

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

A meta-study of qualitative research on social support related to physical activity among older adults

L. Jayne Beselt¹, Michelle C. Patterson¹, Meghan H. McDonough¹, Jennifer Hewson², & Scott MacKay¹

¹Faculty of Kinesiology, University of Calgary

²Faculty of Social Work, University of Calgary

Author Note

The authors would like to acknowledge contributions from Dr. Alix Hayden, University of Calgary Librarian for her assistance with designing the search for the review, and support from a University of Calgary University Research Grants Committee Social Sciences and Humanities Seed Grant. Correspondence concerning this article should be addressed to Meghan McDonough, Faculty of Kinesiology, University of Calgary, 2500 University Dr. NW, Calgary, AB, Canada, T2N 1N4, (403) 220-7211, meghan.mcdonough@ucalgary.ca

22
23
24
25
26
27
28
29
30
31
32
33
34
35

Abstract

Physical activity (PA) and social support have known benefits for the wellbeing and health of older adults, and social support is associated with PA behavior and positive affective experiences in PA contexts. The aim of this study was to synthesize qualitative research conducted on the experiences of social support related to PA among older adults (age ≥ 55 years). Following meta-study methodology, we searched 9 databases and extracted information from 31 studies. Results were synthesised in terms of common themes, and in light of theoretical and methodological perspectives used. The qualitative literature identifies supportive behaviors and social network outcomes which may be useful for informing how best to support older adults to be physically active. This literature rarely reflected the experiences of vulnerable populations and future research should aim to further understand supportive behaviors which enable older adults to overcome barriers and challenges to being physically active.

Keywords: aging, exercise, psychosocial support, interpersonal relationships, systematic review

36 A meta-study of qualitative research on social support related to physical activity among older
37 adults

38 Physical activity (PA) and social support related to PA have benefits for older adults'
39 health and wellbeing (Baker, Meisner, Logan, Kungl, & Weir, 2009). Social support is positively
40 associated with PA behavior and affective experiences in PA contexts in older adults (McAuley,
41 Blissmer, Marquez, Jerome, Kramer, & Katula, 2000). However, many older adults are not
42 sufficiently physically active and activity levels tend to decline with age. Lack of social inclusion
43 and availability of social support are of concern for older adults as they are at greater risk of
44 isolation (Statistics Canada, 2012).

45 Social support is a complex, multidimensional concept that has been conceptualized in
46 many ways. It is included in a variety of theories of motivation, stress and coping, and other
47 psychological processes pertinent to PA. Many conceptualizations define social support in terms
48 of a resource to manage stress (e.g., Cohen, 2004). However, Feeney and Collins (2015) suggest
49 social support is an important resource in times of coping with adversity, and in promoting
50 growth and thriving in the absence of adversity. Additionally, opportunities to provide, not only
51 to receive, social support can be meaningful (Uehara, 1995). Furthermore, identifying supportive
52 behaviors is critical for understanding how to improve social support (Feeney & Collins, 2015).
53 Social support can be operationalized in terms of the availability and provision of assistance
54 generally, or support that assists with a specific behavior or concern, such as support for
55 engaging in PA. Social support can include social interactions not necessarily intended as
56 supportive, such as companionship, participation with others, or opportunities to observe other
57 peoples' behavior. For example, social participation (i.e., one's involvement in activities
58 including interactions with others; Levasseur et al., 2015) is important for successful aging and is

59 positively associated with mental and physical health (Douglas, Georgiou, & Westbrook, 2017).
60 PA can provide opportunities for increasing social participation among older adults (Kikuchi et
61 al., 2017).

62 A previous review of quantitative associations between social support and PA among
63 older adults has demonstrated social support is associated with increased PA participation,
64 particularly when social support is targeted at assisting with PA specifically, and comes from
65 family members (Lindsay Smith, Banting, Eime, O'Sullivan, & Van Uffelen, 2017). Most
66 quantitative studies have focused on availability of support, or perceptions of feeling supported,
67 but little work has examined specific behaviors effective for enabling PA among older adults and
68 associated with PA in this population (Lindsay Smith et al., 2017). Qualitative studies may
69 provide insight on effective forms of support for PA, and features of the PA context with others
70 that older adults find supportive (e.g., experiences with class structure/size). Furthermore, the
71 qualitative literature on older adults' lived experiences with social support in PA contexts may be
72 particularly informative to this question of specific supportive behaviors, because it may address
73 what older adults perceive as meaningful and useful about their interactions with others in this
74 context. However, drawing conclusions from this literature is difficult, as it is spread across
75 diverse disciplines, and has been studied from a variety of theoretical and methodological
76 perspectives. Therefore, the purpose of this meta-study was to synthesize and critically appraise
77 findings from the qualitative literature on social support and PA among older adults, and to
78 examine trends in the field which could inform theory, research, and practice. We were
79 particularly interested in synthesizing results of research examining the relationship between PA
80 and social support among adults 55 and over.

81 **Methods**

82 **Meta-study methodology**

83 We used meta-study methodology (Paterson, Thorne, Canam, & Jillings, 2001). The goal
84 of a meta-study is to interpret findings across qualitative studies on a focused topic, and
85 synthesize new knowledge based on the collective results in light of theory and methodological
86 practices. A meta-study follows the same guidelines for systematically searching and screening
87 articles as those used in quantitative reviews (i.e., PRISMA guidelines, Moher et al., 2009), but
88 uses different approaches for data extraction, analysis, and synthesis specific to qualitative data.
89 Meta-study procedures focus on synthesizing and interpreting the collective findings of studies in
90 four components: meta-method (analysis of methods adopted), meta-theory (analysis of the use
91 of theoretical perspectives), meta-data analysis (analysis of findings), and meta-synthesis
92 (interpreting the findings in light of the methods and theories used across the literature; Paterson
93 et al., 2001). Prior to initiating this study's search, the search protocol was registered with
94 PROSPERO International Prospective Register for Systematic Reviews (number
95 CRD42018085662).

96 **Search**

97 We systematically searched the literature investigating: (1) PA defined as interventions,
98 programs or inquiries about full-body PA or exercise (bodily movement resulting from skeletal
99 muscles and requiring energy expenditure; Caspersen, Powell, & Christenson, 1986), excluding
100 joint-specific rehabilitation exercises, or behavior change interventions not including performing
101 PA; (2) social support, broadly defined; and (3) older adults. A librarian with expertise in search
102 strategies for systematic reviews provided guidance with search terms and strategies, including
103 helping identify terms within the index for the databases searched. Nine databases were
104 searched: MEDLINE, PsycINFO, Cochrane Central Register of Controlled Trials, Cochrane

105 Database of Systematic Reviews, CINAHL, SPORTDiscus, Social Work Abstracts, Family and
106 Society Studies Worldwide, and Abstracts in Social Gerontology (see Figure 1 for Medline
107 search terms). The search was conducted at the level of full text and was last updated on March
108 28, 2019.

109 **Screening**

110 Figure 2 depicts the search and selection process. Sources were managed, and duplicates
111 were removed using the automatic function for removing duplicates in Endnote V9.3.3 reference
112 management software. Any duplicates missed by this process were removed manually by the
113 reviewers. Two independent reviewers screened titles and abstracts for eligibility. If eligibility
114 was unclear, the full text of the article was examined. Reviewers reached a consensus regarding
115 the inclusion of each study and any differences were resolved by a third reviewer (the third
116 author). All sources were reviewed (abstract/title screening and full text review) independently
117 by the two reviewers. Articles were included if they were: (1) conducted with adults aged 55 and
118 over (if only mean age was provided, studies were included if the mean age was over 55; if an
119 age range was provided, studies were included if all participants were over age 55); (2) involved
120 a PA intervention or program, or inquired about PA behavior (including any bodily movement
121 resulting from skeletal muscles and requiring energy expenditure, but excluding joint-specific
122 rehabilitation exercises); (3) included results pertaining to the relationship between social
123 support and PA, including but not limited to a relationship between frequency of PA and social
124 support, or discussion of social support experiences in the context of PA; and (4) were peer-
125 reviewed, primary empirical qualitative (i.e., non-numerical data; including content analysis)
126 research studies published in English. There were no date restrictions on the search. Studies
127 where the purpose was to address PA for a population with a chronic disease (e.g., studies that

128 focused solely on participants with cancer diagnoses), or that did not use qualitative methods
129 were excluded.

130 **Data extraction**

131 A data extraction form was created and piloted. It was used to collect citation details,
132 study aim, participant characteristics, description of the program or intervention (if applicable),
133 study design, methodology, philosophical underpinnings explicitly noted in the manuscript,
134 theoretical frameworks used in the conceptualization through analysis phases of studies (i.e.,
135 references to theory pertaining only to its use in other literature in the introduction, and/or
136 brought to bear only in the discussion were not included), and results related to social support
137 and PA. Results pertaining to this review were extracted verbatim from the results section,
138 figures and tables for analysis.

139 **Data analysis**

140 Data analysis was conducted by the lead author and consisted of a meta-method analysis,
141 meta-theory analysis, meta-data analysis, and meta-synthesis (Paterson et al., 2001). NVivo 12
142 was used to store and manage data during analysis. The meta-method involved analyzing the
143 design and analytical techniques used in each study and the role they may have played each
144 study's results. The meta-theory analysis involved analyzing the conceptual and theoretical
145 frameworks used and the way they may have influenced each study's findings. Patterns in the
146 use of conceptual or theoretical frameworks across studies were examined. Meta-data analysis
147 involved thematically analyzing (Braun & Clarke, 2006) results from the primary studies to
148 identify common themes from this literature. Specifically, the lead author familiarized
149 themselves with the extracted text, and then noted overall meaning and initial ideas by noting
150 ideas for coding. Initial codes were generated regarding social support and PA. Codes that

151 contained similar ideas were grouped into themes, named, and connections between themes were
152 identified. The extracted text was then reread, coding was reviewed, and themes were re-
153 examined to ensure they were distinct, coherent, and consistently coded. Theme names were
154 developed. A meta-synthesis was then conducted by examining patterns of methodologies,
155 methods, and theories across studies in relation to the synthesized results (Paterson et al., 2001).

156 **Quality assessment**

157 The first author assessed the quality of included studies following recommendations from
158 Sparkes and Smith (2009) and Garside (2014) and using a relativist perspective. This perspective
159 means criteria were considered in light of the philosophical and methodological approach of each
160 study. Results of the quality assessment is available from the authors upon request. Five areas
161 were evaluated: (1) providing a clear description of the study's purpose, context, and protocol;
162 (2) addressing trustworthiness by using a study design appropriate for their study question; (3)
163 discussing theoretical implications by addressing the study's connection to the broader literature;
164 (4) providing practical implications to policy or practice; and (5) describing how rigor was
165 addressed. We assessed quality to describe the evidence base, rather than to determine inclusion
166 or exclusion from the review. No studies were excluded based on quality as there is not
167 consensus on rating study quality, and even lower quality studies may provide insight into older
168 adults' perspectives on social support related to PA (Walsh & Downe, 2005).

169 **Results**

170 **Search results**

171 8860 records were retrieved in the search. After removing duplicates, the titles and
172 abstracts of 5543 articles were screened for eligibility. Of these articles, 171 underwent full

173 article screening, and 31 articles were included in this review (see Figure 2). Most quality criteria
174 were high, and all studies were rated highly on many criteria.

175 **Meta-method**

176 See Table 1 for study characteristics. Included studies were published between 1995-
177 2019. They included 28 cross-sectional (single time point data-collection) and 3 longitudinal
178 study designs. That most studies used a single interview/focus group cross-sectional design may
179 limit our understanding of how these experiences with social support in PA evolve over time.
180 Fourteen studies included participants involved in an ongoing community-based exercise
181 program, 10 studies participants who were or had previously taken part in a PA intervention, and
182 seven studies did not involve an intervention/program. That most participants were sampled from
183 community-based programs or research-based interventions may mean perceptions of those who
184 do not/cannot access such programs may be underrepresented in this literature.

185 Sample sizes ranged from 6 to 64, and a total of 650 older adults participated in the
186 studies. Of studies that provided an age range, participants were aged between 56 and 92 years.
187 Most (70.3%) participants were female, although four studies included only men, and five
188 studies included more men than women. Most studies did not report race or ethnicity ($n=22$), but
189 of those that did, most participants (73.3%) were Caucasian. One study focused on participants
190 from visible ethnic minority populations (Chinese, African American; Chiang, Seman, Belza &
191 Tsai, 2008), and one study was conducted in Korea and included all Korean participants (Kim,
192 Yamada, Heo, & Han, 2014). Thus, this literature collectively does not reflect an ethnically
193 diverse group of older adults, and a synthesis of results from these studies likely
194 disproportionately reflect views of Caucasian older adults.

195 A variety of methodological approaches were used. One study used a general qualitative
196 approach and did not specify a qualitative methodology. Stated methodologies included some
197 form of generic qualitative ($n=5$) or content analysis ($n=8$). The remaining articles identified a
198 specific methodology, spanning grounded theory ($n=5$), phenomenology ($n=3$), framework
199 analysis ($n=2$), thematic analysis ($n=3$), ethnography ($n=2$), systemic text condensation ($n=1$),
200 narrative ($n=1$), qualitative description ($n=1$), and photovoice ($n=1$). Four of the above studies (2
201 generic qualitative and 1 content, and 1 content/framework analysis) were mixed methods.
202 Furthermore, five studies were described as case studies, in addition to listing another form of
203 methodological approach. Most studies reported details about study aims, sample characteristics,
204 methods, and methodology; however, most ($n=21$) studies did not describe the philosophical
205 basis, and often did not distinguish when they were referring to ontological or epistemological
206 approaches, or theoretical positions that informed their methodology. Those that identified
207 philosophical roots included using a constructivist, constructionist, or interpretive epistemology
208 ($n=8$); or that the ontology and epistemology were informed by symbolic interactionist theory
209 ($n=2$), or a combination of post-structuralist, feminist, and discourse theory. A variety of
210 methods were used to collect qualitative data. The most common method for data collection was
211 in-person interviews ($n=17$) and focus groups ($n=8$) and some studies ($n=2$) used a combination
212 of both. Other studies used phone interviews ($n=3$), in-person dyadic interviews ($n=2$),
213 researchers' fieldnotes ($n=1$), participant observations ($n=7$), text (e.g., diary/journal entries,
214 study documents; $n=4$), photographs ($n=3$), and media ($n=1$). While researchers use numerous
215 methodologies and data collection tools, the evidence base may be constrained because existing
216 studies largely did not identify philosophical underpinnings, used generic qualitative methods or

217 content analyses, and used interview or focus group data that may limit the type, breadth, and
218 depth of information in this literature.

219 **Meta-theory**

220 Most studies did not specify using a substantive theory ($n=18$). Of those that did, theories
221 used included cultural capital theory ($n=1$), successful aging theory ($n=1$), Weiss' (1973)
222 theoretical framework on social support ($n=1$), theory of constraints ($n=1$), social cognitive
223 theory ($n=3$), theories of therapeutic landscape and therapeutic mobilities ($n=1$), social capital
224 theory ($n=2$), life course theory ($n=1$), health as expanding consciousness ($n=1$), model of
225 creative causality ($n=1$), ecological models ($n=2$), and the transtheoretical model ($n=1$).

226 Many studies that did not use substantive theory suggest this practice facilitates inductive
227 analysis of data without imposing theory, while studies that used theory tend to do so to help
228 focus the study or guide building new findings on existing knowledge. Theory was used to
229 inform/guide data interpretation/analysis ($n=11$), and inform the development of interview
230 guides ($n=2$) and interventions ($n=2$). One study was explicitly framed using a strengths-based
231 approach to aging (successful aging theory; Bergland, Fougner, Lund, & Debesay, 2018). Some
232 studies, while framed theoretically, did not examine social support as their primary purpose,
233 therefore using theories that included social support as a factor affecting PA, but not providing a
234 comprehensive theory of the social support construct (e.g., Bredland, Söderström, & Vik, 2018).

235 **Meta-data analysis**

236 Three categories of themes describing experiences with social support in and for PA were
237 constructed from the thematic analysis of the results of the studies: (1) supportive behaviors; (2)
238 network, connection, and relationship; and (3) social barriers to PA. Descriptions and example
239 quotations from each theme are presented in Table 2. Social support was provided in many PA

240 contexts by a variety of people. Examples included receiving social support during PA (e.g.,
241 instructors providing feedback), receiving social support for activity (e.g., transportation to PA),
242 gaining support through PA (e.g., building relationships), providing support to others during PA
243 (e.g., encouraging peers), and using PA to ensure one is able to support others (e.g., care for
244 grandchildren). Social support was received from PA program peers, staff, family,
245 partners/spouses, and friends; it was also provided to others by participants.

246 *Supportive Behaviors*

247 Supportive behaviors included interpersonal behaviors participants perceived as helpful.
248 In general, social interactions with others made PA fun through laughing, being lighthearted,
249 having a positive attitude, and sharing personal celebrations. Others doing PA with them was
250 supportive for PA. If someone else (e.g., the instructor, another participant) was going, there was
251 more incentive to attend as well. Doing PA together contributed to a sense of safety and feeling
252 that they were not alone, and created a sense of accountability that motivated participants to
253 attend their classes because other participants and the instructor would be there too, would ask
254 about them if they were not there, or they would feel they were letting others down if they did
255 not attend. Emotional support from exercise peers and instructors in the form of demonstrating
256 care and empathy was important, as was inquiring about and checking in on each other if they
257 were facing adversity (e.g., recent fall).

258 Participants looked to other participants and instructors as models for being physically
259 active, setting goals for maintaining or enhancing physical function, and as examples of aging
260 well. Seeing other older adults exercising was inspirational, and demonstrated what they as older
261 adults are capable of. Participants in group exercise also found instructors and other participants
262 sharing tips and tricks they used to meet their PA goals supportive.

263 At the end of interventions/offerings of programs, instructors who provided participants
264 with information on options for community-based programs were perceived as supporting
265 participants in continuing their PA (Stathi, McKenna & Fox, 2010). Instructors providing
266 individualized feedback and options contributed to participants feeling their presence, ability,
267 and needs were noticed. These behaviors conveyed acceptance of their ability and engendered
268 feelings of safety. When instructors demonstrated expertise in PA and aging, were confident and
269 clear in how they communicated, and provided information on safe exercises and PA benefits it
270 made participants feel safe exercising.

271 Feeling welcomed was important for getting participants to return to programs.
272 Instructors and participants reaching out and speaking to newcomers eased entry to the group,
273 and was sometimes seen as ‘paying it forward’ as participants remembered what it was like
274 being new. Instructors were also welcoming if they did not structure their programs with
275 participants working with the same partner or small group consistently over time, so participants
276 felt comfortable attending by themselves.

277 Providing verbal encouragement prior to and during classes helped get participants to
278 classes, and push themselves during classes. When program peers, family, friends, and others in
279 general vocalized their support, it demonstrated their progress was noticed, and reinforced their
280 behavior. Hugging amongst family, friends, and exercise peers was described as supportive,
281 particularly in group activities and teams. Hugs were anticipated and participants expressed
282 disappointment if they did not receive them from people they felt they knew well (Grant, Pollard,
283 Allmark, Machaczek, & Ramcharan, 2017). Hugging was also supportive when volunteers
284 showed support for participants’ accomplishments (Kelley, Little, Lee, Birendra, & Henderson,
285 2014). Tangible support from family and program peers (e.g., providing rides) facilitated PA.

286 Finally, providing support for others pertains to ways participants felt responsible and/or
287 wanted to help others, and how their supportive behaviors towards others influenced their own
288 PA. Most studies focus on participants as receivers of support; however, it is also possible to
289 conceptualize the participant as the supporter. They cited the need and/or desire to care for others
290 (e.g., grandchildren) motivated them to engage in PA in an effort to maintain function, and
291 inspire future generations by being physically active. Supporting others was fulfilling and
292 contributed perceptions that they are needed and have something to offer others.

293 *Social Networks, Connection, and Relationships*

294 This theme pertains to ways PA provided the opportunity to come into contact with
295 others, experience social connections, and form ongoing relationships. The literature reflected
296 levels of connection ranging from loose social ties to close friendships. Simply being in social
297 contact with others (in general, and other older adults) was important to participants. Shifting life
298 circumstances such as retirement, or changes to marital status or living arrangements were cited
299 as reasons for needing new social networks, including these loose social ties. Scheduled PA
300 provided opportunities to get out of the house and see others, which was particularly valued by
301 those widowed or living alone. In some cases, connections made during PA programs led to
302 further social opportunities (e.g., coffee meet-ups). For many, PA was an important opportunity
303 to both be active and socialize. Experiencing acceptance for ability, appearance, age, and gender
304 fostered belonging, connectedness, and comfort. PA also enabled developing and reinforcing
305 relationships with others over time. Many participants did not join PA to make friends, but
306 relationships developed through PA were often a reason for continued participation.

307 *Social Barriers to PA*

308 Isolation, limitations related to social roles, intimidation, and ineffective communication
309 made it more difficult to become active or maintain PA. Social isolation was discussed in
310 relation to loss of social network members as one ages. Living alone, retirement, widowhood, and
311 loss of family and/or friends contributed to declines in social networks, social isolation, and/or
312 reticence to approach new people. Some participants discussed needing to overcome this fear and
313 put themselves out there in unfamiliar contexts to limit isolation. Another common barrier was
314 social role limitations based on gender and age, and societal narratives that PA is not for older
315 people, particularly older women. Participants discussed experiences of feeling or being told they
316 did not belong or should not be participating in PA because it is not safe or appropriate. Some
317 participants were directly discouraged from participating due to others' fear for their safety or
318 because it did not fit within others' perceptions of social roles. Some participants felt intimidated
319 being in a PA setting with others. The need to put yourself 'out there' in an unfamiliar context,
320 and having concerns about how they compared to others contributed to feeling intimidated by
321 activity contexts. For some, it was important to be of a similar ability as peers to limit the
322 likelihood of feeling incompetent. Interpersonal communication within exercise groups was a
323 potential barrier if these interactions featured gossip, miscommunication of needs/intentions, and
324 misunderstandings among participants or with instructors.

325 **Meta-synthesis**

326 Collectively, this qualitative literature discusses a number of behaviors which are
327 supportive of engaging in and having positive experiences with PA in older adults. Interplay
328 between supportive behaviors and social barriers to PA can be seen in the meta-data analysis. For
329 example, interpersonal interactions such as peers communicating ways they are able to remain
330 active, or instructors demonstrating knowledge when they share information related to safe PA

331 can contribute to positive and prolonged experiences with PA, while ineffective communication
332 within program peers and by instructors can result in limited participation or more negative
333 experiences. Additionally, this literature also contributes to the evidence that PA with others can
334 broaden social networks. These experiences in turn may increase the availability of social
335 support related to PA for older adults and allow for them to experience supportive behaviors
336 towards their PA, as well as the opportunity to support others.

337 The studies included in this synthesis predominantly sampled Caucasian females.
338 Therefore, the synthesized findings on how social support is experienced may be shaped by
339 gender roles, and particularly represent women's perspectives, a consideration that is important
340 in light of research suggesting social interactions may be particularly influenced by gender role
341 socialization (Canetto, Kaminski, & Felicio, 1995). Additionally, certain themes, such as the
342 support for others theme may more strongly reflect traditional gender roles, which suggest that
343 women be more inclined to be other-focused and intentionally care for others (Canetto et al.,
344 1995). However, older adult males in one study (Bredland et al., 2018) also discussed the desire
345 to care for and play with their grandchildren. Furthermore, themes in the social barriers category
346 may not be reflective of the social experiences of vulnerable older adults due to the limited
347 number of studies which included subpopulations representing vulnerability or intersectionality.
348 For example, in the current literature, ineffective communication is characterized by gossip and
349 misunderstandings. However, communication problems may also play out in other ways, for
350 example in the form of language barriers for newcomers.

351 There is minimal reflection of how relationship dynamics evolve over time in the themes
352 described in Table 2, which could be influenced by the predominately cross-sectional design of
353 studies in this area. Some studies mention a deepening of friendships and relationships (e.g., Kim

354 et al., 2014), but less is known about the process of relationships development in the PA context.
355 Additionally, most data were collected upon completing a program or after a required duration of
356 involvement; therefore, less is known about early stages of relationships or PA participation over
357 time. This tendency to examine programs once they are established may be why welcoming
358 individuals was the only form of support that was specifically referred to by study participants
359 pertaining to initial attendance in programs.

360 Participants were mainly sampled through community-based programs or research
361 interventions, and may be more socially engaged than the typical older adult, and thus applying
362 these findings to more isolated individuals may not be appropriate. In particular, social barriers
363 noted from the meta-data analysis may not be experienced in the same way by more isolated
364 groups. Furthermore, participants sampled from community-based programs reflect experiences
365 in environments constructed in the community, while studies which sampled from research-
366 based interventions represent experiences from environments constructed by researchers. These
367 contexts do not exhaustively reflect ways older adults participate in PA. Thus, these themes may
368 not reflect experiences with lifestyle PA, sport contexts, and/or PA programs older adults
369 participate in in their communities that are not targeted towards older adults specifically.

370 Discussion

371 The aim of this study was to synthesize the qualitative evidence regarding social support
372 related to PA among older adults to present an overall view of the ways older adults experience
373 social support in and for PA. The qualitative literature identifies supportive behaviors and
374 contexts that may be useful in informing the development of PA interventions for older adults.
375 Feeney and Collins (2015) provide a useful framework for understanding specific behaviors that
376 are supportive. The supportive behaviors identified in this study can be seen in light of Feeney

377 and Collins (2015) social support theory which proposes two support functions: source of
378 strength support and relational catalyst support. Source of strength support functions to promote
379 thriving through adversity, while relational catalyst support functions to promote thriving
380 through full participation in life opportunities for growth in the absence of adversity. Relational
381 catalyst support refers to types of support that: nurture the desire to create or seize opportunities
382 for growth and pursue challenges, provide perceptual assistance in viewing life opportunities as
383 positive challenges versus threats, facilitate preparation for engagement in life opportunities
384 through skill development and goal setting, and provide a launching function through
385 encouraging and celebrating success and providing feedback that helps facilitate implementation
386 and enables one to fully engage in life opportunities (Feeney & Collins, 2015). Synthesis of the
387 results from these studies show social support for PA was offered in times of facing adversity.
388 For example, when participants empathized with one another about similar experiences (e.g.,
389 surgery, injury), they were able to help others cope with adversity and enable thriving.

390 The ideas of thriving through full participation and giving back to others align with Rowe
391 and Kahn's (1997) theory of successful aging. Instead of focusing on managing or minimizing
392 decline in function, this theory suggests engagement in PA and social contacts enhance health,
393 psychological adjustment, and wellbeing among older adults. As such, participating in PA can
394 provide meaning for older adults by enabling them to act as role models for each other and
395 younger generations. Additionally, motivation for PA is also impacted by the desire to maintain
396 function in order to be able to fulfil meaningful social roles and care for others.

397 This literature suggests PA provides the opportunity for older adults to build social
398 networks and friendships which help them navigate life changes (e.g., retirement, loss of a
399 spouse). This evidence suggests PA can provide opportunities for reducing social isolation and

400 enhancing social support and inclusion because it is a meaningful context that brings people
401 together. As PA is associated with further social contacts (Carrapatoso, Cardon, Van Dyck,
402 Carvalho, & Gheysen, 2018), PA groups may be particularly important to older adults at risk of
403 social exclusion and isolation, and decreased social participation (e.g., those who live alone, are
404 over 80 years old, experience physical and/or mental health problems, have a low income;
405 Miller, Simpson, Buckle, & Berger, 2015).

406 A limitation of this meta-study is the challenge of synthesizing results from research
407 using different philosophies and methodologies. Only studies published in English were
408 reviewed, and while some studies translated findings from participants speaking other languages,
409 themes may disproportionately reflect experiences of older adults in English-speaking countries.
410 Ethnicity, newcomer status, and language were not a focus of these studies, and the majority of
411 participants identified as Caucasian. Further research involving more diverse participants is
412 needed to develop a broader understanding of social support and PA. More research is needed to
413 explore social connectors and/or social barriers to PA faced by older adults in populations at
414 increased risk for social isolation. Using longitudinal qualitative methods could provide further
415 insight into the evolution of relationships and support. Furthermore, future studies could be
416 designed to examine and more clearly delineate supportive behaviors that may be effective from
417 different sources, at different points in time, and to clarify the effects of providing social support.

418 While many studies identified perceived social barriers to PA, less is known about how to
419 support overcoming these barriers. The use of social support theory in the design of interventions
420 could provide insight into ways supportive behaviors could facilitate overcoming social barriers
421 for older adults in the context of PA, while longitudinal research with diverse populations from a
422 variety of PA contexts could be particularly useful in exploring how supportive behaviors over

423 time may foster inclusion and engagement, and reduce barriers to participation. While this
424 literature provides insight into ways social support influences older adults' experiences with PA,
425 more can be done to understand how specific supports from specific sources influence
426 experiences with PA among older adults. This could be used by policy makers, communities, and
427 health care providers to more effectively design programs for and inform older adults in order to
428 help facilitate more involvement in and positive experiences with PA.

429 **References**

- 430 *Arkkukangas, M., Sundler, A., Söderlund, A., Eriksson, S., & Johansson, A. (2017). Older
431 persons' experiences of a home-based exercise program with behavioral change
432 support. *Physiotherapy Theory and Practice, 33*, 905-913.
433 doi:10.1080/09593985.2017.1359869
- 434 Baker, J., Meisner, B. A., Logan, A.J., Kungl, A.M., & Weir, P. (2009). Physical activity and
435 successful aging in Canadian older adults. *Journal of Aging and Physical Activity, 17*,
436 223-225. doi:10.1123/japa.17.2.223
- 437 *Barnett, I., Guell, C., & Ogilvie, D. How do couples influence each other's physical activity
438 behaviours in retirement? An exploratory qualitative study. *BMC Public Health, 13*,
439 1197. doi:10.1186/1471-2458-13-1197
- 440 *Bergland, A., Fougner, M., Lund, A., & Debesay, J. (2018). Ageing and exercise: Building
441 body capital in old age. *European Review of Aging and Physical Activity, 15*, 7.
442 doi:10.1186/s11556-018-0195-9
- 443 *Bidonde, M., Goodwin, D.L., & Drinkwater, D.T. (2009). Older women's experiences of a
444 fitness program: The importance of social networks. *Journal of Applied Sport*
445 *Psychology, 21*, S86-S101. doi:10.1080/10413200802595963
- 446 Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in*
447 *Psychology, 3*, 77-101. doi:10.1191/1478088706qp063oa
- 448 *Bredland, E.L., Soderstrom, S., & Vik, K. (2018). Challenges and motivators to physical
449 activity faced by retired men when ageing: A qualitative study. *BMC Public Health, 18*,
450 1-9. doi:10.1186/s12889-018-5517-3
- 451 Canetto, S.S., Kaminski, P.L., & Felicio, D.M. (1995). Typical and optimal aging in women and

- 452 men: is there a double standard? *International Journal on Aging and Human*
453 *Development*, 40, 187–207. doi:10.2190/rx0u-t56b-1g0f-266u
- 454 Carrapatoso, S., Cardon, G., Van Dyck, D., Carvalho, J., & Gheysen, F. (2018). Walking as a
455 mediator of the relationship of social support with vitality and psychological distress in
456 older adults. *Journal of Aging and Physical Activity*, 26, 430-437. doi:10.1123/japa.2017-
457 0030
- 458 *Carrapatoso, S., Silva, P., Purakom, A., Novais, C., Colaco, P., & Carvalho, J. (2017). The
459 experience of older adults in a walking program at individual, interpersonal, and
460 environmental levels. *Activities, Adaptation & Aging*, 41, 72-
461 86. doi:10.1080/01924788.2016.1272393
- 462 Caspersen, C.J., Powell, K.E., & Christenson, G.M. (1985). Physical activity, exercise, and
463 physical fitness: Definitions and distinctions for health-related research. *Public Health*
464 *Reports*, 100, 126-131.
- 465 *Chiang, K.C., Seman, L., Belza, B., & Tsai, J.H. "It is our exercise family": Experiences of
466 ethnic older adults in a group-based exercise program. *Preventing Chronic Disease*, 5.
- 467 Cohen, S. (2004). Social relationships and health. *American Psychologist*, 59, 676-684.
- 468 *Dionigi, R. (2007) Resistance training and older adults' beliefs about psychological benefits:
469 The importance of self-efficacy and social interaction. *Journal of Sport & Exercise*
470 *Psychology*, 29, 723-746. doi:10.1123/jsep.29.6.723
- 471 Douglas, H.B., Georgiou, A., & Westbrook, J. (2017). Social participation as an indicator of
472 successful aging: An overview of concepts and their associations with health. *Australian*
473 *Health Review*, 41, 455-462. doi:10.1071/AH16038
- 474 *Duncan, H., Travis, S., & Mcauley, W. (1995). The meaning of and motivation for mall

- 475 walking among older adults. *Activities, Adaptation & Aging*, 19, 37-
- 476 52. doi:10.1300/J016v19n01_03
- 477 *Dunlop, W.L., & Beauchamp, M.R. Birds of a feather stay active together: A case study of an
- 478 all-male older adult exercise program. *Journal of Aging & Physical Activity*, 21, 222-
- 479 232. doi:10.1123/japa.21.2.222
- 480 Feeney, B., & Collins, N. (2015). A new look at social support: A theoretical perspective on
- 481 thriving through relationships. *Personality and Social Psychology Review*, 19, 113-147.
- 482 doi:10.1177/1088868314544222
- 483 *Franke, T., Tong, C., Ashe, M. C., McKay, H., Sims-Gould, J., & Walk The Talk Team, T. The
- 484 secrets of highly active older adults. *Journal of Aging Studies*, 27, 398-
- 485 409. doi:10.1016/j.jaging.2013.09.003
- 486 Garside R. Should we appraise the quality of qualitative research reports for systematic reviews,
- 487 and if so, how? *Innovation*. 27, 67-79. doi:10.1080/13511610.2013.777270
- 488 *Grant, G., Pollard, N., Allmark, P., Machaczek, K., & Ramcharan, P. (2017). The social
- 489 relations of a health walk group: an ethnographic study. *Qualitative Health Research*, 27,
- 490 1701-1712. doi:10.1177/1049732317703633
- 491 *Haber, D., & Rhodes, D. (2004). Health contract with sedentary older adults. *The*
- 492 *Gerontologist*, 44, 827-835. doi:10.1093/geront/44.6.827
- 493 *Halaweh, H., Svantesson, U., & Willén, C. (2016). Experiences of habitual physical activity in
- 494 maintaining roles and functioning among older adults: A qualitative study. *Rehabilitation*
- 495 *Research and Practice*. 1-8. doi: 10.1155/2016/1459597
- 496 *Kelley, K., Little, S., Lee, J.S., Birendra, K. C., & Henderson, K. (2014). Articulating meanings
- 497 of positive adjustment to aging through physical activity participation among older

- 498 adults. *Journal of Park & Recreation Administration*, 32, 63-79.
- 499 Kikuchi, H., Inoue, S., Fukushima, N., Takamiya, T., Odagiri, Y., Ohya, Y.,...& Owen, N.
500 (2017). Social participation among older adults not engaged in full- or part-time work is
501 associated with more physical activity and less sedentary time. *Geriatrics & Gerontology*
502 *International*, 17, 1921-1927. doi:10.1111/ggi.12995
- 503 *Killingback, C., Tsofliou, F., & Clark, C. Older people's adherence to community-based group
504 exercise programmes: A multiple-case study. *BMC Public Health*, 17, 1-12.
505 doi:115. 10.1186/s12889-017-4049-6
- 506 *Kim, J., Yamada, N., Heo, J., & Han, A. (2014). Health benefits of serious involvement in
507 leisure activities among older Korean adults. *International Journal of Qualitative Studies*
508 *on Health and Well-being*, 9, 1-9. doi:10.3402/qhw.v9.24616
- 509 *Kluge, M.A., Tang, A., Glick, L., LeCompte, M., & Willis, B. (2012). Let's keep moving: A
510 dance movement class for older women recently relocated to a continuing care retirement
511 community (CCRC). *Arts & Health*, 4, 4-15. doi:10.1080/17533015.2010.551717
- 512 *Komatsu, H., Yagasaki, K., Saito, Y., & Oguma, Y. Regular group exercise contributes to
513 balanced health in older adults in Japan: A qualitative study. *BMC Geriatrics*, 17, 190.
514 doi:10.1186/s12877-017-0584-3
- 515 *Kullgren, J., Harkins, K., Bellamy, S., Gonzales, A., Tao, Y., Zhu, J.,...Prohaska, T. (2014). A
516 mixed-methods randomized controlled trial of financial incentives and peer networks to
517 promote walking among older adults. *Health Education & Behavior*, 41, 43S-50S.
518 doi:10.1177/1090198114540464
- 519 Levasseur, M., Gnnreux, M., Bruneau, J., Vanasse, A., Chabot, E., Beaulac, C., & Bndard, M.
520 (2015). Importance of proximity to resources, social support, transportation and

- 521 neighborhood security for mobility and social participation in older adults: Results from a
522 scoping study. *BMC Public Health*, *15*. doi:10.1186/s12889-015-1824-0
- 523 Lindsay Smith, G., Banting, L., Eime, R., O'Sullivan, G., & Van Uffelen, J. (2017). The
524 association between social support and physical activity in older adults: A systematic
525 review. *International Journal Of Behavioral Nutrition And Physical Activity*, *14*, 1-21.
526 doi:10.1186/s12966-017-0509-8
- 527 *Lo, O., Conboy, L., Rukhadze, A., Georgetti, C., Gagnon, M., Manor, B.,... Wayne, P. (2018).
528 In the eyes of those who were randomized: Perceptions of disadvantaged older adults in a
529 tai chi trial. *The Gerontologist*. 1-10. doi:10.1093/geront/gny165
- 530 *López-Benavente, Y.B., Arnau-Sánchez, J.D., Ros-Sánchez, T., Lidón-Cerezuela, M., Serrano-
531 Noguera, A., & Medina-Abellán, M. (2018). Difficulties and motivations for physical
532 exercise in women older than 65 years. A qualitative study. *Revista Latino-Americana De*
533 *Enfermagem*, *26*, 1-10. doi:10.1590/1518-8345.2392.2989
- 534 *Lübcke, A., Martin, C., & Hellström, K. (2012). Older adults' perceptions of exercising in a
535 senior gym. *Activities, Adaptation & Aging*, *36*, 131-146.
536 doi:10.1080/01924788.2012.673157
- 537 McAuley, E., Blissmer, B., Marquez, D., Jerome, G., Kramer, A., & Katula, J. (2000). Social
538 relations, physical activity, and well-being in older adults. *Preventive Medicine*, *31*, 608-
539 617. doi:10.1006/pmed.2000.0740
- 540 Miller, A., Simpson, B., Buckle, L., & Berger, S. (2015). *Social inclusion of vulnerable seniors:*
541 *A review of the literature on best and promising practices in working with seniors.*
542 Calgary, AB: Constellation Consulting Group.
- 543 Moher, D., Liberati, A., Tetzlaff, J., & Altman, D.G. (2009). Preferred reporting items for

- 544 systematic reviews and meta-analyses: The PRISMA statement. *Journal of Clinical*
545 *Epidemiology*, 62, 1006-1012. doi:10.1016/j.jclinepi.2009.06.005
- 546 *Nadasen, K. (2008). "life without line dancing and the other activities would be too dreadful to
547 imagine": An increase in social activity for older women. *Journal of Women & Aging*, 20,
548 329-342. doi:10.1080/08952840801985060
- 549 Paterson, B.L., Thorne, S.E., Canam, C., & Jillings, C. (2001). Meta-study of qualitative health
550 research: A practical guide to meta-analysis and meta-synthesis. Thousand Oaks, CA:
551 Sage.
- 552 Rowe, J.W., & Kahn, R.L. (1997). Successful aging. *The Gerontologist*, 37, 433-440.
553 doi:10.1093/geront/37.4.433 9279031.
- 554 *Sims-Gould, J., Ahn, R., Li, N., Ottoni, C., Mackey, D., & Mckay, H. (2018). "The social side
555 is as important as the physical side": Older men's experiences of physical activity.
556 *American Journal of Men's Health*, 12, 2173-2182. doi:10.1177/1557988318802691
- 557 Sparkes, A., & Smith, B. (2009). Judging the quality of qualitative inquiry: Criteriology and
558 relativism in action. *Psychology of Sport & Exercise*, 10, 491-497.
559 doi:10.1016/j.psychsport.2009.02.006
- 560 *Stathi, A., Mckenna, J., & Fox, K. (2010). Processes associated with participation and
561 adherence to a 12-month exercise programme for adults aged 70 and older. *Journal of*
562 *Health Psychology*, 15, 838-847. doi:10.1177/1359105309357090
- 563 Statistics Canada. (2012). *Living arrangements of seniors: Families, households and marital*
564 *status. Structural type of dwelling and collectives, 2011 census of population.*
- 565 Uehara, E. S. (1995). Reciprocity reconsidered: Gouldner's "moral norm of reciprocity" and
566 social support. *Journal of Social and Personal Relationships*, 12, 483-502.

- 567 *Victor, C.R., Rogers, A., Woodcock, A., Beighton, C., Cook, D.G., Kerry, S.M.,...Harris, T.J.
568 (2016). What factors support older people to increase their physical activity levels? An
569 exploratory analysis of the experiences of PACE-Lift trial participants. *Archives of*
570 *Gerontology and Geriatrics*, 67, 1-6. doi:10.1016/j.archger.2016.06.006
- 571 Walsh D, & Downe S. (2005). Meta-synthesis method for qualitative research: A literature
572 review. *Journal of Advanced Nursing*, 50, 204-211. doi:10.1111/j.1365-
573 2648.2005.03380.x
- 574 *Wikman, J., Nistrup, A., Vorup, J., Pedersen, M., Melchor, P., Bangsbo, J., & Pfister, G.
575 (2017). The effect of floorball training on health status, psychological health and social
576 capital in older men. *AIMS Public Health*, 4, 364-382.
577 doi:10.3934/publichealth.2017.4.364
- 578 *Wilson, K., & Spink, K. (2006). Exploring older adults' social influences for physical activity.
579 *Activities, Adaptation & Aging*, 30, 47-60. doi:10.1300/J016v30n03_03
- 580 *Wong, J.D., Son, J.S., West, S.T., Naar, J.J., & Liechty, T. (2019). A life course examination of
581 women's team sport participation in late adulthood. *Journal of Aging and Physical*
582 *Activity*, 27, 73-82. doi:10.1123/japa.2017-0193
- 583 *Woube, A. (2018). Racing against age? Gender, age, and body among senior participants in
584 women-only sports races. *Society and Leisure*, 41, 297-310.
585 doi:10.1080/07053436.2018.1482672

Table 1

Characteristics of included studies

No.	Study, Location	Aim	Sample	PA intervention/ program	Design, Methodology, Philosophy	Data Collection Method(s)	Theoretical Framework
1	Arkkukangas (2017) Sweden	Describe older persons' experiences of a fall-preventive, home-based exercise program with support for behavioral change.	7F, 5M; age 75-86; 75% living alone, 25% married	Intervention arm of RCT; home-based, physiotherapist guided ~30 min 3x/wk strength, balance, and endurance exercises with suggested walking	cross-sectional; inductive content analysis; constructivist	Semi-structured interview 3 months post-intervention	NR
2	Barnett (2013) UK	Explore and describe how cohabitating partners influence each others' PA behavior.	7 heterosexual couples (7M, 7F); age 63-70; married; 2-6 yrs post-retirement	N/A	cross-sectional; qualitative description	45-60 min semi-structured dyadic interview	NR
3	Bergland (2018) Norway	Explore why older home dwelling women over the age of 70 years or more spend time in physical exercise and their experiences about the importance of participating in group exercise for their daily life.	16F; $M_{age}=74.8$; 62.5% living alone	1-2x/wk 60 min group moderate intensity aerobic, resistance, balance and stretching exercise	cross-sectional; inductive content analysis; interpretative	60 min semi-structured interview	Cultural capital theory and successful aging theory used in analysis

4	Bidonde (2009) Canada	Explore the meaning of a group fitness program to older women.	9F; $M_{age}=75$; Caucasian; unmarried; living alone	Ongoing participation in 60 min 2x/wk, group aerobic, resistance, and stretching activities	longitudinal; hermeneutic phenomenological instrumental case study; interpretive	2 60 min semi-structured interviews, participant-generated photographs, fieldnotes	Weiss' theoretical framework on social support used for data interpretation
5	Bredland (2018) Norway	Provide new knowledge about challenges and motivators encountered by retired men in maintaining PA when aging.	9M; age 66-83; 44.4% living alone	N/A	cross-sectional; systemic text condensation; constructivist	Focus group ($n=6$); diaries of daily activities kept for 1 wk	Newell's theory of constraints used in analysis
6	Carrapatoso (2017) Portugal	Analyze the experience of participating in a walking program at individual, interpersonal, and environmental levels... to identify appropriate strategies and preferences of aged adults.	16F, 3M; $M_{age}=67.4$; 68% married; 100% retired (10F, 2M participated in qualitative portion)	10 months, 40-60 min 3x/wk, walking, structured group, community-based	cross-sectional; mixed methods, framework approach, content analysis	Semi-structured interview after 10 months of attending program	Intervention based on ecological model
7	Chiang (2008) USA	Examine how physical environment, social environment, and individual biology and behavior influence adherence to exercise for ethnic older adults participating in an	44F, 8M; $M_{age}=76$; 40% Chinese, 35% African American, 19% White, 6% Japanese	Ongoing participation in 1 hr group balance, strength, and aerobic training 3x/week ($M_{attendance}=2x/week$), community-based	cross-sectional; content analysis	70 min focus group $M=44$ months after beginning the program	Ecologic model guided analysis

		evidence-based community exercise program for older adults.					
8	Dionigi (2007) Australia	Determine the perceived psychological benefits and explore the mechanisms underlying the link between exercise and psychological wellbeing for a group of older adults.	6F, 4M; age 65-72; Caucasian; 60% married, 40% living alone	12 wks, 2x/wk individual supervised aerobic and resistance training	longitudinal; inductive and deductive thematic analysis; interpretive	3 45-120 min semi- structured interviews (2 dyadic), 1 wk pre-, 1 month after commencing , and 1 wk post- intervention, fieldnotes from observations	Self-efficacy theory used for deductive analysis
9	Duncan (1995) USA	Give community dwelling older adults who were currently engaged in regular PA (mall walking) an opportunity to describe their experiences.	9M, 5F; age 61-81; Caucasian; 93% married	Unstructured group mall walking, ~30 min $\geq 3x/wk$, for ≥ 3 months	cross-sectional; grounded theory, case study; symbolic interactionist	Participant observation, ~60 min semi- structured telephone interview	NR
10	Dunlop & Beauchamp (2013) Canada	Report the results of a case study of a group- based exercise program for older adult men that had facilitated a high degree of program adherence...and to identify appealing	19M; <i>Mean</i> Age=77.1; majority Caucasian	Ongoing, 50-60 mins $\geq 1x/wk$, group aerobic and resistance training program, community-based	cross-sectional; content analysis, case study; social constructionist	40 min semi- structured interview	NR

		elements of the program.					
11	Franke (2013) Canada	Examine key factors that facilitate PA in highly active community-dwelling older adults.	5M, 5F; age 66-88; 5.88% single, 94.1% married, widowed, separated, or divorced; low income	N/A	cross-sectional; framework analysis	60-90 min interviews	NR
12	Grant (2017) UK	See how the social relations of group walks, together with the dispositions and embodied practices to which these give rise, are informed by different social capital perspectives.	13F, 6M; age 58-89; 68.4% married; 31.6% living alone; 84.2% had health condition or disability	Volunteer led walking group 1x/wk	longitudinal; ethnography	Participant observation; interviews	Theories of therapeutic landscape, therapeutic mobilities, and social capital used in interpretation of data
13	Haber (2004) USA	Health educators used health contracts with sedentary older adults for the purpose of increasing exercise or PA.	20F, 5M; $M_{age}=72$; 48% married	PA behavior change counseling by health educator	cross-sectional; mixed methods	Structured interview at 1-month	Social cognitive theory used to develop intervention
14	Halaweh (2016) West Bank (Palestine)	Explore the experiences of habitual PA in maintaining roles and functioning in community dwelling older adult Palestinians who were 60 years old and older.	10F, 7M; $M_{age}=72.7$; 59% married, 41% living alone	N/A	cross-sectional; narrative; interpretive	60-120 min interview	NR

15	Kelley (2014) USA	Examine the meanings associated with PA participation by older adults in North Carolina Senior Games state finals.	4F, 2M; age 56-70; 50% retired	Participation in the senior games state finals	cross-sectional; grounded theory; symbolic interactionist	Photo elicitation; 40-70 min semi structured-interview within 2 weeks of the games	NR
16	Killingback (2017) UK	Understand how and why older people (≥ 60 years) have sustained long-term adherence ($\geq 69.1\%$ for ≥ 1 year) to three community-based group exercise programs	22F, 5M; age ≥ 60 ; 70% married	Ongoing; 1 hr aerobic, strength, and flexibility exercises	cross-sectional; inductive thematic analysis, case study	6-8 weeks participant observation; focus groups; review of program documents	NR
17	Kim (2014) South Korea	Capture the benefits of serious involvement in leisure activities among older Korean adults.	7F, 3M; $M_{age}=71$; 100% Korean	Participating in a sport club for multiple years ($M=15$ years)	cross-sectional; descriptive qualitative analysis, constant comparative method	50-90 min semi-structured interview	NR
18	Kluge (2012) USA	Understand benefits derived from being involved in a dance movement therapy class for women who had recently relocated to a continuing care retirement community.	9F; age 78-92; living in continuing care retirement communities	5 wk group dance/movement therapy, 45 min 1-2x/wk	cross-sectional; phenomenological case method	Observation of dance class (fieldnotes, video), focus group at 5 wks	Health as expanding consciousness and creative causality used for interpretation of data

19	Komatsu (2017) Japan	Explored the experiences of older adults participating in regular group exercise, which was part of a community-wide intervention, and investigated their perception of the physical, mental, and social changes they underwent as a result of regular group exercise.	15F, 11M; <i>Age</i> =74.69; 19% living alone	Ongoing community-based group low intensity exercise program, 1-3x/wk	cross-sectional; constructivist grounded theory	60-80 min focus group	NR
20	Kullgren (2014) USA	Test whether financial incentives and peer networks delivered through eHealth technologies increase walking among older adults and gain preliminary insights into the effects of these strategies through online messages posted by participants.	31F, 16M; <i>Age</i> =71.9; 93% Caucasian	2 social intervention arms of RCT; 16 wk individual walking intervention; online message boards	cross-sectional; mixed methods, exploratory content analysis	Messages posted to online message boards	NR
21	Lo (2018) USA	Explore the perceived physical, psychological, social, and economic factors that influenced participation in and adherence to a year-long Tai Chi intervention within an ongoing	26F, 10M; <i>Age</i> =78.3; 83% Caucasian; living in subsidized housing	Intervention arm of RCT; Tai Chi group classes 2x/wk for 1 yr with interim video reinforcement	cross-sectional; grounded theory, thematic analysis	60 min focus groups for intervention participants (<i>n</i> =30); 5 min phone interviews for those	NR

		cluster-randomized controlled trial for older adults living within subsidized housing facilities.				who attended <50% of sessions (<i>n</i> =7)	
22	Lopez-Benavente (2018) Spain	Identify and understand the difficulties and motivations for the practice of PE in women over 65, in a neighbourhood health clinic, taking into account personal experiences, idiosyncrasies of health, family, and sociocultural context.	15F; age 65-82	N/A	cross-sectional; phenomenological theory	Focus groups; follow-up interviews with <i>n</i> =5 who had <150 min/wk of PA	NR
23	Lübcke (2012) Sweden	Investigate what factors influenced older people to start exercising in a senior gym, opinions about exercising in a senior gym, and what factors motivated them to continue to exercise.	5F, 3M; <i>Age</i> =73.5	Ongoing unstructured individual community-based resistance training, gym open 4 days/wk	cross-sectional; content analysis	20-45 min interviews	Transtheoretical model and social cognitive theory informed analysis
24	Nadasen (2008) South Africa	Investigate whether line dancing leads to an increase in social activity.	30F; <i>Age</i> =69.6; 50% Caucasian; 67% married, 33% living alone	Ongoing community-based line dancing class, 1x/wk, observed for 12 months	longitudinal; grounded theory; constructivist	Participant observation; interview or focus group	NR

25	Sims-Gould (2018) Canada	Provide insight into whether and how self-efficacy and masculinity underpin older men's experience with mobility and PA.	14M; <i>M_{age}</i> =75; 57% married; 64% European; 35.7% living alone	12 wk intervention, choice-based PA and active transportation	cross-sectional; photovoice; symbolic interactionism	Photographs and log book to describe meaning of photos; interviews	NR
26	Stathi (2010) UK	Investigated the processes associated with the engagement of older adults aged 70 years and older in a 12-month research-based structured exercise program and continued PA following its termination.	14F, 7M; <i>M_{age}</i> =75.8	12 month aerobic, resistance, and balance training, 60-80 min group class 2x/wk, 40-60 min individual home-based 1x/week,	cross-sectional; interpretive qualitative analysis, case study	30-50 min semi-structured interviews, immediately or 8 months post-intervention	NR
27	Victor (2016) UK	Explored why potential participants in a walking intervention declined to participate in an RCT. Explored the factors that supported the increase and maintenance of PA long-term following the three-month intervention.	18F, 12M; <i>M_{age}</i> =68; married; 73% retired	3 months 30-45 min individual walking sessions wearing pedometers and accelerometers and PA consultations with a practice nurse	cross-sectional; qualitative content analysis	20-30 min phone interviews at 12-month follow-up	NR
28	Wikman (2017) Denmark	To gain insight into the men's subjective experiences of participating in floorball training.	21M; <i>M_{age}</i> =69.9	Floorball arm of RCT; played floorball 60 min 2x/wk	cross-sectional; generic qualitative, mixed methods	Fieldnotes from participant observation of floorball sessions; 16-	Social capital used for developing interview guide and in analysis

						56 min semi-structured interviews	
29	Wilson & Spink (2006) Canada	Use older adults as active agents to identify the different types of social influences for PA that may be salient for this population.	14F, 1M; age ~60-90; married or widowed	N/A; participants active in exercise classes/clubs	cross-sectional; generic qualitative	~1 hr focus group	NR
30	Wong (2019) USA	Further the understanding of older women's participation in competitive team sports, specifically softball, by utilizing the life course perspective.	64F; $M_{age}=69.3$; 52.4% married; 95% non-Hispanic white	Participants on softball teams for women age >55 or >65 recruited from a senior games association	cross-sectional; generic qualitative	55-75 min focus group	Life course theory used for developing interview guide and in analysis
31	Woube (2018) Sweden	Examine senior women's experiences of the athletic aging physical body...and the relation of their experiences to discourses about aging female bodies and their training in preparation for women-only races and during the course of the race, as well as the significance of this for the participants of the study.	32F; age 65-79	Participants in women's-only races	cross-sectional; ethnography; discourse theory, post-structuralism, and feminism	Written accounts ($n=24$); websites, mass media; interviews ($n=6$); participant observations at women-only races	NR

Table 2

Summary of categories and themes from results of included studies

Category/ Theme	Description	Studies	Provider	Sample Quotation
Supportive Behaviors				
Making it fun	Laughing, being lighthearted, easy-going, and positive	7, 8, 9, 12, 15, 16, 18, 19, 21, 22, 24	PE, IN	<i>I have fun. We have fun. I think we have fun. There's always a little laugh...(21, pp.6)</i>
Being present	Doing PA with them	9, 12, 14, 16, 17, 26, 27, 29	PE, SP, FA, FR, OT	<i>I think it was a very helpful thing that we were able to go together,...and also to be active together, because we are generally umm...we are generally doing most things together...And therefore one would drag the other along, or not, as the case may be! (27, pp.4)</i>
Accountability	Providing reminders for PA and letting them know they were missed	6, 13, 16, 27, 29	PE, IN, SP, FR	<i>My friend called me when he was supposed to and made sure that I was progressing toward my goal. (13)</i>
Emotional support	Demonstrating care and empathy; showing concern for feelings	1, 7, 10, 12, 13, 16, 20, 26	PE, IN, FA, FR	<i>And if you're feeling down or whatever or if you joined as a new member, perhaps you'd been recently widowed or something, it would get you through that, it would give you two or three hours where you could be, you know, somebody else and you would forget things. (12, pp.1705)</i>
Modelling PA	Inspired to be active by seeing others engage in PA	2, 8, 9, 10, 15, 18, 23, 24, 25, 26, 29, 31	PE, IN, SP, FA, FR, OT	<i>...a lady being 85, turning 86, she was here doing some quite hard exercises. I thought it looked like there was hope! (23, pp.140)</i>
Informational support	Sharing knowledge and advice	1, 7, 9, 10, 12, 16, 18, 20, 23, 26, 27	IN, HCP	<i>...the meetings with the physiotherapist were considered good opportunities to ask questions or obtain help if the participants were uncertain about the exercise. 'Good, I mean just getting a program but no chance to, well, talk—</i>

Individualized feedback and instruction	Paying attention to each participant and providing recommendations based on ability	1, 7, 10, 16, 26, 27	IN, HCP	<i>that would have been empty because you have questions too, that come up...'</i> (1, pp.909) <i>She isn't hard-driving and doesn't expect more. She isn't bouncy but meets you at about your level.</i> (1, pp.909)
Welcoming	Reaching out to newcomers; programs structured without partners perceived as inviting	4, 8, 12, 19, 24	PE, OT	<i>I know a girl that lost her husband almost a year ago, and she was alone, and that was the only outing she had so we made an effort to ask her to go and have coffee.</i> (4, pp.S95)
Verbal encouragement	Vocalizing suggestions, praise, and reminders to be active	2, 3, 6, 8, 13, 15, 17, 20, 24, 26, 27, 29, 30	PE, IN, SP, FA, FR, HCP	<i>My children really love it when I go to competitions. They say thing like 'Mom, did you really go to that competition?'" and "If someone taped the event, we need to watch it.' They actually called people who taped the event and, somehow, downloaded the videos to their computers and then told me, 'Mom, you are so cool!' They really love it. I was a little embarrassed the first time, but, since my children like what I do, I think I'm not as shy about it as I used to be.</i> (17, pp.5)
Hugging	Physical contact/touch	12, 15	PE, FA	<i>For some people the hugs may not mean a lot but for other people it's just a very special thing...I am one of the huggers, so if they win a medal, they get a great big hug... I look forward to that. It's just a lot of fun.</i> (15, pp.73)
Tangible support	Providing services (e.g. doing housework, giving rides to class)	2, 7, 17	PE, FA	<i>My children, every time I get tired and want to stop and lay off, 'no you go on.' They drive me here.</i> (7, pp.4)
Providing support for others	Showing concern and reaching out when others are absent and motivating others to be active	5, 7, 14, 16, 17, 21, 24, 30	PE, FA, OT	<i>...participants expressed a feeling of duty to the other members of the class to show up, the sentiment that they were all in the program together and that to not show up would be a disservice to the whole group. One participant</i>

noted, 'With the other people in the group, you feel if you don't show up, you're letting them down.'(21, pp.6)

Social Networks, Connection, and Relationships			
Social contact with others	Contact with other people; connections sometimes extended beyond PA	2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 19, 22, 23, 24, 25, 26, 28, 30, 31	<i>You need your own generation to talk to... It's an opportunity to meet people my own age and to socialize with them. (4, pp.S94)</i>
Opportunity to get out	PA programs provide a place to go outside the house	3, 4, 7, 8, 9, 16, 19	<i>I live alone and as long as I belong to the exercise class, that is something to make me get up and get dressed and get out. (7, pp. 4)</i>
Opportunity to build relationships	Meeting people and spending time with them	11, 12, 16, 17, 19, 22, 23, 24, 26, 28	<i>I hope this will continue...So that we can keep coming here. It is so nice for us as well. We meet here and then, after working out, we take a walk to X [the other senior gym visitors residence]. We chat on the way there and then we go for a coffee. (23, pp.137)</i>
Connection	Feeling safe, comfortable, belonging	3, 12, 16, 17, 18, 19, 23, 24, 25, 28, 31	<i>...I feel more comfortable exercising with people who are like me and who don't know much more about exercise than I do. (23, pp.139)</i>
Friendship	Close dyadic relationships	12, 17, 18, 19, 22, 24	<i>Sandy (79) stated that when her husband died, the support of her line dancing friends and her participation in the other activities saved her from becoming severely depressed. (24, pp. 337)</i>
Social Barriers to PA			
Isolation	Living alone, retirement, shifting roles	4, 7, 9, 12, 14, 16, 24	<i>The respondents found that depression and loneliness were not uncommon following retirement. As one walker discovered, "When you're out working you meet a lot of people. When you stay at home all of the time you get kind of depressed."</i> (9, pp.43)
Social role limitations	Imposition of societal norms related to gender	2, 5, 6, 8, 9, 10, 13, 22, 23, 24, 26, 30, 31	<i>The participants also reported that social criticism was raised by some people in the city to the walking group, namely to women, to whom they said: 'Don't you have</i>

Intimidated	and age questioning the appropriateness of PA Trepidation about interacting with others they do not know, overcrowded spaces, feeling incompetent compared to others	9, 23, 28	<i>anything better to do? You should be at home making lunch!'</i> (6, pp.80) <i>We start from scratch all together(...). There is none of us who are world champions in this game, because there is no one who has played much before. Whereas, if you come in a football club, then there is always somebody who is better than others...(Steen, 69). (30, pp.373)</i>
Ineffective communication	Gossip; miscommunication about what another person values	2, 9, 27	<i>Some of the walkers had very little tolerance for the gossipy utilization of the grapevine. One walker bluntly pointed out, "Nosey, a little bit, you might call it. You know a lot of people's got a tendency to kind of want to know about other people's things."(9, pp.46)</i>

Note: PA=physical activity, PE=exercise[program/intervention]peer, IN=instructor, SP=spouse, FA=family, FR=friend, HCP=health care provider, OT=others