: Active/Not Active).</li> </ol> </li> </ol>
<b>Volunteering experience</b>	<ol style="list-style-type: none"> <li>In the past how often have you volunteered for the community? (Response option: No volunteering experience = 1 - 5 = More than 6 experiences)</li> <li>If you have previously volunteered please specify: <ol style="list-style-type: none"> <li>The context/role (e.g. community, work) (Open response)</li> <li>The duration in years, months (Open response)</li> <li>Whether you are still active in a volunteering role (Response Option: Active/Not Active).</li> </ol> </li> </ol>

*Note.* a = The leadership experience items were adapted from “*Extending Self-Efficacy Theory to Leadership: A Review and Empirical Test*” by M.J. McCormick (2002), *Journal of Leadership Education*, 1(2), p.40.

790

791

792

793

794

795

796

797

798 **Table S13****Leadership Self-Efficacy Scale****Leadership Self-efficacy Scale Items (Kanes & Baltes, 1998)**

- 
- 1 I perform well as a leader across different group settings. <sup>a</sup>
  - 2 I can motivate group members. <sup>a</sup>
  - 3 I can build group members confidence. <sup>a</sup>
  - 4 I can develop team work. <sup>a</sup>
  - 5 I can take charge when necessary. <sup>a</sup>
  - 6 I can communicate effectively. <sup>a</sup>
  - 7 I can develop effective task strategies <sup>a</sup>
  - 8 I can assess the strength and weaknesses of the group. <sup>a</sup>
  - 9 I can establish good relationships with the people I walk with. <sup>a</sup>
  - 10 With my experience I can help group members to reach their targets. <sup>a</sup>
  - 11 I can motivate group members and arouse their enthusiasm during a walk.<sup>a</sup>
  - 12 I am able to motivate and give opportunities to any group member to reach his/her personal goal. <sup>a</sup>
  - 13 I can usually make the people I walk with appreciate me. <sup>a</sup>
  - 14 Overall, how effective do you currently feel you will be as an ambassador? <sup>b</sup>
- 

*Note.*

The scale items were adapted from the leadership self-efficacy scale which was presented in “*Efficacy assessment in complex social domains: Leadership efficacy in small task groups.*” by T.D. Kane & T.R. Baltes, 1998 at the annual meeting of The Society of Industrial and Organizational Psychology. Dallas, TX. The items were obtained from “Leader Self and Means Efficacy: A multi-component approach” by S.T. Hannah et al., 2012, *Organizational Behaviour and Human Decision Processes*, 118 (2), p.146.

<http://dx.doi.org/10.1016/j.obhdp.2012.03.007>

<sup>a</sup> = Response options: (1 = No confidence – 7= 100 % confidence)

<sup>b</sup> = Response options: ( 1 = Not at all– 7 = Very much)

799

800  
801

802

803

804

805

806 **Table S14**807 **Leadership Traits Questionnaire****Leadership Traits Questionnaire Items (Northouse 2013) <sup>a, b</sup>**

- 1     **Articulate:** Communicates effectively with others.
- 2     **Perceptive:** Discerning and insightful.
- 3     **Self-confident:** Believes in themselves and his/her abilities.
- 4     **Self-assured:** Is secure with self and free of doubts.
- 5     **Persistent:** Stays fixed on goals, despite interference.
- 6     **Determined:** Takes a firm stand and acts with certainty.
- 7     **Trustworthy:** Acts authentic and inspires confidence.
- 8     **Dependable:** Is consistent and reliable.
- 9     **Friendly:** Shows kindness and warmth.
- 10    **Outgoing:** Talks freely and gets along with others.
- 11    **Conscientious:** Thorough, organised and controlled.
- 12    **Sensitive:** Has tolerance, is tactful and sympathetic.

808

---

*Note.* The leadership traits questionnaire has been adapted version from “*Leadership: Theory and Practice*” By P.G. Northouse, 2013, Sage Publications, p. 38.

a = All participants were asked: What’s your personality like? Please indicate the extent to which the following traits apply to you. Response options: 1 = Strongly Disagree – 5 = Strongly Agree.

809

810

811

812

813

814

815

816



## Supplementary File B

### **B1. Additional information on inclusion criteria, recruitment process and training of peer volunteers:**

#### **Peer leader eligibility criteria**

To be eligible for the peer leader role, volunteers had to meet current physical activity guidelines (as determined via self-report at baseline). Like walkers, volunteers had to also be permanent residents of a retirement village in Western Australia, aged 60 years and above, communicate well in English, and able to provide consent and participate in assessments. In terms of health, they needed to have no terminal illness or health problems that prevented them from walking and have no known dementia diagnosis. Finally, they needed to be able to walk continuously on a flat surface at a light/moderate pace for at least fifteen minutes and have experienced fewer than two falls in the past three months.

#### **Recruitment**

Peer leaders were recruited from ten different retirement villages. While the retirement villages offered a range of activities (e.g., social functions) and facilities (e.g., gyms, swimming pools), none of the included retirement villages offered access to a peer-led walking group prior to the trial. A total of thirty-six residents residing in ten retirement villages in and around Perth expressed interest in the peer leader role. Twenty-four participants discontinued as a volunteer before engaging with the program, of whom fourteen subsequently took part as a walker, and ten volunteers quit the program. Twelve volunteers engaged in the program, of whom four dropped out as a volunteer, and eight completed it.

**Residents in Action Trial.** The trial was a 16-week peer-led walking intervention with residents from ten different retirement villages in Western Australia. Peer leaders in the experimental and control condition were asked to lead group walks for 10 of the 16 weeks.

**General peer leader training.** All volunteers were asked to attend an initial two-hour workshop, which provided them with general information on leading group walks in a safe manner (e.g., what to do in emergencies), suggested walk routes, general behaviour change techniques, and information on current physical activity recommendations. Volunteers were also provided with a training folder that contained all educational materials covered in the workshop and maps of walkable walking routes around their village.

**Motivation training.** Peer leaders taking part in the experimental condition attended an additional workshop and received motivation training, informed by self-determination theory (Ryan et al., 2017). The motivation training aimed to teach walk leaders communication strategies that had been designed to help them facilitate self-determined motivation in group members (Thøgersen-Ntoumani et al., 2017). Taught communication strategies included the provision of relatedness support (e.g., helping each group member feel like an important member of the group), autonomy support (e.g., providing choice to walkers regarding their walking) and competence support (e.g., celebrating walking success). As part of a second workshop walk leaders were provided with an opportunity to reflect on experiences and discuss any problems encountered with applying the strategies. Further information on the specifics of the training, the intervention protocol and the trial is published elsewhere (Thøgersen-Ntoumani et al., 2017; Thøgersen-Ntoumani et al., 2019).

## **B2. Additional information on analytical procedures and the research team**

### **Analytical procedures**

**Creation of participant profiles.** Profiles were based on levels of persistence of each volunteer.

We grouped those who dropped out (as a volunteer) before program completion (Profile 1:

Dropouts), those who persisted during the program but did not intend to continue (Profile 2:

Completers) and those who were keen to continue (Profile 3: Extenders). After allocating

volunteers to profiles/completing data collection, we conducted a separate analysis for all three

profiles. Quantitative data was used to provide descriptive information for each profile.

The first author conducted a thematic analysis (Braun and Clarkes, 2006, 6 step approach) for

each profile to identify volunteer motives and examine motivational processes occurring across

the two time points. Initial coding was performed with the help of NVivo. A detailed codebook,

including the code name, the description, and an example, was developed to assist with the

analysis and maintain rigor. During Phase 3 (Reviewing themes), a schematic diagram was

created to make sense of theme connections/processes. A detailed table representing each case

was also used to assist with profile creation. Information on motivational processes/themes

(summaries and quotes) represented in individual cases was summarised. Information on

participant characteristics was entered (along with the quantitative data) into SPSS. SPSS was

used to calculate scale scores of questionnaires, provide the range, medians, and any information

on profile characteristics.

**Rigor.** Analytical generalizability was enhanced through triangulating information on volunteer

motivation, physical activity and personal characteristics from qualitative and quantitative data

sources. Questionnaire data complemented interview data. Reliability was ensured by keeping a

log of analytical decisions, raw data, notes during interviews, a codebook, and a reflexive journal

(i.e., reflections on interviews, analytical decisions, and general logistics of the study).

**Qualitative categorization of volunteer and walking motivation .** Perceiving walking “*as part of a lifestyle*” were examples of phrases used to describe autonomous forms of motivation to walk. In contrast, controlled forms of regulation for walking were articulated using phrases such as “*the doctor told me I should be walking more*” to describe their motivation. Levels of volunteer motivation varied, with some volunteers expressing controlled forms of regulation (e.g., Introjection: “*I volunteered because as a committee member I feel responsible. I try to encourage things that are happening, so it's not a good look if I brush it off sort of thing*”) and some expressing more autonomous forms of regulation (e.g., intrinsic motivation: “*I enjoy volunteering. I find it very satisfying*”).

## **Research team and interviews**

Interviews, transcription and initial coding was conducted by the first author. Interviews were semi-structured which provided the researcher with a framework but also with the flexibility to explore certain issues with more open and follow-up questions.

No relationship was established with the participants before the interviews. Participants were aware of the study’s aims but did not know further information about the interviewer. The first author is a female PhD student who had completed qualitative training at an undergraduate and postgraduate level. She has gained qualitative research experience before the conducted research as part of her master’s (Practicing interview techniques and qualitative analysis) and while working as a research assistant (Interviewing physicians, analyzing interviews and open-ended responses, presenting data as part of an EU project), and has attended workshop training in the use of NVivo. During all research and analysis stages, the first author was guided by an experienced supervisory team, which consisted of three professors with extensive expertise in qualitative methodology and case study design.

### B3. Additional information on participants characteristics

**Overall characteristics.** Perceiving walking “*as part of a lifestyle*” were examples of phrases used to describe autonomous forms of motivation to walk. In contrast, controlled forms of regulation for walking were articulated using phrases such as “*the doctor told me I should be walking more*” to describe their motivation. The majority (8/11) of volunteers self-reported high physical activity levels (i.e. were classified as “Active”), at time of recruitment. Among those classified as active, popular activities were walking, attending fitness classes and doing weights at the gym. With regard to self-perceived leadership traits, volunteers were most likely to perceive themselves as friendly, dependable, and sensitive and least likely to report themselves as being self-assured and determined.

Levels of volunteer motivation varied, with some volunteers expressing controlled forms of motivation (e.g., Introjection: “*I volunteered because as a committee member I feel responsible. I try to encourage things that are happening, so it's not a good look if I brush it off sort of thing*”) and some expressing more autonomous forms of motivation (e.g., intrinsic motivation: “*I enjoy volunteering. I find it very satisfying*”). With regard to leadership traits, participants rated themselves on a 5-point scale highest at being dependable, friendly, and sensitive (Median = 5) and lowest at being determined and self-assured (all Median = 3).

**Interviewed and excluded participants.** A total of twenty-three interested participants agreed to be interviewed at baseline. Eight participants were excluded from the analysis, as they were unavailable for a second interview at T2. However, they informed us about their reasons for dropout, which are presented in Table S1 in Supplementary file A1.

We were interested in tracking the motivational processes of volunteers who led a walking group. We, therefore, excluded participants who did not attempt to lead a group due to

lack of interest ( $n = 2$ ) or poor health ( $n = 2$ ) (i.e., Non-engagers). Further details on non-engagers are provided in supplementary file A1. Four participants discontinued as a volunteer after starting to lead a group, seven participants completed the program as a volunteer walk leader. Three volunteers intended to continue in their role, of whom two were still active walk leaders after six months.

#### **B4. Additional information on participant profiles**

**Profile 1: Dropouts.** In summary, controlled motives (e.g., feeling obliged due to being experienced as a leader, part of a committee or asked by other residents) and a focus on self-orientated desires (e.g., to increase own physical activity levels), were prominent among members of this profile. However, basic psychological needs were not satisfied when volunteers in this profile attempted to lead a group and perceived a lack of social support. Low levels of perceived competence related to being unable to organize and manage a group while meeting their own needs. Members of this profile indicated low levels of autonomy (i.e., not enjoying the group setting) as a group leader but continued to walk alone or with a partner. Members of the profile emphasized the need for role flexibility (e.g., in terms of walking pace) and outside support.

**Profile 2: Completers.** Similar to Dropouts (Profile 1), controlled and self-orientated motives (in particular the desire for socialization) to volunteer were prominent Completers. At pre-intervention, members of this profile also articulated autonomous volunteer motives. The use of unsustainable helping strategies (e.g., that were perceived as exhausting) and an inability to provide the desired help inhibited the perception of competence and autonomy as a walk leader, reducing autonomous motivation. High levels of introjection (obligation and guilt) and relatedness satisfaction (socialization) motivated members of this profile to complete the

program, but their motivation was not sufficiently autonomous to help them maintain their volunteer role beyond the program. Similar to Profile 1, suggestions to continue as a volunteer pertained to role flexibility and having a choice whether to lead a slow or faster group. Further assistance could be provided by offering shared role responsibilities (e.g., at least two walk leaders per group) that prevented walk leaders from feeling overwhelmed with the role and provided them with opportunities to connect with other walk leaders to exchange experiences and provide support to each other.

**Profile 3 (Extenders).** Members of this profile indicated high levels of altruistic motives and autonomous motivation at pre-intervention. Social skills, compassion, and optimism were high among members of this profile. Initial challenges were similar to those experienced by other profiles. However, all members of this profile enjoyed helping others, focused on meeting altruistic desires (i.e., were willing to adapt to walkers' needs), were effective at overcoming difficulties, and used strategies that facilitated psychological need satisfaction, which helped them maintain their role as a volunteer. In contrast to other profiles, members of Profile 3 experienced psychological need satisfaction and autonomous motivation *throughout* the program.

#### **B5. Additional information on recommendations**

Autonomous motivation may be facilitated by providing training in helping strategies that prevent volunteer exhaustion and embrace available social support. Additional support may be provided through programs that are flexible in terms of the level of commitment, provide social support for volunteers and promote a sense of leadership identity (e.g., opportunities to meet other volunteers and exchange experiences). Overall, key suggestions for volunteer recruitment pertain to ensuring a clear role specification, emphasizing the social aspects of the role, and

975 selecting volunteers with a positive attitude and altruistic motives. We further recommend  
976 training volunteers in sustainable helping strategies and social skills to encourage motivational  
977 processes leading to future volunteering.

978

979

980