

*Perspective***How to Recruit and Prevent Attrition in Exercise-Based Intervention Studies: The Challenges of Studying Older Adults**

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Abstract

This methodological reflection highlights the practical challenges encountered when designing and conducting exercise-based research with older adults. The paper draws on experiences from a mixed-methods pilot intervention in southeast Queensland, Australia. Within this paper we discuss issues related to recruitment, retention, and study design in a convenience sample ($n = 20$) of previously sedentary older adults (mean age 66.0, SD 9.33) and a comparison group ($n = 7$). While the intervention used Taekwondo adapted for older populations, this paper does not report outcome findings, but instead explores obstacles to sample representativeness, engagement, and data completion. We describe factors such as age-related health limitations, socio-economic and cultural considerations, and lifestyle-related barriers to participation, and suggest design modifications to better accommodate older adult participants. By providing reflective analysis and practical recommendations, our aim is to inform future research by sharing practice-based insights relevant to exercise interventions in this unique and growing population. We argue for the value of mixed-method approaches, context-aware sampling strategies, and ethical flexibility to better serve research in older cohorts.

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KEYWORDS: older adults; exercise intervention; study design; mixed methods

INTRODUCTION

Globally, physical inactivity remains a leading contributor to chronic disease burden in aging populations. Older adults are particularly affected by conditions such as cardiovascular disease, diabetes, and dementia. Many of which are preventable through regular physical activity [1,2]. The World Health Organisation (WHO) physical activity guidelines [3], recommends that older adults (aged 65 years plus) complete 150 to 300

minutes of moderate-intensity aerobic physical activity weekly, while also minimising sedentary behaviours. However, translating exercise recommendations into real-world interventions suitable for older populations presents complex methodological challenges that are often under-recognised in the literature.

Traditional models of exercise research, which are often based exclusively on interventions, may not fully account for the distinct life contexts, priorities, and constraints experienced by older adults. This paper reflects on the research process undertaken during a 13-week exercise-based intervention that used modified Taekwondo in the Southern Queensland region of Australia. The paper focuses on the barriers and enablers to recruitment and retention, especially those that impact sample representativeness, adherence, and external validity. We aim to guide other researchers planning exercise studies in this age group by offering practical insights into design modifications that may improve feasibility, inclusiveness, and robustness.

METHODOLOGICAL CONTEXT

The insights presented here are based on a study that aimed to investigate changes in well-being and quality of life using established quantitative metrics such as the Short Form 12 (SF-12) [4] and PERMA Profiler [5], and others. These were used alongside qualitative interviews. The primary intervention consisted of a modified Taekwondo program, complemented by a walking comparator group. In both groups, participants attended sessions twice per week for one hour.

While the original study utilised a mixed-methods design, this paper does not present formal outcomes or statistical results. Instead, it focuses on a reflective analysis of the process of conducting exercise research with older adults. Our purpose in this paper is to identify and present logistical, methodological, and ethical challenges encountered during recruitment, engagement, and data collection, and to provide recommendations for future research teams, particularly those with limited available resources, such as student higher degree researchers.

The study aimed to recruit older Australian adults (aged 50+ years) who were previously sedentary (engaging in less than 30 minutes of moderate exercise per week). Inclusion criteria ensured all participants were free of contraindications to exercise and able to partake in light-to-moderate physical activity. The recruitment of participants included flyers promoting the study, which were displayed at community centres and local general practice medical clinics. Participants recruited were aged between 52 and 87 years. Exclusion criteria included regular engagement in vigorous physical activity or unmanaged medical conditions. Despite designing the program to be inclusive and adaptable, a range of participant-related factors influenced who enrolled, who stayed engaged, and whose data could be used in final analyses. These reflections form the core content of this paper.

DESIGNING FOR OLDER ADULTS: MORE THAN JUST CHRONOLOGICAL AGE

Chronological age is very often used as a convenient measure in identifying participant inclusion and exclusion criteria. However, age alone is not an adequate descriptor of physical capability, psychological readiness, or exercise receptivity. This is because definitions of old age vary across cultures, individuals, and over time. A large study by Wettstein et al. [6] involving over 14,000 participants found that perceptions of age shift as individuals assessing the age of others grow older. According to Wettstein, about one year is added to people's perception of what is old for every four years of their own actual age increase. Functional markers, such as VO₂ max or gait speed, may offer more relevant inclusion criteria when designing physical activity studies for older populations [7,8]. This was evident in our study, where there was wide variance in the physical capability of individuals of similar chronological age.

Research teams must also consider how internalised ageism, mobility status, sensory deficits, or socioeconomic disparities may compound and influence perceived capability. In our study, differences in these domains impacted both the screening process and participant engagement. This was despite pre-existing awareness and planning to mitigate these factors.

RECRUITMENT CHALLENGES

Our study employed convenience sampling, which resulted in over-representation of well-educated, health-literate individuals. For example, 90% of our Taekwondo group participants held tertiary degrees, compared with a national average of around 25% for this age group [9]. This discrepancy led us to be concerned about the generalisability of the findings and their applicability to the general population (see Figure 1).

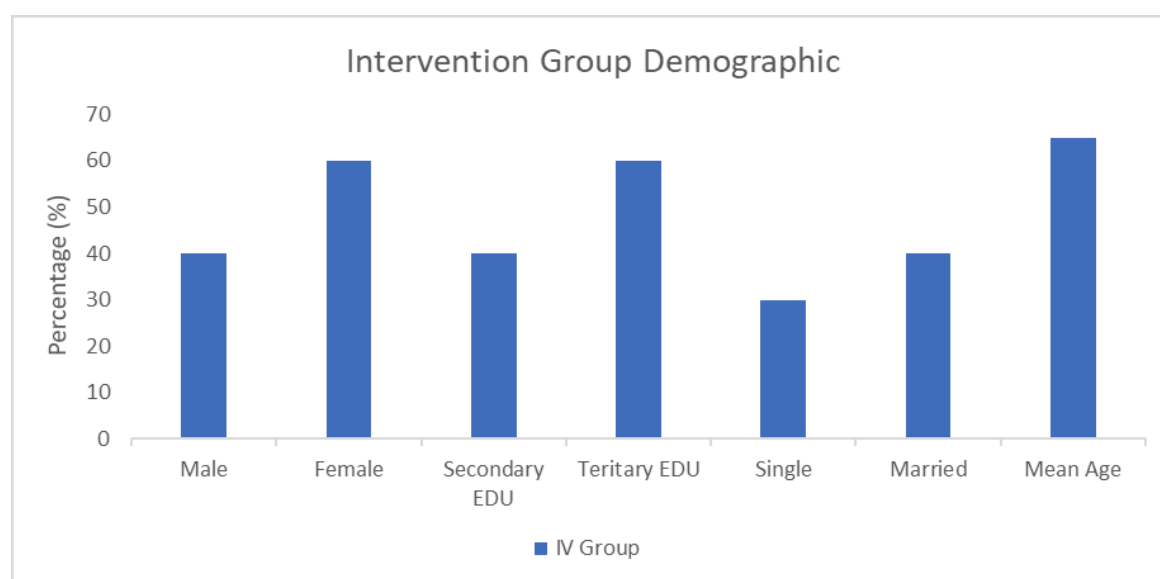


Figure 1. Demographic profile of intervention group participants.

Recruitment and representativeness of the sample were further complicated by cultural beliefs about exercise, medical clearance requirements, and logistical barriers such as transportation. Table 1 outlines barriers we encountered, which were common and the subsequent impact on sampling:

Table 1. Recruiting a representative sample in studies of older adults.

Issue	Effect
Perceived physical limitations	Reduced enrolment
Chronic pain	Lower self-selection/attrition
Ethical medical pre-screening	Stratifies sample
Transport Limitations (one car per couple for e.g.)	Reduced sample size/attendance

In response, we propose the use of purposive and network sampling, partnerships with community organisations, and more inclusive framing of the study purpose to appeal to persons with diverse motivations.

MOTIVATORS FOR PARTICIPATION

Older adults often differ from younger populations in their reasons for initiating exercise. In our study, motivations frequently stemmed from health events, bereavement experiences, or the desire to maintain independence. These drivers align with constructs of the Health Belief Model, which emphasises perceived vulnerability and benefit as determinants of behaviour [10] and has been demonstrated as an effective motivator for population-based health related behaviour change [11,12]. Our experience was that these kinds of motivations were underlying the participation of many participants in both groups. These are different motivators from those generally found in younger persons, which are often based on competition or skill acquisition. Understanding these differences may be very important for implementing successful recruitment strategies in exercise-based research.

The positive relationship between educational attainment, socio-economic status, and levels of physical activity in persons over 50 years of age is well established [13–15]. The participants enrolled in our study supported this trend, with 18 of the 20 individuals (90%) in the martial arts group having a tertiary qualification (Figure 1). This compares to the general population in this age group, reported as between 20 and 25% [9]. Additionally, willingness to engage in exercise may be related to cultural norms. For example: some studies have found a negative correlation with being an Australian-born older adult and participation in exercise. In a 2017 study of over 400 Australians, Australian-born adults were found less likely ($p < 0.01$) to use gym equipment than similarly aged adults who were born overseas [16]. Therefore, both culture and educational attainment may determine an individual's willingness to participate in an exercise-based study. Researchers should be aware of these associations when recruiting in order to maintain sample representativeness.

For many participants, the group experience itself—social connection, structure, and enjoyment—became more important than the health outcome. This shift in motivational focus has implications for both program design and how researchers frame recruitment messaging. Rather than emphasising performance gains or fitness targets, studies targeting older adults may find better engagement through messages promoting vitality, enjoyment, and psychosocial benefit.

RETENTION AND ATTRITION PATTERNS

Retention of participants in our study proved challenging. Despite high initial interest, approximately one-quarter of participants did not complete the study due to bereavement, caregiving demands, planned travel, or psychological stress. In some cases, anxiety and sleep disturbance prevented regular attendance despite a clear wish to participate. Participants also strongly resisted randomisation. Many expressed a strong preference for a specific intervention arm and were unwilling to participate otherwise. This eventually required protocol amendments and increased complexity in group management and was a confounding factor when interpreting results statistically.

The qualitative feedback was very valuable when reporting the statistical findings. Statistical results did identify benefits for those participants in the intervention group; however, due to the attrition rate of participants, the analysis lacked power. The opportunity to report statistical trends and comparisons in the context of themes revealed through qualitative methods of enquiry resulted in the strengthening of the findings. Additionally, the qualitative feedback revealed that unstructured social time, variety in activities, and feelings of accomplishment contributed significantly to retention. Conversely, disruptions to routine and emotional burden often led to withdrawal. We recommend incorporating a mixed-methods design to exercise-based research with older adults, which builds in flexibility (e.g., a 14-week window for a 12-week protocol), dedicated social time, and opportunities for autonomy in session structure.

PRACTICAL IMPLICATIONS FOR RESEARCH DESIGN

From our experience, we recommend the following strategies to improve feasibility and validity:

- Reconsider randomisation protocols: Allowing participant choice may increase engagement. Choosing a study design that allows for participation in both groups longitudinally may address this.
- Screen for life events: During pre-enrolment, identify caregiving duties, bereavement, or upcoming travel.
- Use functional assessments: VO₂ max, balance, or mobility tests such as gait speed may better match participant capacity than age.

- Plan for qualitative insights: Use interviews to explain behavioural patterns and potentially explain phenomena found through quantitative analysis.
- Prioritise social and psychological support: Simple interactions and unstructured time can build rapport and reduce dropout.
- Design the study to account for absence: Consider scheduling a 12-week intervention over a longer period (14 weeks for example) to allow for planned or unplanned absences.

These strategies do not eliminate complexity but offer a more compassionate, participant-informed model of research that aligns with the lived realities of older adults.

CONCLUSIONS

High-quality research on physical activity in older adults is essential for policy, health promotion, and clinical practice. Yet, such research must evolve to reflect the diverse contexts and capabilities of aging populations. By adopting inclusive, adaptable, and ethically sensitive research designs, future studies can better address the challenges of recruitment, retention, and representativeness. Our reflections underscore the importance of methodological flexibility, narrative inquiry, and participant-centred practices in achieving these goals. We encourage others in the field to continue this conversation and share experiences to build a more nuanced understanding of what works in exercise research for older populations.

ETHICAL STATEMENT

Ethics Approval

Not applicable.

DATA AVAILABILITY

No data were generated from the study.

AUTHOR CONTRIBUTIONS

Conceptualization, DS and LDV; Writing—Original Draft Preparation, DS; Writing—Review & Editing, DS, LDV, RL, ZCM.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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