**Supplementary Material**

**Appendix 1: Literature on Exercise Instructors (Mixed Ages)**

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| **Study** | **Focus** | **Design** | **Findings** |
| Beauchamp, Welch, & Hulley (2007) | Leadership:  Transformation & Transactional | Quantitative  Modified Multifactor Leadership Questionnaire (MLQ) of a structured 10-week exercise program (174 females; M age=25.36, SD = 8.48) | Correlation between feedback through contingent rewards and perceived capabilities of novice exercisers. |
| Bray, Gyurcsik, Culos-Reed, Dawson, & Martin (2001) | Exercise Instructor Efficacy | Quantitative  10-week group exercise intervention N=124 females (M age = 20.6, SD = 2.2) 94 experienced exercisers and 33 newcomers  Multiple questionnaires regarding self-efficacy and measures of attendance. | Self-efficacy was associated with instructor’s communication, teaching, and motivational abilities. |
| Brehm (2004) | Motivational Skills | Book chapter providing an overview of motivational techniques exercise instructors can employ. | Themes include: fun, safety, social cohesion, professional competence, and leadership. |
| Caperchione, Mummery & Duncan (2011) | Leadership:  Leader Behaviour and Social Cohesion | Quantitative  Physical Activity Group Environment Questionnaire (PAGE-Q) of existing walking group (95 females; M age = 42.9, SD = 13.9) | Correlation between social group cohesion and leadership. |
| Carron, Hausenblas, & Mack (1996) | Social Determinants of Exercise | Meta-analysis | Nine studies on exercise instructors included with an effect size of .31 with exercise adherence. |
| Carron & Spink (1993) | Social Cohesion | Quantitative  Randomized controlled trial (3x/week for 13 weeks) and Group Environment Questionnaire (GEQ) (17 females; M age = 20±) | Team building activities, based on a conceptual model, as an intervention resulted in more enjoyment and social group cohesion than in the control group. |
| Christensen, Schmidt, Budtz-Jørgensen, & Avlund, (2006) | Social Cohesion | Multi-method  32-week exercise intervention  Survey (N = 180)  18 interviews using grounded theory method | Group composition, instructor teaching ability, and the exercise activity affect the formation of social group cohesion, resulting to mutual support and participant self-efficacy |
| Forsyth, Handcock, Rose, & Jenkins (2005) | Instructor Knowledge | Qualitative  Interviews (n = 10; 4 male/6 female) in New Zealand  Inductive Analysis | Instructor certification is a vital requirement for quality assurance. |
| Izumi et al. (2015) | Leadership Style and Group Dynamics | Quantitative  Randomized controlled trial (32-week walking group). 603 racially and ethic diverse participants (M age = 47.5; 90% females)  Physical Activity Group Environment Questionnaire (PAGE-Q) | Leader behaviours correlated with attendance. Social group cohesion correlated with adherence. |
| Loughead & Carron (2004) | Preferred Leadership Style; Social Cohesion | Quantitative  Longitudinal (10-12 weeks; sessions 1-2x/week) Scale of Quality in Fitness Services (SQFS); Physical Activity Group Environment Questionnaire (PAGE-Q); Client Satisfaction and Repurchase Intention Scale (CSRIS)  90 females (M age = 40, SD = 11.09) | Instructor behaviour may not directly impact participant enjoyment, but may do so indirectly by affecting the relationship between social cohesion and enjoyment. |
| Loughead, Patterson, & Carron (2008) | Leadership, Social Cohesion, and Enjoyment | Quantitative  Cross-Sectional (8-12 weeks, 1-2x/week) N = 151 (76% females) (M age = 35.21, SD = 10.8)  Surveys: Scale of Quality in Fitness Services (SQFS); (PAGE-Q); Physical Activity Affect Scale (PAAS) | Social cohesion may be a means by which instructor behaviour affects participant enjoyment. Instructor use of team building activities may help improve social cohesion and participant enjoyment. |
| Lox, Martin & Petruzzello (2003) | Social Influences | Book Chapter: Reviews literature pertaining to leadership and instructors as role models. | Suggests that instructors have a strong social influence. |
| Markula (2004) | Embodied Knowledge and Exercise | Book Chapter: Influence of fitness knowledge on self-perceptions. | Need for critical investigation on the instructor’s educative role in perpetuating fitness practices that objectify the body. |
| Markula & Chikinda (2016) | Instructor Certification | Qualitative  Semi-structured interviews with 5 instructors (purposeful sampling of University recreation instructors possessing 2+ years’ experience and provincially governed fitness certification)  Foucauldian / poststructuralist interview analysis | Influence of instructor’s training on class delivery, in the context of health versus appearance orientation. |
| McAuley & Jacobson (1991) | Instructor Influence | Quantitative  Pre & Post-Test of psychosocial and biometric variables: Self-motivation Inventory (SMI), self-efficacy scale 8-week, 2x/week (N = 58 female, formerly sedentary, M age = 39) | Instructor behaviour had an influence on exercise adherence. |
| Oldridge (1977) | Instructor and Adherence; Characteristics of Good Exercise Programs | Commentary discussing the important relationship between physician and exercise instructor, the latter of whom should be competent in constructing a personalized exercise intervention to meet the health needs of the exerciser. | Acronym for good exercise programs V (variety) A (aerobic ) R (relaxing and recreative) I (individualized) A (attitude) T (therapeutic) I (isotonic) O (objective testing) N (noncompetitive and fun) |
| Remers, Widmeyer, Williams, & Myers (1995) | Leadership Style, Social Cohesion, and Class Size | Quantitative  Survey of existing group exercise classes for university credit that met 2-x/week for 11 weeks.  (N = 256 university students in medium (N =18-26) or large (N =70-90)  Group Environment Questionnaire | Participants in larger classes reported more social cohesion and enjoyment, as well as demonstrated better attendance and greater perceived exertion. |
| Taylor & Johnson (2008) | Adherence and Safety | Book chapter: topics include determinants of exercise participation, safety and competence, and strategies to increase adherence. | Recommends exercise instructors of older adults be trained in senior fitness instruction. |
| Wininger (2002) | Leadership and Environment | Quantitative  Survey of (N = 296 females, M age = 21.89, SD = 3.52) University fitness centre attendees.  Physical Activity Enjoyment Scale (PACES) | Enjoyment correlated to group social cohesion and instructor’s personal fitness, communication skills, enthusiasm and fitness knowledge. |

**Appendix 2: Literature on Exercise Instructors for Older Adults**

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| **Study** | **Focus** | **Design** | **Findings** |
| Beauchamp et al. (2018) | Adherence: Self-Categorization Theory | 3-arm RCT testing group and instructor demographics (similar age & gender, similar age mixed gender, and mixed age & gender) on adherence | Greater adherence when instructor was similar age. |
| Beaudreau (2006) | Exercise Adherence | Qualitative | Informants expressed appreciation that the instructor showed interest in the exercisers, was patient and motivating, had appropriate expectations, and was knowledgeable about older adult physical limitations and learning styles. |
| Copelton (2010) | Motivation & adherence | Qualitative  Interviews and observations of a hospital-based walking group for older adults. | Leaders were most valued “steps;” older exercisers most valued socialization. |
| Costello, Kafchinshi, Vrazel, & Sullivan, (2011). | Barriers and Motivators to Older Adult Physical Activity | Qualitative  Purposive sampling within a Continuum of Care Retirement Community (N = 30; 47% female; M age = 80)  Focus Groups | Finding stressed the importance of purposeful activity, social, and fun. Inactive individual felt intimated by the fitness environments; worried about slowing down group exercise classes. |
| Ecclestone & Jones (2004) | Curriculum Guidelines for Exercise Instructors of Older Adults | Aim of the guidelines are to “1) ensure safe, effective, and accessible physical activity/fitness programs for older adults; 2) develop competent physical activity instructors of older adults; 3) provide more consistency among instructor training programs preparing physical activity instructors of older adults; 4) inform administrator, physical activity instructors and others about the minimum guidelines recommended by the profession when recruiting physical activity instructors of older adults, 5) clarify the definition and role of a physical activity instructor for older adults; and 6) establish a level of expertise needed to help protect instructors and other facility staff from litigation” (p. 468) | Recommended training modules are: 1) Overview of physical activity and aging; 2) psycho, socio-cultural, and physiological components of physical activity (to ensure effective and safe exercise interventions); 3) using tools for screening and assessing older exercise clients in order to establish goals; 4) designing and managing programs based on client goals; 5) designing exercise interventions for older clients with medical diagnoses that are considered stable; 6) skills in teaching; 7) skills in communication, leadership, and marketing; 8) safety; and 9) professional codes of conduct and ethics. |
| Estabrooks et al. (2004) | Instructor Characteristics | Qualitative  23 older adults (M age = 78.5, SD = 8, 15 female / 8 male)  Interviews to gain insight on the characteristics older adults prefer in exercise instructors. | Important exercise instructor characteristics, from the perspective of older adults, were: competence, individualized / tailored programming and social cohesion. |
| Fisken, Keogh, Waters & Hing (2015) | Determinants & Barriers to (Aqua) Exercise (Adherence & Attendance) | Qualitative  3 Focus groups (n = 15 regular aqua exercise participants with Osteoarthritis; 1 male/14 females; M age = 72.4, SD = 5.5)  Inductive analysis | Social interaction as a primary motivation. Instructor can be either motivator or barrier, depending on how well they foster social cohesion and enjoyment, as well as how competent and organized they are. |
| Franklin (1988) | Determinants of Adherence | Book chapter  Aims to provide practical educational ideas, as well as stress the importance of motivation, certification, and social cohesion. | Posits that education should be part of exercise programming. Recognizes that education is under emphasized in exercise settings. |
| Gillett et al. (1993) | Nurses as Instructors | Preliminary findings and observations of a nurse-led exercise intervention for 16 weeks using identifiable role models, nurses between 50-60 years of age who were described as “nonathletic”  248 females (M age = 57, SD = 6.2) | Adherence rates = 88%. Social cohesion reported. Participants expressed appreciation for relatable instructor. Follow-up: participants indicated an inability to identify “exercise programs that were tailored to their age and fitness level or that took into consideration their individual health needs” (p. 137) |
| Hawley, Skelton, Campbell, & Todd (2012) | Training’s Effect on Instructor Attitudes | Quantitative  Survey of 731 certified exercise instructors of older adults (UK) (91% female; M age = 51.5, SD = 13.2)  Attitudes to Falls-Related Interventions Scales; social-influence scale; and research specific. | Some gerontological training, experience, and professional background were associated with positive attitudes towards older adults. |
| Hawley-Hague et al. (2014) | Instructor, Group and Individual Factors on Adherence and Attendance | Quantitative  Longitudinal  Questionnaires & attendance records 3 & 6 months into the intervention; Attitudes to Falls-Related Interventions Scales; Physical Activity Group Environment Questionnaire (PAGE-Q), Index of Multiple Deprivations  16 instructors (14 female, M age = 54.5, SD = 12.6, range 29-75), 26 classes, 193 older exercisers (175 female, M age = 76.1, SD = 7.8, range 60-100) | Individual factors found to influence attendance / adherence: attitudes, social group cohesion, mental health / well-being, stability of housing, and years of education. Instructor influences: age, gender, motivational training, experience, and personality (conscientious traits associated with greater attendance, extraversion, agreeableness, experience, and intelligence with lower attendance rates). |
| Hawley-Hague, Horne, Skelton, & Todd (2016) | Instructor Perspectives on Older Adult Adherence | Qualitative  Interviews (19 instructors purposively selected for variation in sex, age, training, work setting, background, and experience. 16 female / 3 male, M age = 56.3, range 23-78, all White, experience from 1 – 30 years) | Barriers: (uptake) identity, autonomy, cost, and venue (adherence) expectations and social influences.  Solutions: (uptake) more choice/control, personalization, and social support (adherence) encouragement, social cohesion, and emphasizing outcomes. |
| Howley & Franks (2003) | Leadership and Older Adult Fitness | Book: Chapter 14 is devoted to exercise instruction. Makes practice recommendations for exercise instructors and outlines physiological age-related changes. | Indicates the importance of educational skills, but does neither identifies nor describes them. |
| Kluge & Savis (2001) | Social, Emotional, and Mental Factors Instructors Should Consider in Older Adult Exercise | Best Practice article | Individualized programming. Identifies participant learning style as an important part of the screening process, as well as how language and assumptions on the part of the instructor may (inadvertently) lead to ageism. |
| Layne et al. (2008) | Peer Instructors | Quantitative  Longitudinal (Instructors N = 244; peers n=149, professionals n=95) | Authors concluded that peer instructors were appropriate in delivering an evidence-based exercise intervention. |
| Loughead, Colman, & Carron (2001) | Leadership, Social Cohesion, and Adherence | Quantitative  Cross-Sectional Survey: Physical Activity Group Environment Questionnaire; Leadership scale, attendance & perceived exertion.  117 older adults (91 female; 26 male M age = 66.8, range 51-84 years) from 8 exercise classes (meeting 1-2x/weekly) | Instructor motivation, enthusiasm and availability affect group social cohesion, which impacts adherence and perceived exertion. Instructors can create social cohesion around the task (exercise), thus making exercise more appealing, to improve adherence. |
| Manson, Tamim, & Baker (2017) | Determinants & Barriers to (Tai Chi) Exercise | 16-week program  6 semi-structured focus groups (n = 87, 53 female / 34 male; aged 50+ low-income, ethnically diverse Canadians)  Hierarchical Content Analysis | Socialization and appropriate leadership were two of 6 themes (other 4: physical and mental health, time, program pairing, and accessibility). Instructors should be likeable/relatable, be good communicators, and foster social cohesion, as well as empathize with an aging body. |
| McPhate et al. (2016) | Older Adult’s Expressed Preferences for Exercise Programming | Qualitative framework approach to identify perceived preferences  2-wave cross-sectional survey of community-dwelling residents of Victoria, Australia aged 70+  N = 97 (M age = 77.67, SD = 5.61; 26% male, 71% female) | Older adults preferred individually tailored programs and reported short-term preferences [social cohesion, enjoyment and instructor qualities (being kind, charismatic, supportive, and competent)] more frequently than long-term benefits (falls prevention). |
| Mehra et al., (2016) | Older Adult’s Expressed Preferences for Exercise Programming | Qualitative  Purposive sample (N = 30, all female)  Focus Groups | Instructor competence as a determinant to group exercise participation. Older exercisers valued fun and social cohesion. |
| Miyawaki, Belza, Kohn, & Petrescu-Prahova (2016) | Peer-Instruction; Social Cohesion | Qualitative  Semi-structured, phone interviews (20 participants, 17 instructors, and 15 staff of Enhance®Fitness exercise programs in YMCAs)  Thematic content analysis | Instructors as program champions empathize with older exercisers and are: caring; motivational; passionate about both the program and working with older adults. Participants as informal assistants, and some eventually peer instructors, who engender social cohesion and serve as intermediaries to welcome newcomers. |
| Olsen, Telenius, Engedal, & Bergland (2015) | Self-Efficacy, Social Cohesion, and Instructor Inter-personal Skills | Qualitative  Semi-structured interviews (N = 8 with mild-moderate dementia living in a nursing home)  following a 10-week high-intensity functional exercise, pilot conducted by a physiotherapist. | One of the theme from this study revealed the importance of social cohesion. Importance of instructor exercise and gerontological competence, as well as inter-personal skills |
| Paulson (2005) | Fitness Culture | Qualitative  Comparative ethnographic observations and interviews of an older adult fitness class and dance class. | The instructor and type of physical activity construct a culture of fitness that affects the subjective experience of exercise. |
| Poole (2001) | Discourses of Health and Body Management | Qualitative  In-depth interviews of 17 female exercise instructors aged 52-73 who instruct older adult fitness classes | Instructors believed that enjoyment and social cohesion were key to adherence and as peers, they were able to identify with their exercise clients. |
| Robinson, Masud, & Hawley-Hague (2016) | Chair-Based Exercise | Qualitative  Qualitative responses to a cross-sectional survey N = 223 instructors (age 22-90; 87% women)  Framework and thematic analysis and Delphi consensus | Instructors expressed that chair-based exercise was appropriate for those with physical limitation, but is used as an inappropriate intervention for older adults without physical limitations. |
| Seguin et al. (2010) | Determinants of Strength Training Adherence in Older Women | Quantitative  Cross-section survey: personal characteristics, programming and instructor variables.  Convenience sample (N = 557 age 40+) of exercisers meeting 2x/week for 12 weeks | Adherence correlated positively with age, life course, self-reported health, nutrition and other health behaviors, instructor experience and participation in sports. |
| Stolee, Zaza, & Schuehlein (2012) | Peer Instructors | Mixed Method  Pre & post surveys, functional tests, & interviews of 22 participants in a 12-week exercise program. | Peer instructor were found to be motivating, fun, and a key social component of the exercise intervention. |
| Taylor & Pescatello (2016) | Older Exerciser Enjoyment | Review of another published work | Enjoyment derived from social cohesion, novelty of intervention, and perceived community-connectedness. Competent instructors as determinant of enjoyment. |
| Tulle & Dorrer (2012) | Older Adult Interaction with Younger Exercise Instructors | Qualitative  Purposeful sample from a University gym, (N = 15, aged 55-83; N=7, 5 female) and 3 instructors (N=3, 2 female, aged 32-40).  Life history interviews, observations, and a focus group. | Instructors viewed fitness as a means to physical improvement, thus devaluing the older exercisers’ social and health maintenance goals, and discounting older adults’ self-perceived capabilities of the older exercisers. |
| Vseteckova et al. (2018) | Barriers & facilitators of adherence | Systematic Review of literature focused on group-exercise for institutionalized persons with dementia. | Engaging and knowledgeable instructor processing strong communication skills improves adherence. |
| Waters, Hale, Robertson, Hale & Herbison (2011) | Peer Instructor | Quantitative  Quasi-experimental older adult fall prevention (N = 118, M age = 75.5 years)  Battery of functional assessments, falls diaries, and participation survey at 6 and 12 months post. | Peer-facilitated groups performed either at par or significantly better than professionally-led groups. |
| Werner, Teufel, & Brown (2014) | Peer Instructor | Quantitative  Pre & post-survey of a 20-week, community exercise intervention (N = 432; 88.4% female; M age = 75, SD = 9.1) | The use of peer instructors is effective and reduces program costs. |
| Yan, Wilber, Aguirre, & Trejo (2009) | Program Efficacy (Exercise and Support Group) | Quantitative  Quasi-experiment (intervention versus wait-list)  Pre & post-tests  Community-dwelling, sedentary, individuals aged 50+ N = 208 (M age = 73, 82% female) | The intervention switched from paid instructors to peer-instructors based on feedback indicating that the professionals “did not understand and share [the older adult’s] daily challenges” (p. 848). |
| Yardley et al. (2006) | Older Adult Perspectives on Exercise for Falls-Prevention | Qualitative  Framework analysis  Semi-structured interviews of community-dwelling older adults from 6 European countries (N = 69; 50 female, 19 male) age 68-97) | Instructors were identified as a source of support. Importance of competence, helpfulness, and friendliness identified, along with being challenging yet offering modifications based on age and ability. |