Volunteer motivation and retention of older peer walk leaders

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

2   **A 4-month Long Investigation**

3   **IN PRESS**

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30 **<u>Conflict of interest</u>**

31 We have no conflicts of interest to declare.

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Abstract

45

46 BACKGROUND AND OBJECTIVES: Peer volunteers offer a promising avenue for promoting

47 physical activity in older adults. However, recruiting and retaining such volunteers is

48 challenging. We aimed to examine longitudinally factors that determine whether older volunteer

49 walk leaders will persist in their role. RESEARCH DESIGN AND METHODS: We recruited

50 older adults volunteering as walk leaders, from retirement villages in Perth, at the start of a 16-

51 week walking intervention. Using a mixed-methods multiple case-study design, informed by

52 self-determination theory, we examined the motivational processes of three profiles: Dropouts,

53 Completers and Extenders. One male and ten female (Mdn_{Age} = 75 years, age range: 66 – 83

54 years) peer walk leaders were interviewed twice over four months, and data were analyzed using

55 thematic analysis. Questionnaires provided information on volunteer characteristics, leadership

56 confidence, and volunteer motivation. RESULTS: Self-orientated goals, obligation and guilt,

57 emotional exhaustion, lack of psychological need satisfaction, and perceived a lack of support

58 were barriers to volunteer persistence. Social confidence and relatedness satisfaction motivated

59 volunteers to persist until program completion (Completers). Altruistic goals, using sustainable

60 helping strategies, psychological need satisfaction, optimism, and enjoyment, were important for

61 continuing the role after the program (Extenders). DISCUSSION AND IMPLICATIONS:

62 Results describe how differences in volunteer motives, personal characteristics, and training may

63 affect motivational processes that determine persistence as an older peer walk leader. We provide

64 suggestions on selecting, training, and supporting older volunteer walk leaders to facilitate their

65 retention.

66

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

Introduction

68   Group walks can provide older adults with a safe opportunity to meet physical activity

69

70 recommendations, become socially integrated, and improve their health (Hanson & Jones, 2015).

71 Peer leaders, who are individuals sharing characteristics such as health, age, and living

72 circumstances, taking on a leadership role, can effectively promote physical activity behavior in

73 others (Hulteen et al., 2019; Kritz et al., in press). For older adults, volunteering as a peer leader

74 can provide a sense of role identity and purpose after retirement (Same et al., 2020).

75 Volunteering is linked to positive outcomes such as better psychological well-being, a broader

76 social network (Kragt & Djurre, 2019; Niebuur et al., 2018), and improved physical health in

77 later life (Anderson et al., 2014). Peer-led walking programs may benefit the health and well-

78 being of older volunteers (Anderson et al., 2014) while creating social benefits for the

79 community (Burton et al., 2017; Kritz et al., 2020). However, recruiting and retaining older

80 volunteer walk leaders is challenging (Thøgersen-Ntoumani et al., 2019).

81   The general volunteering literature suggests that lack of time, declining health, and

82 competing priorities often stops older adults from volunteering (Petriwskyi & Warburton, 2007;

83 Tang et al., 2010). Perceiving the role as meaningful and receiving adequate support can help

84 older adults maintain their volunteer role, while inadequate support is associated with dropout

85 (Tang et al., 2010). However, the reasons for volunteer dropout vary across programs, indicating

86 that findings from the general volunteering literature may not be generalizable to peer walk

87 leaders (Tang et al., 2010). The barriers to and facilitators of older adults volunteering as peer

88 walk leaders are unknown.

89 **Motivation for Volunteering**

90   While there is consensus that self-efficacy and intention to volunteer predict volunteering

91   in older adults, little is known about underlying motivational processes (Grano et al., 2008; Jiang

92   et al., 2019). Researchers often distinguish between altruistic motives (i.e., desire to help others)

93   and egoistic motives (i.e., self-orientated) (Konrath et al., 2012; Stukas et al., 2016).

94   Volunteering for altruistic reasons is positively linked to intentions to continue volunteering

95   (Stukas et al., 2016) and improved psychological well-being (Konrath et al., 2012). However, the

96   altruistic/egoistic categorization does not explain *why* altruistic motives are more strongly related

97   to positive outcomes than egoistic ones (Guntert et al., 2016).

98   Self-determination theory (SDT; Deci and Ryan, 2017) lends itself well to understanding

99   motivational processes, as it proposes a comprehensive framework explaining antecedents and

100 outcomes of motivation. The theory suggests that motives lie along a continuum ranging from

101 controlled (i.e., lacking a sense of autonomy or choice) to autonomous (i.e., acting out of choice)

102 forms of regulation. Outside the continuum lies amotivation, which means a person is not

103 motivated and does not intend to act. Similar to previous volunteering studies (Bidee et al., 2013;

104 Haivas et al., 2012), we did not focus on amotivation, as our participants had the motivation to

105 sign up as volunteers.

106 SDT distinguishes between four types of extrinsic motivation. The most controlled form

107 of extrinsic motivation is external regulation, whereby the individual engages in a behavior to

108 comply with external pressures or obtain approval from others (e.g., volunteering to please

109 others). Externally regulated behaviors can be potent initiators of behavior but are associated

110 with poor behavior maintenance (Ryan & Deci, 2017). Next is introjected regulation, a partly

111 internalized form of extrinsic motivation. For example, volunteering to maintain self-esteem, or

112 to avoid negative affective states such as feelings of guilt. High levels of introjection are usually

113   associated with unstable self-esteem, which fluctuates in response to outcomes (Ryan & Deci,

114   2017). The most autonomous forms of extrinsic motivation are identified regulation (e.g.,

115   perceiving volunteering as important) and integrated regulation (e.g., volunteering is part of

116   one's identity).

117   A longitudinal study found that older adults who volunteered for integrated or identified

118   reasons exhibited positive attitudes towards volunteering, showed confidence in overcoming

119   difficulties, perceived support from others, and experienced personal control over their behavior

120   (Grano et al., 2008). In contrast, introjected regulation was negatively linked to beliefs endorsing

121   volunteering (Grano et al., 2008). At the most autonomous end of the continuum lies intrinsic

122   motivation, which refers to doing an activity out of self-interest and because one finds it

123   enjoyable (Ryan & Deci, 2017). Cross-sectional evidence suggests that autonomous motivation

124   is linked to positive volunteering outcomes such as work-effort, optimism, resilience,

125   psychological well-being of volunteers, and intention to volunteer (Bidee et al., 2013; Wu &

126   Chunxiao, 2019).

127   SDT proposes that autonomous motivation is determined by the extent to which the

128   psychological needs for competence, relatedness, and autonomy are satisfied (Ryan & Deci,

129   2017). Competence represents the need to feel capable of achieving desired outcomes and has

130   been associated with intrinsic volunteer motivation (Wu et al., 2016) and sustained volunteering

131   (Jones et al., 2015). Feedback, adequate training, ongoing support, receiving recognition, and

132   opportunities for skill acquisition can foster feelings of competence and have been linked to

133   positive attitudes towards volunteering in older adults (Jongenelis et al., 2019; Sellon, 2014).

134   Relatedness pertains to the degree to which an individual experiences social connection and has

135   been linked to older volunteer recruitment and retention (Sellon, 2014). For example, older

136 adults who began volunteering in a socially satisfying role, for a minimum of 60 minutes/week

137 over six months, improved their attitudes towards volunteering (Jongenelis et al., 2019).

138 Autonomy entails experiencing a sense of control or free will. Activities that permit self-

139 initiation and allow choice can create situations that support autonomy (Oostlander et al., 2014).

140 Autonomy has been positively linked to perceived choice, enjoyment, interest, and volunteer

141 satisfaction (Oostlander et al., 2014; Weinstein & Ryan, 2010). Individuals who helped others by

142 choice (i.e., experienced autonomy) were more likely to be effective and persist with the activity

143 (Weinstein & Ryan, 2010). Role flexibility (e.g., perceiving choice on the level of commitment)

144 is particularly important for recruiting older volunteers, highlighting the importance of autonomy

145 in this group (Sellon, 2014).

146   In sum, cross-sectional research suggests that autonomously motivated (Bidee et al.,

147 2013; Wu & Chunxiao, 2019) and need-satisfied (Jones et al., 2015) volunteers are more likely

148 to persist in their role. Potential antecedents of need satisfaction and volunteer motivation

149 include a socially satisfying and supportive environment (Jongenelis et al., 2019), perceiving the

150 role as enjoyable or interesting (Wu & Chunxiao, 2019), perceiving a sense of autonomy or

151 choice (Sellon, 2014), and feeling competent in the role (Jones et al., 2015). Further research has

152 associated specific personal attributes (e.g., self-esteem, being agreeable) with an increased

153 likelihood of experiencing need satisfaction (Ryan et al., 2019).

154   Few studies have used SDT to explain volunteer motivation (Bidee et al., 2013; Wu &

155 Chunxiao, 2019). Only one study has specifically focused on older adults ($n = 615$, aged 60 - 90

156 years) of whom most (76%) were experienced in their role as a volunteer which included

157 engaging in a variety of tasks for organizations such as schools (Grano et al., 2008). Existing

158 volunteering research is primarily cross-sectional (Kragt & Djurre, 2019) and focused on

159   experienced volunteers (Grano et al., 2008). However, research suggests that different forms of

160   regulation may co-occur and change over time, highlighting the importance of a multi-

161   dimensional and longitudinal understanding of the processes leading to volunteering persistence

162   (Kragt & Djurre, 2019; Ryan & Deci, 2017). Past research has also not examined older adults

163   who volunteer in physical activity settings. An in-depth understanding of barriers, facilitators,

164   challenges, and motivational processes of older adults volunteering in such settings is needed to

165   facilitate their retention (Thøgersen-Ntoumani et al., 2019). Therefore, our overarching aim was

166   to explore longitudinally the factors explaining variations in persistence among older adults

167   volunteering as part of a 16-week walking intervention. We specifically examine the usefulness

168   of SDT for clarifying motivational processes that determine whether older volunteers new to the

169   walk leader role will persist.

170

171   **Research Design and Methods**

172   **Research Design.**

173   We conducted a longitudinal multiple case-study using a concurrent mixed methods

174   design (Creswell, 2018). Multiple case-studies are useful for analyzing individual processes

175   within and across situations while considering the context of individual cases (Baxter & Jack,

176   2008). The concurrent mixed-methods component allowed triangulating in-depth qualitative data

177   with descriptive quantitative data during the same phase of research (Creswell, 2018). The

178   longitudinal and qualitative-driven design provided us with comprehensive insight on the

179   complexity and variability of difficulties faced by older volunteers while explaining the "how

180   and why" of different behavioral outcomes, which we present as profiles (Kinnafick et al., 2014).

181   **Procedure**

182   *Ethical Statement.* We obtained approval from the Human Research Ethics Committee of

183   an Australian University. Interested participants were provided with an information sheet and

184   asked to sign a consent form.

185   *Recruitment and Context.* We purposively recruited older adults (i.e., aged 60 and over

186   and in good health) who had signed up as volunteer walk leaders for the Residents in Action

187   Trial – a peer-led 16-week walking intervention- from ten different retirement villages in

188   Western Australia (Thøgersen-Ntoumani et al., 2019). Volunteers interested in the role (n =36)

189   were personally invited to participate in the present study during an initial information session.

190   After obtaining written consent, participants were interviewed individually and provided with a

191   brief questionnaire at pre-intervention. Volunteers who signed up for the role ($n = 21$) received

192   general walk-leader training and phone support. Volunteers who had been allocated to the

193   experimental condition of the walking intervention (11/21) received additional motivation

194   training in communication strategies that promote self-determined motivation in group members.

195   All training was conducted by members of the research team. Details on provided training are

196   provided in supplementary file B1 and described elsewhere (Thøgersen et al. 2017). The walk

197   leader role entailed leading a walking group three times per week for ten weeks, without pay. At

198   post-intervention, volunteers were interviewed again and provided a brief questionnaire. We

199   included individuals who agreed to be interviewed at both time-points, who had led a walking

200   group at least once, and who had reported maintaining good health ($n = 1$ males; $n = 10$

201   females). Further details on recruitment procedures, and on excluded participants are provided in

202   supplementary files A1 and B.

203   **Measures.**

204   An overview of all measures, including the interview schedule and example items, is

205   provided in Table 1.

206   **Questionnaires.** The pre-intervention questionnaire measured participant characteristics,

207   leadership confidence, and volunteer motivation. The post-intervention questionnaire asked

208   participants to indicate their intention to continue volunteering. Details on questionnaires are

209   provided in supplementary file A1.

210   **Interviews.** The semi-structured interview schedules included broad, open-ended

211   questions for each time-point. Follow-up prompts asked participants to provide details, to obtain

212   greater insight into perceived challenges, resources, and coping strategies. The first author

213   conducted interviews via phone or in a quiet place chosen by the participants (e.g., the village

214   community hall). Interviews ranged from 50 to 138 minutes, were audio-recorded and

215   transcribed verbatim. Pseudonyms are used in the results.

216   **Data Analysis**

217   We created longitudinal profiles differing in levels of volunteer persistence. For each

218   profile, we used the interview data to obtain information on participants and examine

219   motivational processes. Questionnaire data were used to verify and enhance profile descriptions.

220   Details on how profiles were determined are provided in supplementary file B2.

221   **Interviews.** Grounded in SDT, we used NVivo for Mac to conduct abductive thematic

222   analysis (i.e., integrating data-driven codes with codes derived from SDT) for each profile

223   (Braun et al., 2014; Fereday and Muir, 2006). Guided by the SDT framework, volunteer motives

224   were classified as autonomous or controlled types. Motivational processes (e.g., factors that

225   satisfy/undermine psychological needs, for example, feeling competent at helping) were

226   analyzed within each profile. For example, barriers/facilitators were classified as being either

227 competence, relatedness, or autonomy-supportive/undermining. Braun and Clarke's 6-phase

228 approach to thematic analysis was used to identify data-driven codes. This included

229 familiarization with the data, initial coding, generation of themes, reviewing themes, and naming

230 themes, and producing the report. Data-driven codes included, for example, motives that could

231 not be classified as autonomous/controlled or factors that did not directly satisfy/undermine

232 needs but were important for persistence/motivation, such as optimism. Themes and analytical

233 decisions were discussed with the research team at each phase. Further information on analytical

234 procedures and on researchers are provided in supplementary file B2.

235 We present one case for each profile using a previously used approach (e.g., Kinnafick et

236 al., 2014). Presented cases were chosen based on their clarity, depth, and breadth at representing

237 all of the themes identified within each profile. To increase transparency (Fereday and Muir,

238 2006), we provide tables with detailed information on all profiles in supplementary file A1.

239 **Questionnaires.** We used SPSS for Mac (Version 25) to calculate scale scores and

240 descriptive statistics for each profile.

241 <div align="center">**Results**</div>

242 **Participant characteristics and profiles**

243 All participants (1 Male, 10 Female, $Mdn_{Age} = 75.00$ ($IQR = 8$), age-range 66 – 83 years)

244 were retired and new to the walk leader role. We identified three profiles: those who dropped out

245 before the end of the program (Dropouts, $n = 4$), those who discontinued after 16 weeks

246 (Completers, $n = 4$), and those who intended to continue as a volunteer after the program

247 (Extenders, $n = 3$). The participant characteristics within each profile are presented in Table 2.

Motivational processes

248

249   Themes derived from interviews and questionnaire data on volunteer motives and

250 leadership confidence are presented in Table 3. Additional information on results and on profiles

251 excluded from the present analyses is presented in supplementary file A1. Motivational

252 processes pertaining to each profile are described below.

253 <div align="center">**Profile 1: Dropouts**</div>

254   Profile 1 represents four women who discontinued their role as a walk leader after four to

255 six weeks. Members of this profile (Dropouts) prioritized meeting self-orientated goals (e.g.,

256 increasing their physical activity levels). Overall, Dropouts perceived a lack of support, didn't

257 experience the satisfaction of psychological needs and failed to internalize their volunteer

258 motivation throughout the program. We identified four key themes for this profile (See Table 3).

259 **Focus on self-orientated goals throughout the program.**

260   Controlled volunteer motives (e.g., complying with others) were prominent in this group

261 (Table 3). Judy, aged 75 years, had lived in the village for eight years, was asked to be a walk

262 leader by other residents, and felt obligated to volunteer due to her experience as a leader. She

263 hoped that volunteering would help her increase her physical activity levels. At the pre-

264 intervention interview, she explains that linking social interactions with walking is important for

265 determining her motivation to walk:

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

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

268   *outing rather than a chore.*

269   Like other members of this profile, Judy focused on meeting self-orientated goals (e.g.,

270 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' 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

316 the peer leader role within their community, indicating identified regulation. Cindy articulated

317 this during the pre-intervention interview: "*I feel that the older generation gets stuck in their*

318 *ways, but if there is somewhere, one to just take them and just start on short walks, just round the*

319 *block. I think it's good for them*".

320   At the post-intervention interview, all Completers described helping slower walkers as an

321 obligation and expressed feelings of guilt, indicating high levels of introjected regulation. Similar

322 to Judy, Cindy showed signs of obligation at pre-intervention ("*I was asked to be a walk leader. I*

323 *used to work as a schoolteacher, and I sort of know how to motivate people.*"). Cindy explains

324 that walking with slower walkers "*feels like just another chore*". With regard to not being able to

325 provide the desired help, she adds: "*I feel very guilty about it all and everything*".

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

327   In contrast to Dropouts, all Completers experienced some relatedness with other walkers

328 and satisfied self-orientated desires. At post-intervention, Cindy recalls that socialization was her

329 main drive to adhere to the program:

330   *When I started it, I was fairly new in the village. Personally, it has helped me. I*

331   *walk along by myself, but I think walking with the company .. I have enjoyed it*

332   *and getting to know a few more people, instead of staying by myself, because I*

333   *will quite often stay by myself. So, it has made me come out.*

334   All Completers felt effective at attracting experienced walkers to join the group but

335 struggled with getting "new walkers" and "those who need help" to commit to the program.

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

337   All Completers segregated slower walkers from faster walkers to overcome the challenge

338 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.**

361   At post-intervention, all Completers indicated low levels of autonomous motivation for

362   helping those who "need help", due to leaders experiencing a lack of competence and autonomy.

363   While unsuccessful with inexperienced walkers, Cindy's implementation of a social group was

364   successfully attracted experienced walkers: "*Those of us who are left are walkers anyway. We*

365   *walk regardless of whether there is a program going or not*".

Profile 3: Extenders

367   Three female peer leaders matched this profile, all of whom stated that they intended to

368   continue volunteering as a walk leader after the intervention. For Extenders, the key to persisting

369   as a volunteer included social support, autonomous motivation, altruistic goals, compassion,

370   sustainable helping strategies, the satisfaction of all three basic psychological needs, optimism,

371   and enjoyment. We identified five key themes for this profile (See Table 3).

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

373   When the walk leader role was advertised in her village, Nancy, aged 70, was the first to

374   volunteer. Like Cindy, Nancy indicated being physically active. She pre-dominantly emphasized

375   altruistic desires, which she articulated as "*I am interested in people, and I like helping people*".

376   During the post-intervention interview, she explained that she did not rely on the group walks to

377   fulfill a social need (like Cindy) or to meet physical activity goals (like Judy). To keep fit, she

378   engaged in separate walks:

379   *I still walk every morning with my husband. We do 6 km every day. But the*

380   *other walk is good for me because I enjoy walking and I think the sense of*

381   *being able to help people, makes me feel good. It made me feel good that I*

382   *could do that.*

383   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*.

426   Nancy indicated a sense of autonomy by explaining her initiative of making the walks

427   interesting and using her skills: *"We do balance exercises. They got to stand on one leg, and we*

428   *rotate our ankles one way and the other way and turn those up and down, heels and toes".*

429   She also provided walkers with advice on exercises to do after the walk, suggesting that she felt

430   confident in her role.

431   **Enjoyment and optimism.**

432   Nancy articulated satisfaction with her role as a volunteer walk leader, which she

433   attributed to her positive experiences with the walkers and feeling competent in her position. At

434   post-intervention, autonomous motivation was apparent and supported by accounts describing

435   success at helping others walk more and the intention to continue:

436   *I found it was really great that the people joined, especially a couple of them*

437   *that probably wouldn't have walked very much…I found that very rewarding*

438   *for myself that you know they were very happy. I'd be happy to continue a*

439   *walking group.*

440   **Discussion**

441   We aimed to examine the motivational processes implicated in differential levels of

442   persistence as an older volunteer walk leader. Dropouts (Profile 1) volunteered for extrinsic and

443   self-orientated reasons, failed to experience the satisfaction of basic psychological needs, and

444   perceived a lack of support. Completers (Profile 2) indicated high levels of guilt and obligation,

445   used unsustainable helping strategies leading to emotional exhaustion, achieved socialization

446   with active walkers, but felt ineffective at motivating inexperienced walkers. Extenders (Profile

447   3) were autonomously motivated volunteers, prioritized helping those who needed help, used

448   sustainable helping strategies, experienced psychological need satisfaction, were optimistic,

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

450   volunteer.

451   In line with SDT, we found that need satisfaction and the quality of motivation was

452   crucial for persisting as a volunteer (Ryan & Deci, 2017). Consistent with past research, the

453   persistence of older adults who volunteered for controlled reasons was motivated by self-

454   orientated needs and introjected regulation (Guntert et al., 2016), which did not lead to

455   behavioral maintenance (Ryan & Deci, 2017). The importance of role flexibility for older

456   volunteer retention aligns with past research (Sellon, 2014).

457   Confirming past research, we found that an inability to provide the desired help led to

458   emotional exhaustion and dropout (Morrow-Howell & Mui, 1989; Tang et al., 2010). Perceiving

459   a lack of resources and support was common among Dropouts. All Dropouts, unlike Completers

460   and Extenders, were participants who had not received training in motivational communication

461   strategies. Differences in training (due to volunteers either being in the control or experimental

462   group of the intervention) may have influenced initial competence levels and subsequent

463   volunteer persistence. These findings are consistent with research linking inadequate training to

464   volunteer dropout (Tang et al., 2010). Extending past research, we suggest that adequate training

465   for volunteers may include teaching motivational communication strategies (Thøgersen et al.,

466   2019), which may increase perceived competence and persistence as a volunteer.

467   However, variations in persistence between Completers and Extenders (both receiving

468   similar training) may be explained by additional factors. Our findings support studies suggesting

469   that altruistically (Convey et al., 2010; Stukas et al., 2016) and autonomously (Grano et al.,

470   2008; Weinstein & Ryan, 2010) motivated volunteers enjoy and maintain their role. We add the

471   insight that autonomously motivated volunteers may use helping strategies that facilitate the

472   satisfaction of needs, prevent emotional exhaustion, and lead to sustained volunteering. These

473   findings may explain research associating health benefits with autonomous (Weinstein & Ryan,

474   2010; Wu & Chunxiao, 2019) and altruistic (Konrath et al., 2012) volunteering motives.

475   Our results confirm volunteering research linking autonomous motivation to receiving

476   social support, devoting work effort, optimism, and resilience (Bidee et al., 2013; Grano et al.,

477   2008; Wu & Chunxiao, 2019). The characteristics of Extenders add to research suggesting that

478   attributes of effective leaders include being optimistic, compassionate, and inclusive (Goleman et

479   al., 2004; Kritz et al., 2020). Similar attributes may be linked to behaviors, skills, and perceptions

480   that facilitate need satisfaction (Ryan et al., 2019), leading to volunteer persistence (Grano et al.,

481   2008).

482   In contrast to cross-sectional research with older volunteers (Grano et al., 2008), our

483   findings suggest that intrinsic motivation (i.e., enjoying the act of helping) is important for the

484   intention to continue volunteering as a walk leader. This discrepancy may be explained by

485   increasing levels of competence, role satisfaction, and optimism among Extenders (but not

486   among Completers). While competence facilitates intrinsic motivation, role satisfaction may

487   mediate the relationship between intrinsic motivation and the intention to continue volunteering

488   (Wu et al., 2016).

489   **Strengths and limitations**

490   To our knowledge, this is the first study to examine qualitatively and longitudinally the

491   motivational processes implicated in the volunteering of older novice walk leaders. Our design

492   allowed us to explore both the determinants (e.g., volunteer characteristics), cognitive outcomes

493   (e.g., emotional exhaustion), and behavioral consequences (e.g., engaging in helping strategies)

494   of motivational processes experienced by older walk leaders. Another strength includes using

495   quantitative and qualitative measures to assess volunteer characteristics, volunteer motivation,

496   and leadership confidence at pre-intervention.

497   Using SDT, we offer only one perspective regarding the interpretation of the findings.

498   Our findings may be biased towards older retired white women residing in retirement villages.

499   While 11 cases may be insufficient to generalize outside retirement communities, we

500   demonstrate the usefulness of SDT for understanding the role of motivation in the persistence of

501   older volunteers in physical activity settings. While we obtained interviews from 11 (out of 12)

502   volunteers who attempted leading a group, our findings are limited by excluding interested

503   volunteers who did not lead a group (i.e., non-engagers). Detailed information on non-engagers

504   is provided in supplementary file A1 and can be used to inspire future research. Our findings can

505   also be used for generating hypotheses in future large-scale studies. We did not assess

506   motivational processes beyond the program, which provides an exciting avenue for forthcoming

507   studies. Researchers could use quantitative methods to track the motivational processes of older

508   peer leaders over an extended period (i.e., six months or 12 months), and use SDT to examine

509   volunteer retention in other settings.

510   **Implications**

511   Our findings inform how older walk leaders may be selected, trained, and supported by

512   organizations and volunteer managers. Recommendations are provided in Table 4 and below.

513   **Volunteer selection.** Older adults volunteering to increase their physical activity levels

514   may benefit from initially joining as a walker or supporting smaller groups or walking partners.

515   Peers who are physically active, outgoing, and volunteer to meet their social needs may be ideal

516   for leading a group of experienced walkers (Kritz et al., 2020). Volunteers who are altruistic,

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

518   2020).

519   **Training and support.** Results align with research emphasizing the voluntary aspect of peer-led

520   programs (i.e., serving out of free will as opposed to obligation or guilt) and the importance of

521   support provided by volunteer managers (Martinson & Minkler, 2006). To support the

522   motivation of older adults, organizations can offer flexible roles and adequate training (e.g.,

523   social skills and motivation training) to help volunteers succeed at helping walkers and avoid

524   emotional exhaustion. Volunteer managers can also provide opportunities for feedback,

525   reflection, socialization and volunteer recognition to support the internalization of volunteer

526   motives (Van Schie et al., 2015; Withall et al., 2016).

527   Overall, our findings describe how volunteer motives, training and attributes may trigger

528   behaviors that determine the satisfaction and retention of older volunteer walk leaders. The role

529   of emotional intelligence (Goleman et al., 2004) and self-esteem (Ryan et al., 2019) for

530   facilitating psychological need satisfaction and effective helping strategies is worth further

531   exploration. Future research could use our findings to determine whether selecting suitable

532   volunteers and providing them with the recommended support can increase their autonomous

533   motivation and facilitate volunteer retention in future physical activity interventions.

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744   **Tables**

Table 1

Questionnaires and Interview schedule Administered at Each Time-point.

Assessment	Examples of Items/Questions
Time 1 Baseline?	
Questionnaire Data Demographic characteristics Physical activity, PASE (Washburn et al., 1993) Leadership traits, LTQ (Northouse, 2013) Volunteer motivation from an SDT perspective, VMS (Millette & Gagne, 2008) Leadership self-efficacy, LSE (Kane and Baltes, 1998)	• Gender, Age in years, BMI, Marital Status, Living status, Duration of living in retirement village, Highest level of education, Leadership experience. • 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 talk freely and get along well with others (Outgoing) (1-*Strongly disagree to -Strongly agree*-5). • *Because I would really feel bad about myself if I didn't volunteer (1-Strongly disagree to -Strongly agree-7).* • I can take charge when necessary" (1-*no confidence to -100% confident* -7).
Interview schedule Past experience. Physical activity Motives to engage in walking and in group walking Volunteer motives Anticipated challenges, facilitators and barriers.	• Please describe any past experiences of being active/volunteering/being in a leadership role? • How active are you at the moment? What do you do? • How much walking are doing at the moment? • What motivates you to walk/walk with others? • Why do you want to volunteer as a walk leader? • What, if anything, could stop you from continuing? What might help you continue?
Time 2 report when in relation to the 12 week program (after completion? 4 weeks after completion? That needs to be clearly reported	
Questionnaire Data: Intention to continue	What is the likelihood that you will continue to volunteer as a walk leader? (*1 = Very unlikely, to 5 = Very likely*)
Interview schedule: Facilitators to volunteering Barriers to volunteering Challenges and successes Intention and motives to continue volunteering and associated barriers/facilitators to continue.	• What helped you continue in your role as a walk leader? • Why did you stop volunteering as a walk leader? • What challenges or difficulties did you experience? • What successes did you have or what went well? • 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?

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.

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Table 2

Characteristics of Participants in Profiles

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

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Table 3

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

Profile 1: Dropouts	
Questionnaire data at pre-intervention	**Themes derived from Interviews**
Volunteer Motivation:[1] 4/4 volunteers - high levels of controlled motivation 2/4 volunteers - high levels of autonomous motivation **Leadership confidence:** [2] 3/4 volunteers - high levels of confidence	1. Focus on self-orientated goals throughout the program (e.g., social rewards and increasing own physical activity levels) 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
Profile 2: Completers	
Questionnaire data at pre-intervention	**Themes derived from Interviews**
Volunteer Motivation: [1] 4/4 volunteers- high levels of controlled motivation AND high levels of autonomous motivation **Leadership confidence:** [2] 3/4 volunteers- high levels of confidence	1. Dominance of obligation and guilt throughout the program 2. Temporary satisfaction of psychological needs (mainly relatedness and competence) 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
Profile 3: Extenders	
Questionnaire data at pre-intervention	**Themes derived from Interviews**
Volunteer Motivation: [1] 3/3 volunteers - low levels of controlled motivation AND high levels of autonomous motivation **Leadership confidence:** [2] 3/3 volunteers - high levels of confidence	1. Dominance of altruistic desires throughout the program 2. Use of effective and sustainable helping strategies 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.
Recruiting volunteers	
• Clarity on role tasks and role demands	*"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
• Emphasizing the social aspect/intrinsic benefits of helping others	"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
• Manageable role demands	"*Smaller groups is the way to do it. You start off with a bigger group and fail.* " Dropout
• Shared responsibility (e.g., at least two walk leaders per group)	*"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
• Role flexibility	
Selecting volunteers	
• Positive attitude and flexibility	*"It's just being positive yourself and knowing the benefits you gained from it [walking] and trying to impart that on them.*" Extender
• Interest in others, social confidence	
• Autonomous motivation to exercise	
• Altruism and willingness to adapt	
• Relevant past leadership skills	
Training volunteers	
• Establishing group cohesion (e.g., planning in opportunities for socialization during/after the walk)	*"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
• Eliciting positive walker interest and initiating regular group walks (e.g., role modelling, makes it interesting, adapts to slower walkers)	*"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
• Social skills and motivation training: Helping volunteers understand needs of walkers, motivate walkers, and create meaningful social interactions	*"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
• Sustainable helping strategies and ways to avoid exhaustion, training volunteers to delegate tasks	*"The group was good. They made it easy for me and some... [peer walker] were willing to take over when I was away."* Extender
Providing volunteer support during the program	
• **Organizing social events** (e.g., facilitating regular contact with other volunteers)	
• **Positive recognition for volunteers to promote volunteer identity** (e.g., providing positive feedback, celebrating achievements and efforts, organizing awards with certificates)	
• **Walk and talk friendly routes** (i.e., path has sufficient width to walk beside each other)	

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

Profile description	Data collection	Reasons to continue/dropout
Profile 1- Dropouts 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.	**All four were interviewed at T1 and T2.**	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.
Profile 2- Completers 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.	**Four were interviewed at T1 and T2.** 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.
Profile 3- Extenders Three female members matched this profile All expressed intention to continue as a volunteer after program completion.	**All three were interviewed at Time 1 and Time 2.**	All described enjoyment, socialization and success at helping as primary motives to continue.
Non-engagers 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 toT2 questionnaires asking participants to provide reasons for dropping out or sustaining in the program

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Table S2

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

Participant Characteristics	Motivation and Leadership Confidence
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 **All classified as active**: PASE range: 83.21 – 217 [1]	• **Motives to walk** [2] **All High Autonomous** 2.50 -4.00 **All Low Controlled** 0.17 – 2.00 • **Volunteer Motives:** [3] **All High Autonomous** 3.67-5.17 **All Low Controlled** 1.33 – 3.00 • **Leadership Confidence:** All high levels of leadership confidence at pre-intervention. [4]

Themes derived from interviews	Illustrative quote
Pessimism	"*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.*"
Role demands (e.g., volunteering 3 times/week) didn't match lifestyle	"*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*"
Declining health	"*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 for forward to this as you know.*"

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".

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Table S3

Additional Analyses and Medians and Ranges of Questionnaire Data Within Each Profile

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

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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	• Desire to increase own physical activity levels, obtain social rewards, ego-enhancement.
Perceived lack of support/resources to meet role demands	• Lack of time to volunteer three times per week • Perceived lack of support (e.g., with encouraging walkers to join, responsibility for group).
Basic psychological needs not satisfied	• **Perceived lack of Autonomy** • Not wanting to adapt to other walker's needs (e.g., walking pace, time-schedule). • **Perceived lack of Relatedness** Lack of walker interest/motivation. Inability to create desired social connection during or after the walk. • **Perceived lack of Competence:** Inability to provide the desired help (e.g., walker dropout).
Lack of internalization of motives throughout the program	• Reduction of autonomous motivation, dominance of other priorities. • Not enjoying the role of a group leader/responsibility. • Satisfaction as a volunteer determined by meeting self-orientated goals.

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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	• Desire to obtain social rewards (e.g., experience socialization with other walkers, experience recognition). • Guilt and obligation (e.g., feeling responsible as a village committee member)
Temporary satisfaction of psychological needs (mainly relatedness and competence)	• **Autonomy:** Enjoyment of organizing and leading a group (e.g., enjoying the initiative of making the walks interesting and choosing suitable routes). • **Relatedness:** Creating meaningful connections with walkers and other volunteers. • **Competence:** Perceived success at initiating a walking group.
Unsustainable helping strategies reducing perceived autonomy	• Provision of individual support/adaptation to needs of individual walkers leading to emotional exhaustion.
Inability to provide the desired help reducing perceived competence	• Use of ineffective group management strategies. For example, segregation of slower from faster walkers leading to walker dropout.
Motives to help not fully internalized	• Pessimism for helping (i.e., perceiving a walking group with inexperienced walkers not feasible). • 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.)

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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	• Desire to help those who need help. • Compassion for inexperienced walkers.
Effective and sustainable helping strategies	• Inclusive group management. • Adapting to the needs of the slowest walkers. • Use of relevant previously acquired experience.
Use of social support to meet role demands	• Delegating leader role to other walkers/volunteers while away.
Satisfaction of all basic psychological needs	**Satisfaction of need for Autonomy.** • Enjoying helping others to walk more. • Perceived control of level of commitment through support from other walkers/volunteers. **Satisfaction of need for relatedness** • Perceiving support from other volunteers/group members. • Using social skills to create group cohesion (e.g., meaningful connection with walkers, socialization during and after the walk). • Leadership acceptance (e.g., being accepted as the group leader, perceived as role model, gets asked for advice). **Satisfaction of need for competence** • Leadership confidence and opportunity to use previously acquired skills (e.g., know-how in exercise, leadership and group management). • Successful at eliciting positive walker interest and initiating regular group walks • Positive feedback from walkers and ongoing walker commitment.
Enjoyment and Optimism	• Optimism and flexibility (e.g., not taking it personally if walkers don't attend regularly). • Intention to continue volunteering as a peer walk leader. • Intrinsic motivation to walk and help others.

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Table S7

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

Need-satisfaction	Example quote
Autonomy • Positive attitude (i.e., optimism, flexibility). • Autonomous motivation to exercise. • Focus on meeting altruistic desires (e.g., desire to help) • Perceived role flexibility (e.g., can choose level of commitment)	*"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."* Female member of Profile 3 (Extenders), [Positive attitude]
Relatedness • Peer leader selection: interest in others, social confidence. • Social skills training: Training to help volunteers create meaningful social interactions, establishing group cohesion, compassion for slower walkers. • Social opportunities: Facilitating regular social contact with walkers/other volunteers, planning in opportunities for socialization during amd after the walk, walk and talk friendly routes • Leadership acceptance (e.g., being accepted as group leader, get asked for advice).	*"It's good company for me. Living on my own, it's good company to able to get out with a group of people. Then we sit afterwards and have a cup of coffee...socializing as well."* Females member of Profile 2 (Completers) [Social opportunities]
Competence • Leadership confidence and skill (e.g., opportunity to use previously acquired skills (i.e., applicable know-how in exercise, leadership and group management). • 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). • Effective at overcoming challenges without volunteer burnout. • Volunteer recognition (e.g., positive feedback from walkers) • Clarity on role tasks • Realistic tasks (e.g., smaller/manageable groups)	*"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."* Female member of Profile 1 (Dropouts) [Clarity on Role tasks]
Need- frustration	
Autonomy • Controlled motivation to exercise. • Not enjoying helping others. • Having to adapt to inexperienced walkers. • Lack of perceived role flexibility/shared responsibility.	*"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."* Female member of Profile 1 (Dropouts) [Role flexibility]
Relatedness • Lack of walker interest/attendance and walker dropout. • Lack of opportunity to connect during or after walk. • Unable to create meaningful social interactions.	*"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."* Female member of Profile 1 (Dropouts) [Lack of walker interest/attendance].
Competence • Use of unsustainable helping strategies. • Inability to provide the desired help. • Mismatch of demands of role and available resources and skills (e.g., unable to manage a group or volunteer 3 times a week)	*"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."* Female member of Profile 1 (Dropouts) [Mismatch of role demands and skills].

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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 (*Never married, Married, Separated/Divorced, Widowed*), Living status (Response options: *Alone, with partner*), Living in village (N*umber or years/months*), Highest level of education (Response options: Secondary education, *Vocational training, College or University*) Leadership experience (N*umber of years/months*)		
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 can take charge when necessary" (1-no confidence to -100% confident -7).*
Self-perceived leadership traits LTQ (Northouse, 2010)	12-item leadership traits questionnaire, adapted to older walk leaders and cited as reliable (Northouse 2010).	*I talk freely and get along well with others"* (Outgoing) (*1-Strongly disagree to -Strongly agree-5).*
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).	*Over the past 7 days, how often did you take a walk outside your home or yard for any reason? (0-Never-Often-3).*
Motivation to walk BRWQ (Niven & Markland, 2016) [1]	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 walk because it is fun." (*Intrinsic regulation) (*0 -Not true for me to Very true for me -4).*
Volunteer motivation from an SDT perspective VMS (Millette & Gagne, 2008) [1]	12-item scale adapted to older walk leaders. The scale has been cited as reliable and valid (Milette and Gagne, 2008).	*Because I would really feel bad about myself if I didn't volunteer" (1-Strongly disagree to -Strongly agree-7).*

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). [1] 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.

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Table S9

Physical Activity Scale For The Elderly (PASE)

Question	PASE Scale items (Washburn et al., 1993)
1 – 1 a	Over the <u>past 7 days</u>, how often did you participate in sitting activities such as reading, watching TV, or doing handcrafts? [a] What were these activities? (e.g. watching TV, sewing) (Open response)
1b	On average, how many hours per day did you engage in these sitting activities? [b]
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? [a]
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? [a] 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? [b]
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? [a] 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? [b]
5 – 5a	Over the past <u>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? [a] What were these activities? (open end question)
5b	On average, how many hours per day did you engage in these strenuous activities? [b]
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.? [a] 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.? [b]
7	During the <u>past 7 days</u>, have you done any light housework, such as dusting, washing or drying dishes, or ironing? [c]
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? [c]
9a	During the <u>past 7 days</u>, how often did you engage in home repairs like painting, wallpapering, electrical work, etc.? [c]
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? [c]
9c	During the <u>past 7 days</u>, how often did you engage in outdoor gardening? [c]
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? [c]
10	During the <u>past 7 days</u>, how often did you work for pay or as a volunteer? [a]
10a	How many hours per week did you work for pay and/or as a volunteer? [b]
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.)

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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

Questionnaire Items (Niven & Markland, 2008)	
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

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Table S11

Volunteer Motivation Scale

Scale Items (Millette et al., 2008) [a]
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.

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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

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Leadership and Volunteering Experience

Construct	Question
Leadership experience [a]	1. 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) 2. If you have previously been in a leadership position please specify: a) The context/role (e.g. community, work) (Open response) b) The duration in years, months (Open response) c) Whether you are still active in a leadership role (Response Option: Active/Not Active).
Volunteering experience ☐	1. In the past how often have you volunteered for the community? (Response option: No volunteering experience = 1 - 5 = More than 6 experiences) 2. If you have previously volunteered please specify: a) The context/role (e.g. community, work) (Open response) b) The duration in years, months (Open response) c) Whether you are still active in a volunteering role (Response Option: Active/Not Active).

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.

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

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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
a = Response options: *(1 = No confidence – 7= 100 % confidence)*
b = Response options: (1 = Not at all– 7 = Very much)

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806 **Table S14**

807 **Leadership Traits Questionnaire**

Leadership Traits Questionnaire Items (Northouse 2013) [a, b]

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.

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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.

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817 **Supplementary File B**

818 **B1. Additional information on inclusion criteria, recruitment process and training of peer**

819 **volunteers:**

820 **Peer leader eligibility criteria**

821 To be eligible for the peer leader role, volunteers had to meet current physical activity guidelines

822 (as determined via self-report at baseline). Like walkers, volunteers had to also be permanent

823 residents of a retirement village in Western Australia, aged 60 years and above, communicate

824 well in English, and able to provide consent and participate in assessments. In terms of health,

825 they needed to have no terminal illness or health problems that prevented them from walking and

826 have no known dementia diagnosis. Finally, they needed to be able to walk continuously on a flat

827 surface at a light/moderate pace for at least fifteen minutes and have experienced fewer than two

828 falls in the past three months.

829 **Recruitment**

830 Peer leaders were recruited from ten different retirement villages. While the retirement villages

831 offered a range of activities (e.g., social functions) and facilities (e.g., gyms, swimming pools),

832 none of the included retirement villages offered access to a peer-led walking group prior to the

833 trial. A total of thirty-six residents residing in ten retirement villages in and around Perth

834 expressed interest in the peer leader role. Twenty-four participants discontinued as a volunteer

835 before engaging with the program, of whom fourteen subsequently took part as a walker, and ten

836 volunteers quit the program. Twelve volunteers engaged in the program, of whom four dropped

837 out as a volunteer, and eight completed it.

838   **Residents in Action Trial.** The trial was a 16-week peer-led walking intervention with residents

839   from ten different retirement villages in Western Australia. Peer leaders in the experimental and

840   control condition were asked to lead group walks for 10 of the 16 weeks.

841   **General peer leader training.** All volunteers were asked to attend an initial two-hour workshop,

842   which provided them with general information on leading group walks in a safe manner (e.g.,

843   what to do in emergencies), suggested walk routes, general behaviour change techniques, and

844   information on current physical activity recommendations. Volunteers were also provided with a

845   training folder that contained all educational materials covered in the workshop and maps of

846   walkable walking routes around their village.

847   **Motivation training.** Peer leaders taking part in the experimental condition attended an

848   additional workshop and received motivation training, informed by self-determination theory

849   (Ryan et al., 2017). The motivation training aimed to teach walk leaders communication

850   strategies that had been designed to help them facilitate self-determined motivation in group

851   members (Thøgersen-Ntoumani et al., 2017). Taught communication strategies included the

852   provision of relatedness support (e.g., helping each group member feel like an important member

853   of the group), autonomy support (e.g., providing choice to walkers regarding their walking) and

854   competence support (e.g., celebrating walking success). As part of a second workshop walk

855   leaders were provided with an opportunity to reflect on experiences and discuss any problems

856   encountered with applying the strategies. Further information on the specifics of the training, the

857   intervention protocol and the trial is published elsewhere (Thøgersen-Ntoumani et al., 2017;

858   Thøgersen-Ntoumani et al., 2019).

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

860   **Analytical procedures**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

877 on profile characteristics.

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

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

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

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

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

883 **Qualitative categorization of volunteer and walking motivation .** Perceiving walking "*as part*

884 *of a lifestyle*" were examples of phrases used to describe autonomous forms of motivation to

885 walk. In contrast, controlled forms of regulation for walking were articulated using phrases such

886 as "*the doctor told me I should be walking more*" to describe their motivation. Levels of

887 volunteer motivation varied, with some volunteers expressing controlled forms of regulation

888 (e.g., Introjection: "*I volunteered because as a committee member I feel responsible. I try to*

889 *encourage things that are happening, so it's not a good look if I brush it off sort of thing*") and

890 some expressing more autonomous forms of regulation (e.g., intrinsic motivation: "*I enjoy*

891 *volunteering. I find it very satisfying*").

892 **Research team and interviews**

893 Interviews, transcription and initial coding was conducted by the first author. Interviews were

894 semi-structured which provided the researcher with a framework but also with the flexibility to

895 explore certain issues with more open and follow-up questions.

896 No relationship was established with the participants before the interviews. Participants were

897 aware of the study's aims but did not know further information about the interviewer. The first

898 author is a female PhD student who had completed qualitative training at an undergraduate and

899 postgraduate level. She has gained qualitative research experience before the conducted research

900 as part of her master's (Practicing interview techniques and qualitative analysis) and while

901 working as a research assistant (Interviewing physicians, analyzing interviews and open-ended

902 responses, presenting data as part of an EU project), and has attended workshop training in the

903 use of NVivo. During all research and analysis stages, the first author was guided by an

904 experienced supervisory team, which consisted of three professors with extensive expertise in

905 qualitative methodology and case study design.

906 **B3. Additional information on participants characteristics**

907   **Overall characteristics.** Perceiving walking "*as part of a lifestyle*" were examples of

908 phrases used to describe autonomous forms of motivation to walk. In contrast, controlled forms

909 of regulation for walking were articulated using phrases such as "*the doctor told me I should be*

910 *walking more*" to describe their motivation. The majority (8/11) of volunteers self-reported high

911 physical activity levels (i.e. were classified as "Active"), at time of recruitment. Among those

912 classified as active, popular activities were walking, attending fitness classes and doing weights

913 at the gym. With regard to self-perceived leadership traits, volunteers were most likely to

914 perceive themselves as friendly, dependable, and sensitive and least likely to report themselves

915 as being self-assured and determined.

916   Levels of volunteer motivation varied, with some volunteers expressing controlled forms

917 of motivation (e.g., Introjection: "*I volunteered because as a committee member I feel*

918 *responsible. I try to encourage things that are happening, so it's not a good look if I brush it off*

919 *sort of thing*") and some expressing more autonomous forms of motivation (e.g., intrinsic

920 motivation: "*I enjoy volunteering. I find it very satisfying*"). With regard to leadership traits,

921 participants rated themselves on a 5-point scale highest at being dependable, friendly, and

922 sensitive (Median = 5) and lowest at being determined and self-assured (all Median = 3).

923   **Interviewed and excluded participants.** A total of twenty-three interested participants

924 agreed to be interviewed at baseline. Eight participants were excluded from the analysis, as they

925 were unavailable for a second interview at T2. However, they informed us about their reasons for

926 dropout, which are presented in Table S1 in Supplementary file A1.

927   We were interested in tracking the motivational processes of volunteers who led a

928 walking group. We, therefore, excluded participants who did not attempt to lead a group due to

929 lack of interest ($n = 2$) or poor health ($n = 2$) (i.e., Non-engagers). Further details on non-

930 engagers are provided in supplementary file A1. Four participants discontinued as a volunteer

931 after starting to lead a group, seven participants completed the program as a volunteer walk

932 leader. Three volunteers intended to continue in their role, of whom two were still active walk

933 leaders after six months.

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

935 **Profile 1: Dropouts.** In summary, controlled motives (e.g., feeling obliged due to being

936 experienced as a leader, part of a committee or asked by other residents) and a focus on self-

937 orientated desires (e.g., to increase own physical activity levels), were prominent among

938 members of this profile. However, basic psychological needs were not satisfied when volunteers

939 in this profile attempted to lead a group and perceived a lack of social support. Low levels of

940 perceived competence related to being unable to organize and manage a group while meeting

941 their own needs. Members of this profile indicated low levels of autonomy (i.e., not enjoying the

942 group setting) as a group leader but continued to walk alone or with a partner. Members of the

943 profile emphasized the need for role flexibility (e.g., in terms of walking pace) and outside

944 support.

945 **Profile 2: Completers.** Similar to Dropouts (Profile 1), controlled and self-orientated motives

946 (in particular the desire for socialization) to volunteer were prominent Completers. At pre-

947 intervention, members of this profile also articulated autonomous volunteer motives. The use of

948 unsustainable helping strategies (e.g., that were perceived as exhausting) and an inability to

949 provide the desired help inhibited the perception of competence and autonomy as a walk leader,

950 reducing autonomous motivation. High levels of introjection (obligation and guilt) and

951 relatedness satisfaction (socialization) motivated members of this profile to complete the

952 program, but their motivation was not sufficiently autonomous to help them maintain their

953 volunteer role beyond the program. Similar to Profile 1, suggestions to continue as a volunteer

954 pertained to role flexibility and having a choice whether to lead a slow or faster group. Further

955 assistance could be provided by offering shared role responsibilities (e.g., at least two walk

956 leaders per group) that prevented walk leaders from feeling overwhelmed with the role and

957 provided them with opportunities to connect with other walk leaders to exchange experiences

958 and provide support to each other.

959   **Profile 3 (Extenders).** Members of this profile indicated high levels of altruistic motives

960 and autonomous motivation at pre-intervention. Social skills, compassion, and optimism were

961 high among members of this profile. Initial challenges were similar to those experienced by other

962 profiles. However, all members of this profile enjoyed helping others, focused on meeting

963 altruistic desires (i.e., were willing to adapt to walkers' needs), were effective at overcoming

964 difficulties, and used strategies that facilitated psychological need satisfaction, which helped

965 them maintain their role as a volunteer. In contrast to other profiles, members of Profile 3

966 experienced psychological need satisfaction and autonomous motivation *throughout* the

967 program.

968 **B5. Additional information on recommendations**

969   Autonomous motivation may be facilitated by providing training in helping strategies that

970 prevent volunteer exhaustion and embrace available social support. Additional support may be

971 provided through programs that are flexible in terms of the level of commitment, provide social

972 support for volunteers and promote a sense of leadership identity (e.g., opportunities to meet

973 other volunteers and exchange experiences). Overall, key suggestions for volunteer recruitment

974 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.

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