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Research

Eliciting older people's preferences for exercise programs: a best-worst scaling choice experiment

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KEY WORDS

Exercise
Older people
Patient preference
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ABSTRACT

Question: What relative value do older people with a previous fall or mobility-related disability attach to different attributes of exercise? **Design:** Prospective, best-worst scaling study. **Participants:** Two hundred and twenty community-dwelling people, aged 60 years or older, who presented with a previous fall or mobility-related disability. **Methods:** Online or face-to-face questionnaire. **Outcome measures:** Utility values for different exercise attributes and levels. The utility levels were calculated by asking participants to select the attribute that they considered to be the best (ie, they were most likely to want to participate in programs with this attribute) and worst (ie, least likely to want to participate). The attributes included were: *exercise type*; *time spent on exercise per day*; *frequency*; *transport type*; *travel time*; *out-of-pocket costs; reduction in the chance of falling;* and *improvement in the ability to undertake tasks inside and outside of home.* **Results:** The attributes of exercise programs with the highest utility values were: *home-based exercise* and *no need to use transport*, followed by an *improvement of 60% in the ability to do daily tasks at home*, *no costs*, and *decreasing the chances of falling to 0%*. The attributes with the lowest utility were *travel time of 30 minutes or more* and *out-of-pocket costs of AUD50 per session*. **Conclusion:** The type of exercise, travel time and costs are more highly valued by older people than the health benefits. These findings suggest that physical activity engagement strategies need to go beyond education about health benefits and focus on improving accessibility to exercise programs. Exercise that can be undertaken at or close to home without any cost is most likely to be taken up by older people with past falls and/or mobility-related disability. **[Franco MR, Howard K, Sherrington C, Ferreira PH, Rose J, Gomes JL, Ferreira ML (2015) Eliciting older people's preferences for exercise programs: a best-worst scaling choice experiment. *Journal of Physiotherapy* 61: 34–41]**

Introduction

Falls and mobility-related disability among older people can lead to substantial healthcare costs, morbidity and mortality.[1] These important public health concerns are likely to worsen in the near future, as the number of people aged over 65 years is expected to triple in the next 30 years.[2] Evidence shows that appropriately designed exercise programs are effective in the prevention of falls and mobility-related disability amongst community-dwelling older people.[3,4]

The challenge for policy makers and clinicians is to engage older people in both commencing and adhering to exercise programs. Half of the world's older population is considered to be physically inactive.[5] Participation of older people in structured exercise programs in this age group has also been reported to be suboptimal.[6–8] For instance, estimates of adherence to falls prevention programs, derived from systematic reviews, vary from 74% (95% CI 67 to 80) of participants adhering to group exercise intervention[7] to 21% (95% CI 15 to 29) adhering to home exercise interventions.[8] Adherence to exercise programs among older people has been found to be greater among those with: concerns about the interference of falls in social activities,[9] certain intervention content (ie, balance or walking exercise),[8] and two or fewer sessions per week.[7] Although clinicians may use this information when planning exercise programs for this age group, when prescribing an intervention it is also important to take into account patients' preferences in the decision-making process.[10,11] In a patient-centered healthcare system, shared decision making has been shown to increase adherence to healthcare interventions.[11] Evidence from a systematic review of qualitative studies[12] investigating older people's preferences and attitudes towards participation in exercise programs shows that specific attributes of exercise programs, such as costs and transport to exercise venues, are likely to drive their decision about whether or not to engage in those programs, and these are now variables of concern. Nevertheless, studies investigating the relative values that people in this age group actually attach to these different attributes are lacking. Identification of highly valued attributes can help

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clinicians and policy makers to increase participation and adherence to exercise programs.

The best-worst scaling choice experiment (BWS) method is a variation of the widely applied discrete choice experiment methodology.[13–15] The BWS provides more information on relative preferences of attributes with higher statistical efficiency, due to the larger amount of choice data from each respondent.[16] BWS applications and analysis are described in the literature.[17,18] Briefly, in BWS, respondents are presented with one scenario at a time, and are asked to indicate their preference over attribute levels within each scenario, rather than between scenarios, as in the traditional discrete choice experiment. The BWS approach allows respondents to choose the best and the worst features (attribute levels) through a series of hypothetical but plausible choice scenarios. For example, for the attribute *transport to exercise venues*, three levels are presented: *no need to use transport*, *free transport provided* and *no transport provided*. The additional information provided by BWS can be used to evaluate the impact or relative importance of attribute levels, as they are compared on a common scale. This evaluation is not possible when using a traditional discrete choice experiment.[17] Some authors have suggested that the BWS approach imposes less cognitive burden upon respondents than a traditional discrete choice experiment.[19]

The aim of the present study was to explore older people's preferences in relation to the characteristics of exercise programs, and to examine the relative value placed on these particular attributes. To the authors' knowledge, this is the first BWS study conducted in the area of exercise for older people. The findings will therefore assist clinicians and policy makers to improve the acceptability and implementation of different types of exercise programs amongst the older population.

The research question for this study was:

> What is the relative value that older people with a previous fall or mobility-related disability attach to different exercise attributes and levels?

Method

The protocol for the present study has previously been published.[20] The original aim of the study, as described in the protocol, was to undertake a discrete choice experiment to investigate exercise programs designed to prevent falls. Before commencing the study, this aim was expanded to include a BWS of exercise programs designed to minimise falls and mobility-related disability in older adults. The current BWS was conducted with the same sample recruited for the discrete choice experiment. The results of the discrete choice experiment will be reported elsewhere.

Participant eligibility and recruitment

Participants were community-dwelling people, aged 60 years or older, living in Australia, able to comprehend and read English fluently, who were without marked cognitive impairment. To be eligible, participants needed to report either having had a history of falls (ie, experienced at least one fall since the age of 60 years); or a mobility-related disability (ie, self-reported difficulty in climbing a flight of stairs or walk 800 metres without assistance[21,22]). A comprehensive sampling approach was undertaken by: contacting eligible participants from six community groups and retirement villages in the Sydney metropolitan area; newspaper advertisements; and electronic sampling using an online panel of Australian participants (provided via Survey Sampling International). Data collection was conducted both online (for those with internet access) and in person. A web-based survey was developed using Research Electronic Data Capture (REDCap) tools.[23]

Study design

The BWS case 2 (profile case) was used, in which participants are presented with a series of different hypothetical scenarios, one at a time.[19] Respondents were asked to make their choices within each scenario by selecting the attribute that is best (ie, they were most likely to participate in programs with this attribute) and that is worst (ie, least likely to participate), based on the levels presented.

Establishing the attributes and levels

To determine the relevant attributes, an extensive qualitative systematic review was conducted on the experiences and perspectives of older people participating in physical activity (manuscript under review). The views of 5987 participants from 132 studies led to the development of nine attributes: improvement in the ability to undertake daily tasks at home; improvement in the ability to leave the house to undertake tasks or to socialise; exercise type; time spent on exercise per day; reduction in the chances of falling; frequency (times per week); transport type; travel time; and out-of-pocket costs per exercise session. For each attribute, five different levels were selected to include a range of reasonable values, which were either actual or hypothetical. The

Table 1
Attributes and attribute levels.

Attribute	Levels
Improvement in the ability to undertake daily tasks at home (in comparison to no exercise)	No improvement Improvement of 10% Improvement of 30% Improvement of 50% Improvement of 60%
Improvement in the ability to leave the house to undertake tasks or to socialise (in comparison to no exercise)	No improvement Improvement of 10% Improvement of 30% Improvement of 50% Improvement of 60%
Exercise type	Exercise at your home, including balance and strength training Exercise away from home, including balance and strength training Exercise in a group, including balance and strength training Tai Chi in a group setting Yoga in a group setting
Time spent on exercise	10 minutes per day 30 minutes per day 60 minutes per day 90 minutes per day 120 minutes per day
Chances of falling (in comparison to an average chance of falling each year of 40%)	0% chance of falling (0 out of 100) 10% chance of falling (10 out of 100) 20% chance of falling (20 out of 100) 30% chance of falling (10 out of 100) 40% chance of falling each year would stay the same (40 out of 100)
Frequency	1 day per week 2 days per week 3 days per week 4 days per week 5 days per week
Transport type	No need to use transport Free transport provided A small transport subsidy provided A moderate transport subsidy provided No transport or subsidy provided
Travel time	Less than 5 minutes About 15 minutes About 30 minutes About 45 minutes About 60 minutes
Out-of-pocket costs	Free of charge $5 per session $15 per session $50 per session $100 per session