



Care of Patients with Heart Failure

Motivators and barriers for participation in aquatic and land-based exercise training programs for people with stable heart failure: A mixed methods approach

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ABSTRACT

Background: Aquatic exercise training may be suitable for people with stable heart failure (HF) to engage in physical activity.

Objectives: Acceptability, experiences and preferences regarding aquatic and traditional land-based exercise training, were explored in people with HF.

Methods: As part of a comparative intervention study, participants completed a questionnaire assessing acceptability, benefits and challenges of aquatic compared to land-based programs. Semi-structured interviews explored participant experiences in greater depth.

Results: Forty-eight participants, (mean age 70 +/- 11 years), completed the questionnaire and 14 participated in semi structured interviews. Aquatic exercise was regarded as acceptable and beneficial. Motivators were similar for both programs and included: a skilled and compassionate workforce, tailored care, perceived health benefit, sense of safety and an inclusive and enjoyable environment. Few barriers were identified for either program.

Conclusions: Aquatic and land-based exercise training are equally acceptable for people with stable HF and motivators are similar for both programs.

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Introduction

In people with stable heart failure (HF), regular exercise is associated with improvements in symptoms, exercise capacity, quality of life and clinical outcomes.^{1–4} Despite strong evidence and recommendations, uptake of structured, centre-based exercise training programs and sustained participation in physical activity outside of the health care facility remains poor.^{5,6}

Several factors contribute to poor exercise participation in people with HF. These include poor self-efficacy, presence of co-morbid conditions such as depression and pain, older age, sedentary habits, poor social support and disease severity.^{5,7–9} Socioeconomic variables

such as transport, education and financial constraints, and health system variables such as poor referral systems and resources are also potential barriers.^{6,10,11} Whilst some strategies enhance short term exercise participation, few have successfully demonstrated improvements in the long term.¹² It is possible that alternative modes of exercise training may appeal to a broader population. Aquatic exercise training is one such example.

Aquatic exercise [exercise conducted in thermoneutral water (32–34 °C)], uses the properties of buoyancy and turbulence to both assist and resist movement, thereby making it suitable for individuals of all functional abilities.¹³ It may also prove appealing to those limited by pain or disability or those unaccustomed to equipment such as treadmills and exercise bikes. Whilst studies on aquatic exercise training and HF are limited, existing literature suggests that it is safe and at least as effective as land-based training for improving exercise outcomes.^{14,15} In people who share similar symptoms, such as those with chronic lung disease, this form of exercise has been shown to be

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acceptable.¹⁶ Whether people with HF also perceive this mode of exercise to be acceptable remains unclear.

The specific aims of this study were to describe the motivators and barriers experienced by people with HF participating in aquatic exercise training programs. In so doing, we sought to describe acceptability, expectations, perceived benefits and concepts contributing to participant preference compared to land-based training.

Methods

Design and participants

This mixed methods study was nested within a larger crossover design trial (ACTRN12611000036910), undertaken to investigate the efficacy of aquatic exercise training compared to land-based training in people with stable HF.¹⁷ In brief, participants were recruited from HF services at two large metropolitan hospitals in Brisbane, Australia from 2010 – 2013. Participants were eligible if they had documented evidence of symptoms (dyspnoea, fatigue +/- peripheral oedema), with or without signs of HF, in addition to echocardiographic evidence of reduced ejection fraction (EF < 45%) or HF with preserved ejection fraction (EF > 50% plus objective diastolic dysfunction). For inclusion in the study, participants were also required to have completed a 12 week, land-based exercise training program in the preceding 12 months. Participants were randomised to either six weeks of aquatic or land-based exercise training, after which time they rested for one week prior to crossing over to the alternate program for an additional six weeks.

Training sessions in both programs were conducted weekly for one hour, and included 10 minutes warm up and five minutes cool down, undertaken in the respective training environment. Sessions incorporated a range of individually prescribed upper limb and lower limb endurance and resistance exercises. Where appropriate, balance activities were also included. All exercises were prescribed and progressed by a HF physiotherapist at each site, experienced in land and aquatic exercise training. Exercise intensity was maintained at 9–14 on the rating of perceived exertion scale (RPE 6–20 scale) and programs were also supervised by HF nurses. For the aquatic program, pool temperature was maintained between 33–34 °C and participants exercised in chest deep water. Exercises were replicated as close as possible to those performed on land, and water turbulence and hydrotherapy equipment were used to control exercise resistance and intensity.

Thirty-six participants commenced in the aquatic program and 25 participants in the land-based program. Measures of balance, grip strength, walk speed and six minute walk distance were assessed in the 61 participants at baseline and following completion of each training regime. Results of the main study have been reported previously and showed no significant differences between programs.¹⁷

The current study reports results of a questionnaire provided to all participants following completion of the crossover trial, as well as semi-structured interviews conducted with a selection of program participants and non participants. The study was approved by the Human Research Ethics Committees at the two participating hospitals and Griffith University.

Questionnaire

As there is no validated tool specific to aquatic exercise training in people with HF, a questionnaire was purposefully designed by the research team, and piloted and revised in consultation with four HF patients to ensure ease of comprehension and relevance to the study. Part A of the questionnaire explored participants' experience with the aquatic program and included 13 statements about acceptability, perceived benefits and discomfort, generated from clinical experience

and previous literature from other clinical and non-clinical populations.^{16,18} Part B of the questionnaire comprised eight statements which included four specific to land-based exercise training and four comparing the two programs. A 10-point Likert scale ranging from 1 “not at all true” to 10 “very true” was used to quantify all statement responses. Regardless of the order in which participants undertook the training programs, the entire questionnaire was completed at the final assessment, one week following completion of the crossover trial.

Qualitative evaluation

Participants' perceptions regarding motivators and preferences relating to the aquatic and land-based exercise programs were explored using qualitative methods. Seven participants declined participation in the crossover trial and were invited to contribute to this component of the study. Participants who had completed the aquatic program were sought who were similar in terms of age and gender and from across both training sites to ensure diverse views and differing perspectives were represented.

Staff of the respective HF services invited individuals to participate, within 12 weeks of them completing the intervention study. The lead investigator contacted interested participants via telephone and upon consent, then conducted a single, semi-structured interview of approximately 30 minutes duration at a venue determined by each participant. Support persons were invited to be present if requested. Participants were asked to speak freely about their experiences with land-based and aquatic exercise training, including expectations, perceived benefits and preferences. Comparisons between the two exercise programs were also explored. For the seven participants who declined the intervention trial but consented to semi structured interviews, open discussion about their expectations and perceptions regarding the different forms of exercise was encouraged. These participants were familiar with land-based exercise training, however unaccustomed to aquatic exercise training. Field notes were taken immediately following all interviews.

Descriptive characteristics (age, body mass index, HF aetiology, left ventricular ejection fraction and comorbid conditions) were collected from medical notes, prior to interviews being conducted. Characteristics of participants who did and did not complete the questionnaire were compared using chi-square tests for categorical variables and *t*-tests for continuous variables.

Data analysis

Participant characteristics were summarised using standard descriptive statistics. Questionnaire responses were summarised for each question using median and interquartile range, as they were non-normally distributed.

For the qualitative component of the study, all interviews were audio recorded and transcribed verbatim within one week of the interview. Participants reviewed their respective de-identified transcript for accuracy and approval. Data were analysed using the thematic framework approach described by Braun and Clark¹⁹ and included preliminary familiarisation with the data followed by generation of initial codes. Researchers then moved back and forth between transcripts searching for themes. This was continued until no new themes were identified, and researchers confirmed that data saturation had been achieved. Findings were subsequently reviewed, defined and summarised into major conceptual themes which were then crosschecked with original transcripts.

The researchers employed several steps to ensure trustworthiness of the acquired data. The lead investigator was trained in the interview process by researcher SK, an experienced qualitative researcher, who was also present at the first two interviews. Researcher AM

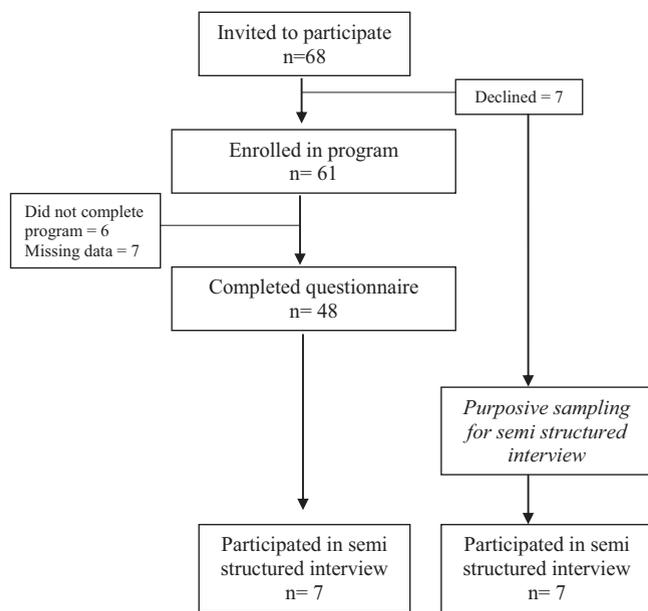


Fig. 1. Flow of participants.

(A 1–7). No individuals declined participation in the interview process. Fig. 1 demonstrates the flow of participants through the study.

As summarised in Table 1, questionnaire participants were predominantly male, had New York Heart Association class II symptoms and had HF with reduced ejection fraction. Mean age was 70 years. Approximately half of participants had HF from ischaemic origin. Baseline characteristics from the 13 participants who did not supply a post program questionnaire did not significantly differ from the study cohort (data not shown). A similar profile was observed for interview participants, however co-existing hypertension was more common in these individuals and atrial fibrillation was more common in those who did not attend the aquatic program.

Questionnaire data

Table 2 reports responses to part A of the questionnaire. Results indicate a high degree of acceptability for the aquatic program, as indicated by a high level of agreement that it was enjoyable, and that participants felt confident and safe. Respondents reported fatigue to be a common symptom, however seldom associated chest pain, breathlessness or dizziness with exercising in the water environment. There was moderate agreement that exercising in the water eased muscle and joint pain, with similar results reported for improving balance. Few barriers to participation were reported.

Table 3 demonstrates median scores for statements pertaining to land-based exercise and comparisons with the aquatic program. Participants rated enjoyment and safety of land-based training very highly, although there was variability in confidence about continuing the exercise outside of the hospital environment. Opinions were evenly divided around preference for the aquatic or land-based program.

Qualitative data

Five major themes emerged as being important motivators for exercise participation and were identical for both aquatic and land-based exercise training programs. Central to all themes was the importance of having a skilled and compassionate workforce. As depicted in Fig. 2, other themes were sense of safety, tailoring care to the individual, inclusiveness and enjoyment, and perceived health benefit.

independently reviewed and coded two transcripts to ensure consistency of coding and generation of themes. All researchers were consulted for final summation of themes to ensure consensus. With the exception of the lead investigator, the research team had non-clinical roles and therefore no association with any participants. Triangulation with questionnaire data was also used to explore consistency of responses.

Results

From the 61 participants in the crossover trial, 48 participants completed the questionnaire and thus contributed data for the survey analysis. Fourteen people participated in semi-structured interviews. This included seven who declined participation in the intervention trial but who consented to the interview (NA 1–7) and seven who completed the aquatic exercise program within the crossover trial

Table 1
Participant characteristics

	Questionnaire participants (n = 48)	Interview participants	
		Attended aquatic program (n = 7)	Did not attend aquatic program (n = 7)
Age, mean (SD)	70 (11)	70 (11)	74 (6)
Male gender, n (%)	39 (83)	4 (57)	5 (72)
NYHA, I n (%)	3 (6)	0 (0)	0 (0)
II	38 (79)	6 (86)	6 (96)
III	7 (15)	1 (14)	1 (14)
HF aetiology, n (%)			
HF _r EF ischaemic	28 (58)	3 (43)	5 (72)
other	14 (29)	4 (57)	1 (14)
HF _p EF	6 (13)	0 (0)	1 (14)
Average EF, mean % (SD)	38 (12)	39 (13)	39 (13)
BMI, mean (SD)	29.8 (6)	29.6 (5)	29.2 (4.6)
Co-morbidities, n (%)			
Atrial fibrillation	18 (37)	2 (28)	4 (57)
Hypertension	21 (44)	6 (86)	6 (86)
DM	14 (29)	3 (43)	4 (57)
COPD	9 (19)	1 (14)	1 (14)
Peripheral vascular disease	4 (8)	0 (0)	1 (14)

NYHA, New York Heart Association; HF, Heart Failure; HF_rEF, Heart failure with reduced ejection fraction; HF_pEF, Heart failure with preserved ejection fraction; EF, Ejection fraction; BMI, Body Mass Index; T2DM, Diabetes mellitus; COPD, Chronic obstructive pulmonary disease.

Table 2
Summary of questionnaire responses

Questionnaire statement	Median (IQR) (n = 48)
I enjoyed the water-based exercise program	10 (10–10)
I felt confident exercising in the hospital pool	10 (10–10)
I felt safe to exercise in the hospital pool	10 (10–10)
Exercising in water improved my balance	7 (5–10)
Exercising in the water eased my muscle and joint pain	7 (1–10)
Exercising in the pool gave me chest pain*	1 (1–1)
Exercising in the water made me more breathless*	1 (1–1)
Exercising in the water made me dizzy*	1 (1–1)
Exercising in water made me feel tired and fatigued*	2 (1–5.3)
I felt nervous about wearing a swimsuit in front of other people*	1 (1–1)
The temperature of the water was neither too warm nor too cool	10 (8–10)
The change rooms were too cold*	1 (1–1)
I didn't like getting my hair wet*	1 (1–1)

+ denotes reverse/ negative answer statement.

Results refer to a 10-point Likert scale in which 1 = "not at all true" and 10 = "Very true".

Theme 1. Skilled and compassionate workforce

The role that staff play in creating a safe, supportive and enjoyable environment for exercise training was highlighted by all participants. This was a key motivator that underpinned all other themes. Availability of experienced staff and processes that reinforced a sense of safety were important factors expressed.

"At the hospital you had the professionals around you, so they could sort of help you if anything was wrong, whereupon I think at an ordinary gym, sometimes there's nobody there." (A2)

Participants also expressed the importance of staff possessing skills that extend beyond professional knowledge and experience. Being empathetic, understanding, and encouraging were staff traits that motivated all participants. This relationship of trust and rapport was illustrated by one participant who stated:

"I was encouraged by and enjoyed the company of the staff in the gym. There wasn't ever any occasion I felt excluded. There was always a feeling, a warmth there. Everyone was always interested without being nosy. They treat you the right way which encouraged you to keep coming." (A6)

Table 3
Questionnaire responses according to land-based training and land versus and aquatic exercise training

Questionnaire statement	Median (IQR) (n = 48)
Land-based exercise training	
I enjoyed the land-based exercise program	10 (9–10)
I felt confident exercising in the hospital gymnasium	10 (10–10)
If available, I would continue to attend the gym program at the hospital	10 (10–10)
I feel confident to continue land-based exercises outside of the hospital	10 (5–10)
Land versus aquatic exercise training	
I felt safer exercising in the gymnasium compared to the exercising in the pool*	2.5 (1–5)
Exercising in the gymnasium was harder work than exercising in the pool*	5 (1–7)
Exercising in the gymnasium made me fitter than exercising in the pool*	5 (1.5–7)
If given the choice, I would prefer to exercise in the gymnasium than in the pool*	5 (1–9.5)

+ denotes reverse/ negative answer statement.

Results refer to a 10 point Likert scale in which 1 = "not at all true" and 10 = "Very true".

Theme 2. Sense of safety

No participant expressed concerns regarding safety of aquatic exercise specifically related to their HF diagnosis. Symptoms such as chest pain, shortness of breath and dizziness were seldom reported for either program. Almost all participants highlighted the sense of safety that they felt by being in a hospital environment and through regular physiological and physical monitoring. For example:

"There's someone there that can check out the blood pressure, and all the rest of it to make sure you're not going to cark it on the spot. I find that is probably far better for you than some outside place that really doesn't have any idea of what your problems are." (NA 3)

The company of others also promoted a sense of safety as conveyed by one participant who stated *"If I was by myself I would have worried a bit."* (A2) For some individuals, safety of the physical environment, by ensuring dry and non-slip floors surrounding the pool, was also an important consideration.

In some cases, this sense of safety promoted confidence about continuing to exercise independently, as illustrated by the comment.

"Going into the pool and doing the exercises, it made me feel like I could go over to [local pool] and get back in the pool and do exercises." (A1)

Theme 3. Tailoring care to the individual

For many, receiving individualised care was a key motivator for exercise participation. An important component of this was having the exercise program prescribed in accordance with HF recommendations with due consideration of comorbidities and functional level. For some individuals who perceived themselves to be more fragile than others, this theme was often closely linked to a sense of safety.

"Because of the irregular heart beat I'd have to go and sit down. They'd keep an eye on me or they'd take me off the machine they thought was causing a bit of a problem and put me on something else that was not as strenuous from that point of view." (A2)

Conversely, others who identified with a history of exercise behaviour, still appreciated a tailored approach to ensure safety. *"I'd been a sportsman all of my life." "Training was second nature." "I knew I needed to get fit, in a safe way, rather than being stupid about it."* (NA 6)

In some cases, individuals referred to the impact of gender on exercise perceptions and behaviours. This was illustrated by one participant who'd been a lifelong exerciser. *"But the nurses would say "Slow down, don't go too fast. You know you just get yourself into trouble." And that's just a male I think, like, I don't know what it is. A male wanting to be Arnold Schwarzenegger."* (A4)

Whilst familiarity was a key driver for some, exercise variety was also highlighted by some participants, as illustrated by the statement: *"There is a range of exercises that I did, in the gym. Various things. You know, the weights, the leg movements, the bike, the walking, all those sorts of things. Even rolling that ball up and down, you know up your back. They were all different. I couldn't imagine that those things would be available in the pool."* (NA 2)

Theme 4. Inclusiveness and enjoyment

Almost all participants emphasized the importance of enjoyment, shared humour, inclusiveness and social interaction in relation to both programs.

"I think in the gym we had good friendly communication that went on. It wasn't only in the gym, it was in the pool as well." (A4)

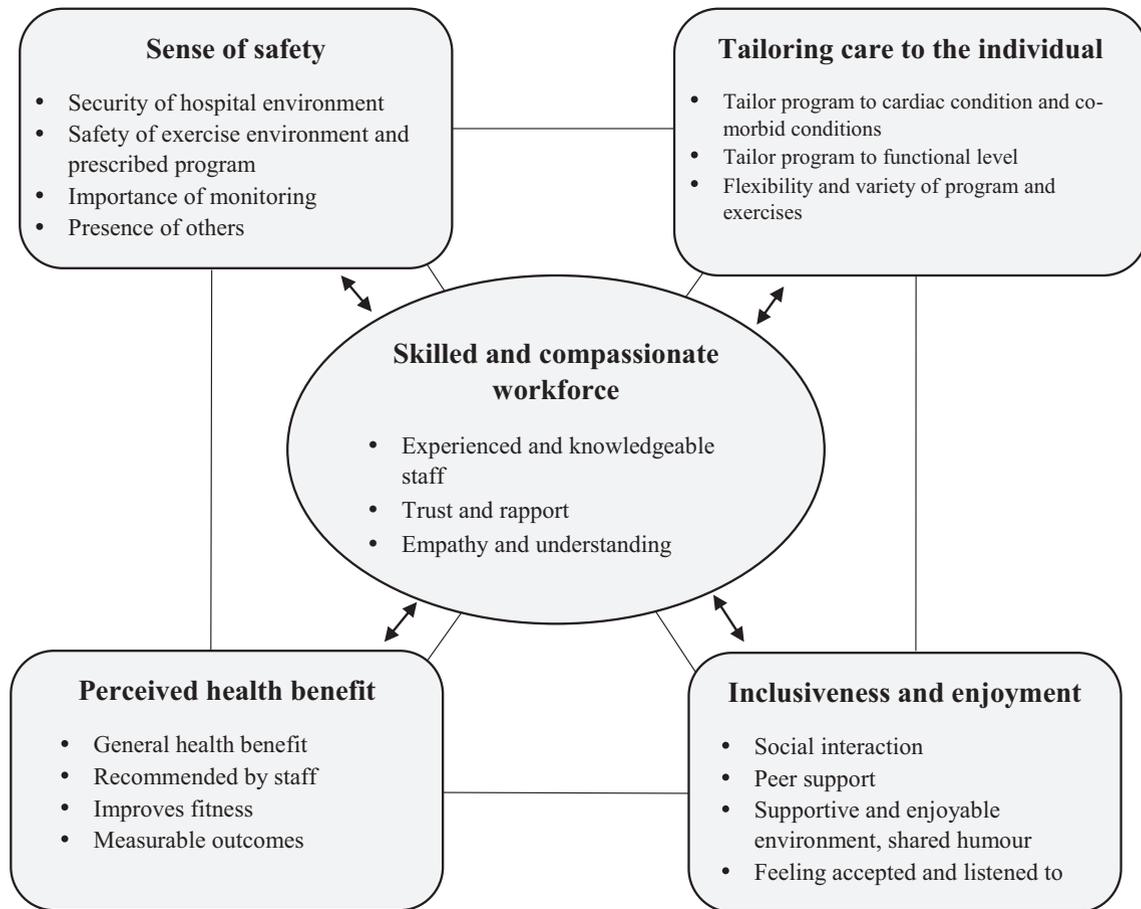


Fig. 2. Conceptual framework summarising interview findings related to shared motivators for land-based and aquatic exercise training.

Social interaction and overcoming social isolation were important motivators, as was peer support.

"Because when something like this happens, you'll be at work with a lot of people around you and all of a sudden you're not working anymore. There's only you, so I think this sort of thing gets you out of the house, gets you in with another group of people that have something in common." (A2)

Theme 5. Expected and perceived health benefit

Almost all participants perceived both aquatic and land-based training to be beneficial, with expectations of both programs centred largely around general improvements in health. For most participants, the land-based program was associated with observable improvements in fitness, the mental health benefits of "achieving something" and having purposeful activity outside of the home environment. Fewer participants in the aquatic program specifically mentioned improved fitness, however, nearly all perceived aquatic exercise training to be "harder work" than land-based training. This surprised some participants with one individual stating: *"I don't know why I'm so tired, I'm only playing around in the water. ... As much as I don't like to admit it, I think the water one was harder than the gym, even though I'm a gym person."* (A4)

Interviewees who had not chosen to participate in the aquatic exercise program generally assumed that the aquatic program would be easier, as demonstrated by statements such as: *"I think the gym is going to be harder because of all the bikes and things like that. But the pool is easier."* (NA 6)

"Being easier" was viewed as a potential benefit for those at a lower functional level or for those with musculoskeletal conditions.

"I think, pool exercise is good for the legs, for the back even. I just think it's just a gentler way of getting exercise and strengthening, you know, building up." (NA 7)

The experience was quite different for the participants who attended the aquatic program and, almost all described significant post exercise fatigue. One participant stated *"but what I did find I was absolutely knackered either that afternoon or the next morning. I mean, I'd come home and have a sleep whereupon with the gym, I wouldn't necessarily do that."* (A2)

This finding was viewed in a positive manner by several participants who attributed this to an underestimation of the volume and intensity of exercise that they had undertaken. One participant described this as follows: *"the hard part in the pool was the water resistance and you didn't notice it. Like in the gym, with weights, you know 'oh my weight is too heavy.' But in the pool, you got in there and the water resistance was there all the time."* (A4) For one individual, fatigue was associated with "a warm bath" making them "a little bit sleepy" whilst for others, it was attributed to the combined physical and cognitive effort of having to maintain balance.

"Yes, you had to really concentrate, and not being a very good swimmer, I probably had to concentrate a little bit more than others. ... I think, using all the muscles which you, you don't use otherwise, you know, it just seemed like it was a total, a total exercise." (A3)

Almost half of participants commented that they believed the gym to be more beneficial, despite differing perceptions regarding exercise intensity. This appeared to relate to personal preference and common stereotypes regarding the two exercise modalities.

“When you go to the pool you go for a swim, you go to relax, you have fun. In the gym, you go to the gym, you work hard, you sweat, you build big muscles. And that’s ah, how people look at the two.” (A4)

Exercise training preferences

Participants identified that personal preference plays a key role in motivating individuals to exercise. Of those who were familiar with both programs, three expressed a preference for land-based training and four for the aquatic program. One participant summed this up by stating:

“I think if you really adore the water, then you’d head for that. But I think the other [gym program] would be as beneficial too no matter what.” (NA 7)

Few barriers to exercise were reported by any participants, and for the land-based program related only to the cost of parking and a dislike for specific gymnasium equipment. For the aquatic program, almost half of participants identified a fear of water or distant exposure to pools as a concern, and for two participants, this was the primary reason for declining the intervention study. A small number of individuals expressed some anxiety relating to exposing themselves in front of others.

“Well I was a bit worried about wearing togs. I changed about 4 times. Different togs. And um. . . first time I walked out I felt embarrassed because I should have had shorts on or something but after 2 weeks I didn’t worry about it.” (A1)

Other reported barriers included the inconvenience of changing clothes, showering and managing wet togs and the smell of chlorine and its impact upon respiratory function. These were the predominant reasons that four participants declined participation in the original study. Almost all of those unfamiliar with the aquatic program were unsure of the exact nature of the exercise and perceived it to be “swimming” or “aqua aerobics.”

Discussion

This study is the first to explore acceptability, experiences and preferences relating to aquatic and land-based exercise training for people with stable HF. Questionnaire data corresponded very closely with results from semi-structured interviews and suggested that people with HF perceive aquatic exercise, undertaken in a health facility, to be an acceptable mode of exercise training. For both programs, participants reported feeling safe, found the programs to be enjoyable and very few symptoms were experienced. Questionnaire respondents reported fatigue to be the most common symptom experienced following aquatic exercise, a finding strongly reinforced by interview participants. Given fatigue was not associated with the land-based program, these results most likely reflect the constant resistance imposed by the water and subsequent work required by the individual to maintain stability. Both modes of exercise training were considered beneficial, and participants were almost equally divided regarding their preference for the two training modalities.

Exercise behaviour is complex. Despite well established guidelines, adherence to traditional exercise approaches by people with HF

is poor. In the HF ACTION trial for example, only 30% of participants met recommended physical activity targets at follow up.⁴ In our study, results from semi structured interviews very closely reflected questionnaire data from the larger study group and enabled more in depth exploration of perceptions and motivators for both modes of exercise training. Underpinning both the aquatic and land-based programs was the importance of a skilled and compassionate workforce, whereby staff not only deliver an individually tailored service with perceived health benefit, but who also possess the skills and personality to create a safe, inclusive and enjoyable environment.

Similar themes were also reported by Albert et al, who describe the fear of worsening HF that some individuals associate with exercise, and the importance of emotional and peer support.²⁰ The authors of this qualitative study emphasize the importance of patients’ knowledge about exercise and an expectation of clinical benefit.²⁰ These findings are also supported in a recent study which highlights the association between exercise confidence and exercise adherence.²¹ Attending an exercise program under the supervision of experienced clinicians most likely assists individuals to become familiar and confident with the exercise regime. Whether this initial boost in confidence assists long term adherence and transition to exercise participation external to the healthcare setting requires further investigation.

Personal preference and experience also influence exercise participation. For some people in our study, a fear of water or distant exposure to being in a pool were significant barriers. It follows therefore that previous experience may also influence an individual’s choice. For example, culture, lack of access to a pool or perhaps memory of a specific event, may deter some individuals from aquatic exercise. For these individuals, land-based exercise training would likely be a preferred option. For others however, a dislike of gymnasiums, and a preference for social activities, may be the motivation for choosing an alternative exercise modality.¹⁰ Several people in our study reported that they preferred the aquatic environment, perceiving it to be a comfortable and social atmosphere in which to exercise, sufficiently different from traditional gymnasiums.

Interestingly, no participant in our study expressed a concern specifically related to the effects of water immersion on HF symptoms or severity. This may relate to the trust that patients have in the healthcare professionals caring for them or a lack of awareness about this mode of exercise. Indeed, several interviewees who declined the aquatic program assumed that it involved standard swimming. Due to the physiological consequences of water immersion on cardiac workload,²² immersion depth, water temperature, and exercise intensity are carefully controlled in hospital settings to ensure safety. Our findings highlight the need for education about safe exercise parameters for people with HF, particularly for other forms of water-based exercise undertaken outside of the health facility.

There are several limitations to our study. Questionnaire participants had previous exercise experience, were clinically stable, and were motivated to participate. The order in which participants undertook the aquatic and land-based programs may also have influenced recall of their experiences. Participants were predominantly an older Australian population, the majority of whom had HF with reduced ejection fraction and NYHA class II symptoms. Results can therefore not be generalized to all HF patients and cultural differences should also be considered, particularly with reference to swimwear and exposure. The study was undertaken in a health facility, under the supervision of experienced clinicians and may therefore not apply to exercise undertaken outside of the hospital environment. The questionnaire was developed based on clinical experience and literature review but has not been validated. Finally, the sample size for the qualitative component of this study was small and whilst the lead author had no direct clinical role at the time, five of the interview participants were known to this investigator from previous clinical

exposure. Strengths of the study were involvement of two geographically separate training programs and staff, and participants with characteristics representative of stable HF patients attending exercise training programs in a clinical environment. Inclusion of those who declined to participate in aquatic exercise training also enabled more diverse views to be obtained.

For many people with HF, aquatic exercise training is perceived to be beneficial, safe and enjoyable, providing a potential alternative to traditional land-based exercise training. Broadening exercise opportunities may assist more individuals with HF to meet recommended exercise guidelines. In both settings, experienced and supportive staff are central to providing tailored, inclusive and enjoyable exercise experiences in a group setting. Models to support continuing exercise participation to maintain exercise benefits external to health facilities need to be explored.

Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.hrtlng.2018.11.004.

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