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Progressive resistance plus balance training for older Australians receiving in-home care services: cost-effectiveness analyses alongside the muscling up against disability stepped-wedge randomized control trial.

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2020

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ABSTRACT

In this paper we assess the cost-effectiveness of center-based exercise training for older Australians. Participants were recipients of in-home care services and completed 24-weeks of progressive resistance plus balance training. Transport was offered to all participants. A stepped-wedge randomized control trial produced pre, post and follow up outcome and cost data which were used to calculate incremental cost-effectiveness ratios per quality-adjusted life year (QALY) gained. Analyses were conducted from the health provider perspective and from a government perspective. From a health service provider perspective the direct cost of program provision was $303 per person, with transport adding an additional $1,920 per person. The incremental cost-utility ratio of the program relative to usual care was $70,540 per QALY over six months, reducing to $37,816 per QALY over 12 months. The findings suggest that Muscling Up Against Disability offers good value for money within commonly accepted threshold values.

Key words: exercise, cost-utility, effectiveness

INTRODUCTION

Globally the population is ageing, and with increasing age comes decline in functional capacity and a reduced ability to remain living independently. In Australia, projections to the year 2050 suggest that demand for home assistance and residential aged care placement will more than triple (Productivity Commission, 2012). The Australian government Commonwealth Home Support Programme (CHSP) is an initiative that enables adults experiencing the early stages of functional decline to remain in their homes, through access to supported services such as domestic assistance and personal care. While the intention of this service is to facilitate continued independence, in practice, little exercise therapy is provided in this program to promote rehabilitation of physical function (Commonwealth of Australia, 2017).

For adults receiving in-home care services through the CHSP, progressive resistance plus balance training has the potential to improve their physical function, physical capacity and promote independence (Henwood, Riek, & Taaffe, 2008; Liu & Latham, 2011). However a majority of research continues to focus on low intensity activities that do not employ the technique of progressive overload (Muramatsu, Yin, Berbaum, et al., 2017; Muramatsu, Yin, & Lin, 2017; Sherrington, Tiedemann, Fairhall, Close, & Lord, 2011). Further, little attention has been given to overcoming barriers to participation in exercise programs, such as access to transport, or to creating environments conducive to exercise for adults with aged care needs. Cost-effectiveness data for any such exercise programs are scant, making it difficult for organisations to evaluate, select and plan for implementation of a specific intervention.

In this paper we assess the cost-effectiveness of Muscling Up Against Disability, a 24-week progressive resistance plus balance training program delivered twice weekly, as compared to usual care, in older Australians receiving in-home care services through the CHSP. Cost explorations include the provision of transport to and from the study site in order to overcome this particular barrier to participation. Cost savings attributable to decreased health care utilization are also explored in the analyses.

METHODS

Muscling Up Against Disability was a stepped-wedge randomized control trial to assess the effect of a progressive resistance plus balance training exercise intervention on the physical and mental health of 245 older Australians receiving CHSP services. The study was conducted from August 2015 to August 2017 in Brisbane, Australia. Ethics approval for the study was obtained from the University of Queensland Human Research Ethics Committee (approval number #2015000879) and the study registered with the Australian New Zealand Clinical Trials Registry (ACTRN12615001153505). Details of the study protocol have been published (Keogh et al., 2017).

Intervention arm

The intervention was 24 weeks of twice-weekly, evidence-based, progressive resistance plus balance training delivered at a community center in Brisbane, Queensland, Australia. An exercise area within the center was reserved specifically for this study. The program combined resistance exercises with specific balance training. Participants were supervised by accredited exercise physiologists experienced in exercise delivery for older adults with aged care needs.

Sessions included a light five-minute warm-up, generally based around walking, followed by 45 minutes of machine-based resistance training and targeted balance exercises. Resistance exercises were; leg press, leg extension & flexion, leg abduction & adduction, chest press, seated row, abdominal curl. Balance exercise were; box step, tightrope walk, single leg stand and calf raises. Exercise sessions concluded with a five minute cool down incorporating stretching. Resistance exercises were performed on air-pressure driven, computer-integrated HUR equipment (HUR Labs Oy, Tampere, Finland).

Control arm

The intervention effects were compared with usual care plus healthy living seminars. Usual care was chosen as it is the comparator of choice in pragmatic trials. Participants in the usual care group were instructed to continue with their usual activities and to not to take up an exercise regime during the control period. Participants were provided with monthly healthy living sessions of approximately one hour duration consisting of ~30-minute educational seminars and a light morning tea. The rationale for including the seminars in the usual care was as an incentive for continued participation in the study by the control group participants.

Transport

Transport was provided to all participants who requested it to aid in overcoming a primary barrier to exercise attendance for older adults (Franco et al., 2015; Moschny, Platen, Klaaßen-Mielke, Trampisch, & Hinrichs, 2011). Transport was available between home and the study site for assessments, exercise sessions and the healthy living seminars. Transport included door-to-door participant mobility and transfer assistance from drivers. Transport times were entered as recurrent bookings in a fleet management system ensuring that a vehicle would arrive unless the participant rang to cancel transport on any given day (e.g. due to illness).

Participants

Participants were community-dwelling older adults receiving CHSP services. Participants were recruited from the membership database of a Brisbane community and senior citizens' center that offered, among a suite of other services, domestic assistance, personal care, day respite and transport for older adults with government supported aged care packages. A letter was sent to a random selection of the organization's membership who were receiving in-home aged care services. From the membership mail out, 388 individuals returned an expression of interest in the study and 349 were found eligible by telephone interview. These individuals were forwarded a study pack containing the participant information sheet, the consent form, health history questionnaire and balance questionnaire; they were also scheduled to attend the exercise clinic for baseline assessment. Of these, 104 withdrew from the study prior to baseline assessment. The participant's doctor was forwarded a study brief, identifying the individual's intention to participate in the study and requesting they contact the research manager if they had any concerns. Assessments were conducted in the same exercise clinic in which the training occurred. Following the baseline assessment, participants were randomized to immediate exercise or wait-list control at a ratio of 1:2 using block randomization through a sealed envelope selection method. The project employed a modified stepped-wedge randomization to ensure all participants were given the opportunity to benefit from the exercise intervention (see Appendix 1). Eligibility criteria were: (i) over 65 years of age, (ii) community-dwelling, (iii) with an Australian government aged care package, (iv) mobile with or without an aid, (v) able to follow instructions and commit to the study period, and (vi) with no recent history of resistance exercise. Exclusion criteria were: (i) requiring more than one person to assist with transfers, standing and/or mobilising, (ii) medications and/or diseases with contraindications for exercise, (iii) terminal illness or receiving palliative care, (iv) an imminent move to residential care, (v) difficult behaviours and (vi) inability to obtain a doctor's consent to participate. Informed written consent was obtained from participants prior to entering the study.

Costs

All costs are reported in 2016 Australian dollars. The cost of delivering the intervention and usual care were calculated from a health service provider perspective. Intervention direct costs were calculated using the actual cost measured during the trial and included the cost of leasing equipment and personnel time to deliver the intervention. Overhead costs were estimated at 23% of personnel costs, accounting for facility costs and administration personnel. Indirect costs were calculated for transport for those participants who elected to receive it in order to attend the study site. Research-related costs were excluded from analyses as they were not related to the delivery of the intervention and were therefore not relevant to this economic evaluation.

Estimates of health care utilization are derived from an Australian government health sector perspective. Participant use of health care services between baseline and 48 weeks (intervention group) and 72 weeks (control group) was self-reported and collected using daily diaries. Participants recorded (yes or no) on a daily basis whether they visited their general practitioner, visited another medical specialist, went to the emergency department or had an overnight hospital stay. In support of the use of daily diaries, Short et al. (2009) concluded that self-reported healthcare utilization could be relied upon as a proxy for financial outcome measures when the recall required is within one month. Health care costs for emergency department and hospitalizations were derived from the Independent Hospital Pricing Authority report 2016 (Independent Hospital Pricing Authority, 2016) and general practitioner and specialist fees were derived from the Australian Medical Association list of service fees 2016 (Australian Medical Association, 2016).

Outcome measures

The primary outcome measure for the cost-utility analysis was the quality-adjusted life year (QALY). The QALY is a health state preference measure that combines length of life and quality of life measured using a utility weight. Utility weights were calculated from the EuroQol generic health index (EQ-5D-3L) questionnaire using the published Australia-specific algorithm (Viney et al., 2011). The EQ-5D-3L has been shown to be sensitive to change in health status in older populations (Lung et al., 2017; van Leeuwen et al., 2015). The EQ-5D-3L was administered verbally during individual assessments to the control group at baseline; and to both groups pre-exercise, post-exercise and at 24 weeks follow-up (see Appendix 1).

Australian tariff values (Viney et al.) were applied to EQ-5D-3L responses at each time point to provide EQ-5D-3L utility values with mean values subsequently compared across the groups and periods. Overall effectiveness of the intervention was assessed by calculating QALYs gained during the intervention period using the area under the curve method and adjusting for baseline utility scores (Manca, Hawkins, & Sculpher, 2005).

The primary outcome for the cost-effectiveness analysis was the change in score on the short physical performance battery (SPPB). The SPPB was chosen as the outcome measure for the cost-effectiveness analysis as it is a well-validated measure for assessing lower extremity physical function in older adults(Curb et al., 2006; Freire, Guerra, Alvarado, Guralnik, & Zunzunegui, 2012). The SPPB measures balance, gait and lower body muscular strength. The summary score for the SPPB, ranging from zero (worst performance) to 12 (best performance), indicates physical function (Guralnik et al., 1994).

Cost-effectiveness analysis

Cost-effectiveness during the intervention period was assessed by quantifying the incremental cost-effectiveness ratio (ICER; costs per extra QALY gained or extra point on the SPPB). Three scenarios were considered for the cost-utility and cost-effectiveness analyses. Scenario one and two were from the perspective of the health service provider. Scenario one was a six month timeframe consistent with the active intervention period and Scenario two was 12-months including follow-up. For the 12 month analysis, follow up data was available for the intervention group however outcomes for the control group were only measured to six months due to the stepped-wedge design. Hence, control group final values were estimated to 12 months using last observation carried forward. Scenario three is from the perspective of the government health sector with a six-month timeframe and includes health care costs.

As the cost-effectiveness analyses have a short time horizon, costs and health outcomes were not discounted.

Per-protocol and intention to treat approaches were completed for all analyses. Per-protocol analyses included complete cases only, whereas intention to treat analyses incorporated multiple imputation (m=10) using the “mice” package (Buuren & Groothuis-Oudshoorn, 2011) in the R programming language to replace missing data. Imputation models included age, sex, health care resource utilisation, Geriatric Anxiety Index (Pachana et al., 2007) scores and Geriatric Depression Scale (Kurlowicz, 1999) scores. Uncertainty in estimates were quantified using 10,000 bootstrap samples (with replacement) for per-protocol-analyses and 1,000 bootstrap samples (with replacement) for each of the 10 imputed data sets for intention to treat analyses. Both mean and median-based ICERs (Bang & Zhao, 2012) were calculated with scatterplots on the cost-effectiveness plane used to illustrate joint distribution of cost and effectiveness outcomes.

RESULTS

A total of 245 older adults met the eligibility criteria, were enrolled into the study and were randomized into the immediate intervention (n=86) and wait-list control (n=159) groups. Of these, 215 participants (intervention = 86; control = 129) commenced and 30 participants (control = 30) did not commence the exercise program. Of those that commenced the exercise program, 168 participants (intervention = 67; control = 101) finished the program and 47 participants (intervention 19; control = 28) did not finish the program. Participants who completed the exercise intervention attended, on average, 90% of the 48 sessions. Of the 168 participants who completed the exercise intervention, 119 continued to attend exercise sessions at the center at least once a week during the follow up period. Follow up data were available for 129 participants. Further analysis is provided in the online Appendix 2.

The average age at baseline assessment was 78.7 ± 6.4 years and 79% of the participants were female. A total of 41% of participants used aids to mobility (a walking stick or wheelie walker). Participants were predominately older females with multiple morbidities. There were no significant differences between the group who began exercise immediately and the wait-list control group in age (p=.65), mobility aid use (p=1.0), number of medications (p=.95), number of morbidities (p=.97) or EQ-5D-3L score (p=.28). There was a significant difference in SPPB score between the two groups (p=.05). Diaries were completed by 127 out of the 168 participants who completed the exercise intervention and these diary entries were used to inform the health care usage costs. Reasons for non-completion of diaries were vision impairment, low literacy and the burden of completing a daily diary over an extended period of time (48 weeks for those randomized to immediate exercise and 72 weeks for those randomized to be wait-list controls). There were no significant differences in baseline measures of age, medications, morbidities, SPPB score and EQ-5D-3L score between those who did and did not complete diaries.

Outcomes

Health-related quality of life and physical function for the per-protocol and intention to treat analyses are presented in Table 1. There is a significant difference in health-related quality of life utilities scores (derived from the EQ-5D-3L) between groups over the 24-week period; the control group declined slightly (-0.02 in the per-protocol and intention to treat analyses) from baseline to pre-exercise compared to the combined intervention group which improved by 0.06 and 0.05 (per-protocol and intention to treat analyses, respectively) from pre- to post-exercise. Participants in the combined intervention group continued to significantly improve post completion of the program with an average of 0.10 utility score improvement at follow up compared to baseline.

Physical function, as demonstrated by SPPB scores, did not vary in the control group from baseline to pre-exercise (intention to treat analysis) whereas the combined group improved significantly from pre- to post-exercise by 1.5 and 1.2 points (per protocol and intention to treat analyses, respectively).

<insert Table 1 about here>

Costs

Table 2 shows the resource and health care events and costs used in the analyses. High cost items include hospitalisation ($2,024 per overnight hospitalisation) and transport to and from the exercise clinic ($1920 per person requiring transport). The delivery of the Muscling Up Against Disability program comprises a small proportion of the overall costs ($303 per person).

<insert Table 2 about here>

Cost-effectiveness analysis

Incremental cost-effectiveness ratios of the Muscling Up Against Disability program compared with usual care (plus healthy living seminars) are shown in Table 3. Using a willingness to pay for a QALY in Australia of $64,000 (Shiroiwa et al., 2010), the base case (strict within trial of six months) is unlikely to be considered cost-effective. Muscling Up Against Disability is highly likely to be cost-effective when benefits are extrapolated over 12 months (Scenario 2). Cost-effectiveness acceptability curves are presented in Figures 1(a) and 1(b).

Scenario three reduces the base case ICER as health care costs were lower in the intervention group. This improved the ICER to under the $64,000 threshold with a 65% likelihood of being cost-effective at this willingness to pay (Table 3).

<insert Table 3 about here>

<insert Figure 1 about here>

The model is highly sensitive to the number of participants requesting transport. In the base case, approximately half the cohort requested transport. The mean trip distance calculated for these participants was 5 kilometres each way (range 1-14 km; median 5 km) and the average time per trip (including mobility assistance into and out of the vehicle at each end) was estimated at 30 minutes. Without these transport costs, the ICER over six months reduced to under $20,000. If all participants requested transport the ICER is greater than $110,000 (Table 4).

<insert Table 4 about here>

DISCUSSION

This study reports on the cost-effectiveness at six and 12 months of the Muscling Up Against Disability program. The findings suggest that the program offers value for money for health service providers compared with usual care plus healthy living seminars as the ICER is below the commonly accepted WTP threshold in Australian of $64,000 per QALY (Shiroiwa et al., 2010) when the benefits are continued for a 12-month period. The benefits are not as clear when measured only over the six month intervention period. The ICER is primarily driven by transport costs in this study. From a government perspective, the intervention can be considered to be good value for money across its six month delivery period.

Participants improved both on quality of life (EQ-5D-3L increase of 0.10) and physical function (SPPB increase of 1.5). These total improvements over 12 months were more than the minimally clinically significant differences of 0.074 for EQ-5D-3L (Walters & Brazier, 2005) and 0.80 for the SPPB (Kwon et al., 2009). Continuing improvements from post-intervention to follow up can be ascribed to the large percentage of participants who continued to exercise at the center. These improvements came at a program cost of $321 per participant. Simply put, these were large and meaningful changes over 12 months at a modest cost. Program cost for the Muscling Up Against Disability program ($321, excluding transport costs) compares very favorably with both the LIFE study, with an average cost of US$635 (A$864) for six months (Groessl et al., 2016), and Project *ACTIVE* at US$1141 (A$1552) for six months of delivery (Sevick et al., 2000).

For those requesting transport to and from the study site the additional cost was $1,920 per participant. Transport was considered integral to the success of the program. Participants had a high incidence of mobility aid usage, high morbidity count and poor baseline performance on the SPPB which was suggestive of frailty (Guralnik et al., 1994). Without the provision of transport the observed effects may have been reduced as many participants could not have accessed the site independently and participation rates may have been impacted. Although the transport costs were high, the large and meaningful changes reported here would be far less if participants had had the functional capability to transport themselves to the venue.

Limitations

This economic evaluation has several limitations that need to be considered before generalizing these findings. This study was limited to one site in an urban area in Australia. Some of the costs used in the analysis are specific to this site. For example, the cost-effectiveness was highly sensitive to the transport costs used in this analysis. These costs were high due to the nature of the provider fleet service and are unlikely to be consistent with other settings. High costs were attributable to wage expenses for a predominantly paid driver fleet and extra time allocated to each trip to provide mobility assistance at the participant's home and at the exercise clinic. Costs for fleet administration and coordination were included in the overall transport costs. The cost-effectiveness would be considerably better than demonstrated in these findings if less expensive transport options were used. In addition, diary data were not available for all participants who completed the intervention.

Summary

Muscling Up Against Disability, a progressive resistance plus balance training program, has been shown to be both efficacious and cost-effective. It represents a good value proposition for organizations wanting to implement an exercise programs to assist older adults experiencing functional decline requiring in-home care services. Provision of transport is worthy of consideration for its positive impact on participation and organizations may well be able to secure more economical options than the fleet services used in this study. In an effort to improve the cost-effectiveness of future interventions, researchers would do well to investigate alternate scenarios that overcome the expense of providing transport. This could include implementing programs such as Muscling Up Against Disability closer to the target population, in community centers and retirement living complexes.

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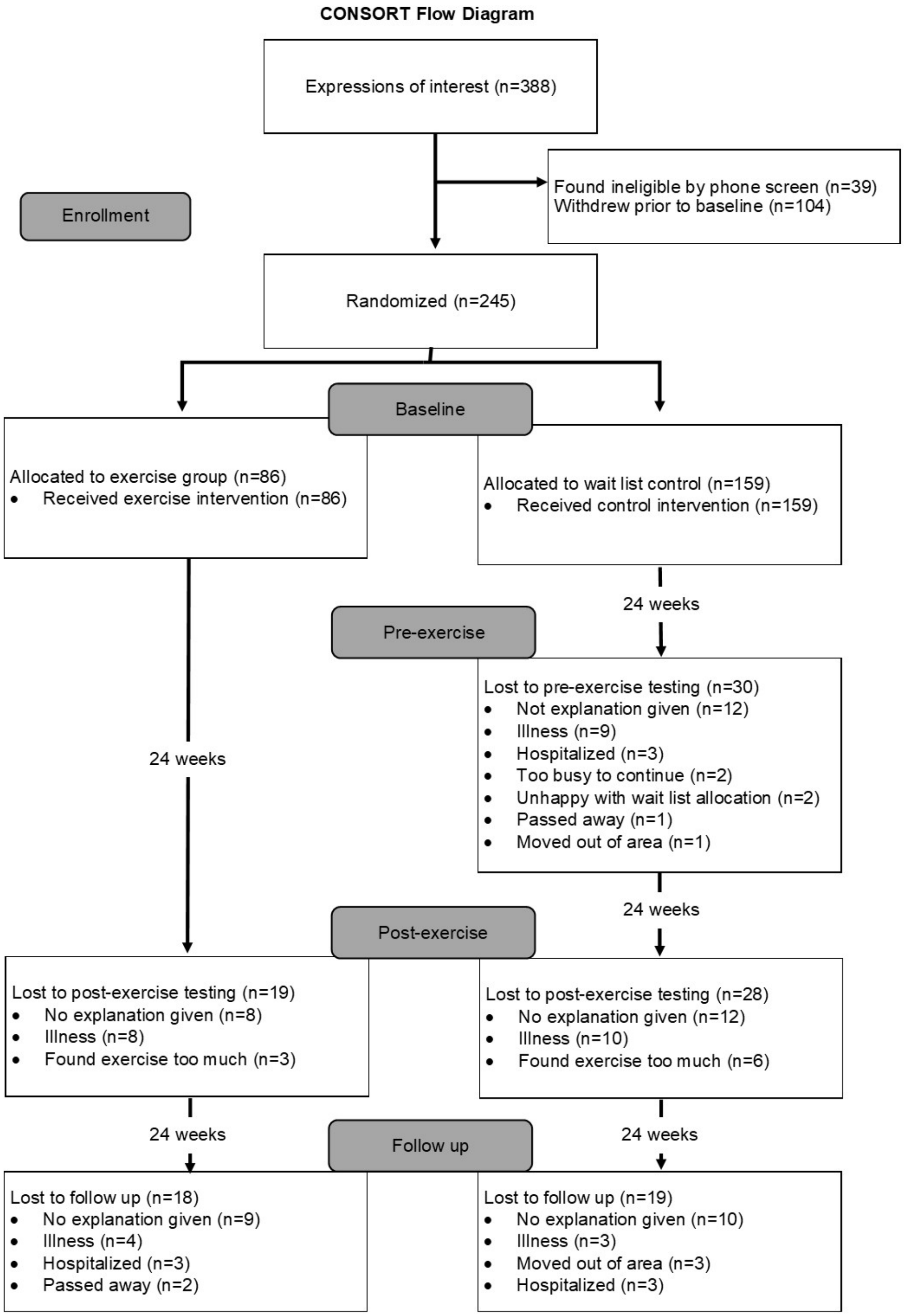
Appendix 1. Consort flow diagram



Appendix 1: Additional analyses

Supplementary Table A: Baseline variables and one-way ANOVA results comparing completion categories.

Measure	**Cohort (245)**		**DNS (30)**		**DNF (47)**		**FIN (168)**		**ANOVA results**		**LSD results**
	M	*(SD)*	*M*	*(SD)*	*M*	*(SD)*	*M*	*(SD)*	*F* value	*p* value	
Age (yrs)	78.7	(6.4)	80.4	(7.1)	79.0	(6.5)	78.3	(6.3)	1.4	.25	
Medications (n)	5.2	(3.2)	5.0	(3.8)	5.7	(3.4)	5.1	(3.1)	0.6	.54	
Morbidities (n)	5.0	(2.8)	4.6	(3.4)	6.1	(2.8)	4.8	(2.6)	4.3	.01	DNF > DNS*, FIN**
SPPB	8.0	(2.8)	6.2	(2.5)	7.0	(3.0)	8.6	(2.5)	15.6	.00	FIN > DNS*, FIN**
EQ-5D	0.78	(0.15)	0.75	(0.14)	0.74	(0.18)	0.79	(0.14)	2.4	.10	

Note. DNS – Did not start; DNF – Did not finish; FIN – Finished; SPPB – Short Physical performance Battery; EQ-5D – EuorQoL 5D

Results from least significant difference (LSD) calculations - *p < .05, **p < .01

Figure 1. Cost-effectiveness acceptability curves for (a) Scenario 1A, and (b) Scenario 2A

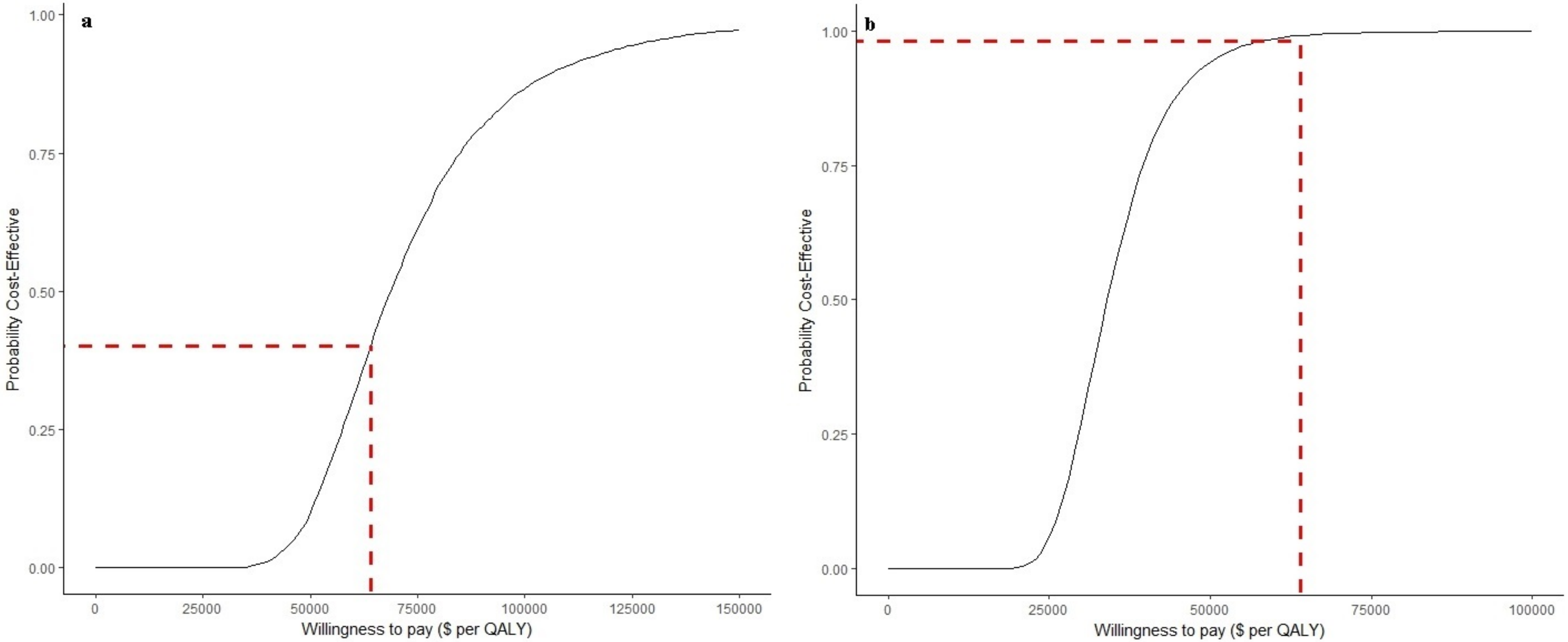


Table 1. Health-related quality of life (EQ-5D-3L) and physical function (SPPB) for per-protocol and intention to treat analyses.

Analysis	**Baseline**	**24-weeks**	**48-weeks**
EQ-5D-3L score			
Control (PP)	0.73±0.16 (159)	0.71±0.19 (128)	
Control (ITT)	0.73±0.16 (159)	0.71±0.19 (159)	
Intervention (PP)	0.73±0.19 (214)	0.79±0.19† (167)	0.83±0.15† (129)
Intervention (ITT)	0.72±0.19 (245)	0.77±0.20† (245)	0.82±0.16†‡ (245)
SPPB score			
Control (PP)	7.7±2.8 (159)	8.0±3.2 (129)	
Control (ITT)	7.7±2.8 (159)	7.7±3.2 (159)	
Intervention (PP)	8.2 ±3.0 (215)	9.7 ±2.8† (168)	10.0 ±2.3† (129)
Intervention (ITT)	8.0±3.0 (245)	9.2±3.0† (245)	9.5±2.6† (245)

Note. Values are expressed mean±SD (N); Baseline refers to the control baseline; Pre-exercise refers to the control pre-exercise and intervention baseline; ITT = intention to treat analysis; MUAD = Muscling Up Against Disability; PP = per-protocol analysis; SPPB = short physical performance battery
† Significantly different from baseline ($p<0.05$)
‡ Significantly different from 24-weeks ($p<0.05$)

Table 2. Costs of resource items and health care use

Item	Intervention	Control	Cost	Source	Included in
Resources (24-weeks):	*N*	*N*	*/ person*		
Exercise intervention	86	159	$245	Trail	All
Healthy living seminars	0	159	$19.12	Trail	All
Overheads*	86	159	$14.69	Trail	All
Equipment**	86	159	$61.57	Trail	All
Transport	50	73	$1,920	Trail	All
Health care use	*N(events)*	*N(events)*	*/ event*		
ED presentation	20 (33)	32 (68)	$531	IHPA[11]	Scenario 3
ED presentation and admission	12 (30)	30 (64)	$955	IHPA[11]	Scenario 3
Overnight hospital stay	19 (48)	42 (180)	$,2024	IHPA[11]	Scenario 3
General practice visit	52 (704)	75 (1451)	$78	AMA [12]	Scenario 3
Other specialist visit	49 (869)	71 (1763)	$166	AMA [12]	Scenario 3

Note. Resource costs are mean costs per person. Health care items are number of participants reporting events (total number of events reported); AMA = Australian medical association; ED = emergency department; IHPA = independent hospital pricing authority; MUAD = Muscling Up Against Disability program

*Overheads included facility costs (power, cleaning) and administration personnel

** Equipment costs were lease expenses for the HUR pneumatic exercise equipment

Table 3. Results of the cost-effectiveness scenarios

Analysis	No.	Intervention	Control	Cost	Effect	ICER	Probability cost-effective*
Scenario 1: Service provider perspective within trial (6 months)							
Cost-utility analysis							
Intention to treat	1A	245	159	$1,082 (1040-1,125)	0.015 (0.012 – 0.019)	$70,540 (57,861 – 89,410)	0.38
Per-protocol	1B	167	128	$1,141 (1061 - 1220)	0.017 (0.013-0.021)	$68,714 (57509 – 84766)	0.40
Cost-effectiveness analysis							
Intention to treat	1C	245	159	$1,082 (1040-1,125)	1.16 (0.97 – 1.35)	$934 (795 – 1121)	N/A
Per-protocol	1D	167	128	$1,141 (1061 - 1220)	1.19 (1.02 – 1.37)	$976 (843 – 1148)	N/A
Scenario 2: Service provider perspective within trial with follow up (12 months)							
Cost-utility analysis							

Intention to treat	2A	245	159	$2,166 (2,079-2,253)	0.057 (0.048 – 0.066)	$37,816 (32,415 – 45,307)	0.95
Per-protocol	2B	129	128	$2,247 (2,131-2,360)	0.066 (0.057 – 0.075)	$34,015 (29,589 – 39,558)	0.99
Cost-effectiveness analysis							
Intention to treat	2C	245	159	$2,166 (2,079-2,253)	1.38 (1.18 – 1.56)	$1,574 (1,375– 1,841)	N/A
Per-protocol	2D	129	128	$2,247 (2,131-2,360)	1.35 (1.17 – 1.52)	$1,668 (1,459 – 1,920)	N/A
Scenario 3: Government health sector perspective with health care costs (6 months)							
Cost-utility analysis							
Per-protocol	3A	124	74	$859 (-419-1,307)	0.018 (0.015 – 0.022)	$47,747 (22,645 – 77,236)	0.65
Cost-effectiveness analysis							

Per-protocol	3B	124	74	$859 (-419-1,307)	1.12 (0.92 – 1.32)	$771 (371 – 1,224)	N/A

Note. *Probability based of a willingness to pay estimated for Australia of $64,000 [22]; Cost-utility analysis outcome was quality adjusted life years (QALYs); Cost-effectiveness analysis outcome was change in short physical performance battery (SPPB) score; CI = confidence interval; ICER = incremental cost-effectiveness ratio; N/A = not applicable

Table 4: Sensitivity analysis

No.	Analysis (ITT)	Intervention	Control	Cost	Effect (95% CI)	ICER	Probability cost-effective*
1AS1	No Travel	245	159	$303†	0.015 (0.012 – 0.019)	$19,780 (16,281 – 24,749)	0.99
1AS2	100% Travel	245	159	$1,823†	0.015 (0.012 – 0.019)	$119,043 (97,988 – 148,949)	0.01

Note. *Probability based of a willingness to pay estimated for Australia of $64,000 [22]; ITT=intention to treat

† does not include cost of healthy living seminars (usual care control intervention)