



PHYSICAL ACTIVITY RECOMMENDATIONS FOR PATIENTS WITH HEART FAILURE BASED ON SEX: A QUALITATIVE INTERVIEW STUDY

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Objective: Physical activity is an essential part of managing heart failure. However, adherence to activity recommendations is low, especially in female patients. The aim of this study was to investigate the perceptions of healthcare providers regarding sex differences in physical activity, motivation, barriers, and whether adaptations in care based on sex might be meaningful.

Methods: This is a qualitative study; data were collected in semi-structured interviews with healthcare providers. The data were analysed using qualitative content analysis.

Results: The major overarching theme was that healthcare providers feel that “Men and women are equal, but different”. This theme was explained in terms of 7 sub-themes with associated categories, as follows: “Men and women prefer and perform different physical activity regardless of health status”, “Male and female heart failure patients have different motivations for, and barriers to, being active”, “Factors related to differences in physical activity and physical capacity between male and female heart failure patients”, “Heart failure has more impact on physical activity and physical capacity than patient’s sex”, and “Tailoring activity advice for heart failure patients based on sex.”

Discussion: Healthcare providers had clear opinions regarding the existence of sex differences that might affect patients’ care. Several differences were identified in male and female heart failure patients in terms of physical activity. There seems to be a conflict between fear of discriminating and the value of personalizing care.

Key words: exercise; women; heart failure; qualitative.

Accepted May 16, 2019; Epub ahead of print Jun 4, 2019

J Rehabil Med 2019; 51: 532–538

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Heart failure (HF) is a highly prevalent and severe syndrome that affects 26 million people worldwide and 1–2 % in many countries, including Sweden (1). HF severely compromises the lives of patients through symptom burden (e.g. breathlessness, fatigue and ankle swelling), reduction in quality of life and

LAY ABSTRACT

Physical activity is an essential part of managing heart failure. However, not all patients are active, especially women. This study investigated the perceptions of healthcare providers regarding sex differences in physical activity, motivations and barriers, and whether adaptations in care based on sex might be meaningful. This is a qualitative study and data were collected in interviews with healthcare providers. Data were analysed using qualitative content analysis. The major theme was that healthcare providers feel that “Men and women are equal, but they are different”. They described that men and women have different reasons and barriers to being active and that they perform different activities. They felt that different care might be needed for patients with heart failure, but that disease burden often has a greater impact on physical activity than patient’s sex. Healthcare providers had clear opinions regarding the existence of sex differences that might affect patients’ care. Several differences were identified in male and female heart failure patients in terms of physical activity. There seems to be a conflict between fear of discriminating and the value of personalizing care.

physical capacity, and high rates of hospitalization, morbidity and mortality (2–4). Moreover, the patients are at risk of developing several HF-related complications, contributing to an overall poor prognosis (5, 6).

Routine physical activity (PA) has been shown to be beneficial for health-related quality of life in patients with HF and has a negative correlation with future HF-specific hospitalization (7). Although no significant difference in mortality rates in patients with HF has been seen with routine PA in the short term, current evidence indicates a potential reduction in mortality in the longer term (7).

Despite the benefits of PA, overall adherence to advice about PA in patients with HF is poor (8–10). This is in accordance with the mean general non-adherence with long-term therapies of 50% (11), and can be explained by a combination of healthcare providers’ non-compliance with guidelines and by patients failing to follow recommended therapy. Healthcare providers play an important part in promoting PA and have been viewed as a vital source of support for increasing levels of PA. The importance of healthcare providers’

attitudes and experiences is recognized (12–13). Recommendations by healthcare professionals have also been shown to be associated with higher levels of PA (14). Patient adherence is, in turn, multidimensional, and depends on motivations and barriers related to patient-specific factors, the healthcare system, socioeconomic factors and factors associated with the prescribed therapy and the specific condition (8).

One factor associated with lower levels of adherence with treatment recommendations is female sex (8). Female sex is also associated with lower levels of PA, both in the healthy population and in patients with HF specifically, which is directly related to adverse health effects (8, 15). The reasons for this discrepancy have been studied in young people and, when examining differences in PA between the sexes in general, women report less self-efficacy (confidence in successfully attaining a desired behaviour), less social support and less motivation to exercise (15). However, in contrast to the vast amount of research on sex differences in HF, little HF-specific research has been published in this particular area. Furthermore, in 1 of the few HF-specific studies on this topic, women were found to report higher levels of motivation than men, although no difference in the level of PA was found (16).

The aim of this study was to investigate the perceptions that healthcare providers may have with regard to sex differences in PA, motivations and barriers, and whether adaptations in care based on sex differences might be meaningful.

METHODS

Study design

This was a qualitative interview study conducted at 2 university hospitals in Israel: Beilinson Hospital in Petah Tikva and Soroka Hospital in Beer Sheva. Interviews were held during February to May 2017.

Sampling

Participants (healthcare providers) were recruited for the study using purposeful sampling, with the aim of including participants of different sexes and ages, participants with different professions involved in HF care, and participants working at 2 different hospitals. As we were unfamiliar with the hospitals and their employees, we were introduced to healthcare professionals involved in HF care by cardiologists working at the hospitals. They were then invited to participate in the study in person, by e-mail or by phone call.

Ethical considerations

The Institutional Ethics Board of the Rabin Medical Center waived interview studies in healthcare personnel. All participants provided written informed consent. They were also informed that they could end the interview if desired, that their confidentiality would be assured, and that data would not be shared in

a recognizable form with others. Furthermore, by not sharing the characteristics and names of the participants, no quotations in this paper can be traced back to the participant.

Procedure and interviews

Through literature review, a semi-structured interview guide was developed building on the general aims and research questions of the study. This guide comprised 2 parts addressing: (i) differences and similarities in male and female HF patients with regard to PA (e.g. “Do you think that male and female heart failure patients might have different reasons to be active?”) and (ii) perceptions on individualization of care based on patient’s sex (for example “Do you adapt your practice to account for sex differences in PA/capacity?”). Pilot interviews were held and the interview guide was revised before conducting a total of 12 interviews, after which no new information came from the interviews and the data were considered saturated. For convenience, most interviews were conducted at the office of the participant and the duration of the interviews ranged from 30 min to 1 h, depending on time restrictions. Twelve healthcare providers were interviewed, including 5 cardiologists, 2 residents, 3 nurses and 2 physiotherapists. The male to female ratio of the sample was 1:1 and ages ranged from approximately 30 to 65 years. The interviews were conducted in English by a (female) medical student (EC) (3rd year) with limited experience of HF management and attended by another (male) medical student (AJ), who observed and assisted the first interviewer when needed. The interviewers had no prior relationship with the study participants.

Data analysis

The interviews were performed and transcribed concurrently. The transcriptions were carried out, read through and summarized by the first author (EC).

The data were analysed using qualitative content analysis, according to Graneheim & Lundman (17). Each transcribed interview was considered a unit of analysis. The units were analysed one at a time, starting with repeated reading in order to gain an overview of the content. The interviews were then divided into meaning units, e.g. extracts from the unit of analysis that describe the same central meaning. Meaning units were then extracted, put into a table in a Word document and further condensed. Condensed meaning units were then gathered in a single collective document and sorted into groups, which in turn were given codes. All codes were subsequently read through and analysed for similarities and differences. They were then sorted into categories, i.e. a grouping that one imposes on the coded segments, in order to reduce the number of different pieces of data in our analysis (“What is in the data?”).

To improve reliability, a discussion was held at this stage with a second researcher (TJ), who is an experienced researcher with an HF nursing background. Categories were revised, and codes re-sorted. Based on this information, themes were derived, and these were considered a higher level of categorization, used to identify a major element of our entire content analysis (“What is this about?”) (18–20). This was done with continuous feedback from the second researcher. Finally, an overarching theme addressing the quintessence of the data was developed.

Several measures were taken in order to improve the trustworthiness of the analysis:

- To improve credibility, participants were chosen through purposeful sampling, thus providing diverse insights into the subject being researched.

Table I. Themes and categories from the interviews with healthcare professionals

Themes	Categories
Men and women prefer and perform different PA regardless of health status	Sex differences in PA and capacity in healthy people Sex differences in PA and capacity in patients with HF
Male and female patients with HF have different motivations for and barriers to being active	Barriers to and motivations for PA in male patients with HF Barriers to and motivations for PA in female patients with HF
Factors related to differences in PA and physical capacity between male and female patients with HF	Factors influencing PA and physical capacity Factors influencing barriers and sex differences in barriers to PA
The HF has more impact on PA and physical capacity than patient's sex	Impact of healthcare provider on sex differences in PA Impact of the disease severity on sex differences in physical capacity
Tailoring activity advice for patients with HF based on sex	Impact of the disease severity on barriers to and motivations for PA Adapting HF care based on sex Difficulties in adjusting HF care based on sex Factors to consider when giving PA advice to patients with HF

PA: physical activity; HF: heart failure.

- To validate the units of analysis, a summary of the interview was sent to all respondents, who were requested to confirm what had been said, and to correct or add anything, if needed. Likewise, discussions were held with a second researcher throughout the process of collecting and analysing the qualitative data.
- Quotations from the interviews are used to illustrate the themes and categories, further strengthening the creditability of the results.
- Finally, the content of the analysis was discussed with 2 experienced HF healthcare providers who commented on the final interpretation (TBG and JMW).

RESULTS

The study revealed 5 themes with associated categories (Table I), as follows:

Men and women prefer and perform different physical activity regardless of health status

The healthcare providers identified multiple differences between men and women in terms of performing PA. Sex differences were described regardless of health status, although observations were more ambivalent when comparing patients with HF.

“Sex differences in physical activity and capacity in healthy people” reflects the view among healthcare providers that healthy men are stronger and more active than healthy women. Men and women were also believed to have different preferences for activities. The healthcare providers expected women to carry out less intense activities than men, such as yoga, Pilates, dancing and walking, whereas men were expected to do sports, running and weight-lifting. One respondent

suggested that the reason for this discrepancy in PA could be multifactorial, saying: *“Maybe, for a number of reasons, maybe because it is a bit sort of a male thing to do exercise, but also in general women are maybe more preoccupied with sort of other things like the house and kids and stuff like that.”* (R12).

In the second category “Sex differences in physical activity and capacity in HF patients”, the healthcare providers described a similar sex discrepancy in preference for activities among patients with HF. However, in terms of level of PA and physical capacity, the observations were inconsistent. While some stated that female patients were more active and performed better physically than their male counterparts, others reported higher male attendance in cardiac rehabilitation. One respondent said: *“They [female patients] are less active. They will do maybe less rehabilitation. They will do less physical activity which is recommended. They are very, very, very limited.”* (R2).

Male and female heart failure patients have different motivations for, and barriers to, being active

The healthcare providers described that male and female patients differ in terms of barriers and motivations (Table II).

In the category “Barriers to and motivations for PA in female HF patients”, family, external appearance and exercising in groups were mentioned as being particularly important motivations for female patients. Some healthcare providers experienced female patients as being more motivated than male patients, while they felt that men had a stronger tendency to give up. One

Table II. Barriers and motivations for physical activity of male and female patients as perceived by healthcare providers

Female motivations	Male motivations	Female barriers	Male barriers
Family	Wanting to be stronger	Physical inactivity prior to heart failure	Work
Exercising in a group	Health reasons	Lack of time	Ashamed of showing weakness
Appearance	Competition	Lack of self-esteem	Laziness
	Wanting to get back to work	Fear	
		Appearance	

respondent said: “Men often surrender somehow. And women usually fight. I see that very often in patients with heart failure. Women are more fighters than men.” (R1) In contrast, others claimed that women were less driven to do PA, saying: “They [female patients] have more difficulties, they need more encouragement. It’s different, you really have to push them. I mean, it seems like they are less motivated.” (R2).

Meanwhile, lack of time, fear, lack of self-esteem and physical inactivity prior to HF were described as being particularly challenging for female patients. Apart from being motivational, external appearance was also mentioned as a female barrier: “... when you come regularly to a place and you don’t really like the way you look because you have an oedema, ascites or shortness of breath. Or for some reason or another, to any extent, then I guess it would be less attractive or less feminine. A woman might regard it as a limitation to engage in a sport.” (R1). Related to this, female patients were thought to have more barriers than male patients. One of the respondents said: “You’ve heard women with heart failure? They have a lot of explanations and excuses. One hundred excuses.” (R2).

“Barriers to and motivations for PA in male HF patients” refers to the motivations and barriers stated to be more important to male patients, several of which could be linked to societal expectations. While expectations on men to be strong and active could work as a motivation, shame of showing weakness was mentioned as a potential barrier to seeking help. Similarly, work was mentioned as a barrier in terms of limiting time, but getting back to work and being able to provide was also mentioned as a male motivation. Additional observations included male patients being more competitive, giving them the motivation to work harder in cardiac rehabilitation. Some healthcare providers argued that male patients with HF were more motivated to perform PA than female patients, saying: “It may well be that men want to do more because they are, you know, they see themselves as, in general, as more active to start off with and so they will want to try to get back to that as much as possible. Whereas women, particularly if they weren’t very active beforehand, they may have less drive to push themselves and do it.” (R12).

Factors related to differences in physical activity and physical capacity between male and female patients with heart failure

Participants described several factors related to differences in barriers, motivations, PA and physical capacity between men and women. The category “Factors influencing PA and physical capacity” describes independent factors, such as age, socioecon-

omic status, an outdoor lifestyle, physical background, training and disease. The participants also described factors affecting the existence and extent of sex differences in PA and physical capacity. Sex differences in PA were suggested to be strongly related to different generations, where women from the older generation were said to be less physically active than those from younger generations. Societal views were also thought to contribute to sex differences. For example, one nurse said: “So, the mentality I think of the parents and all the community. The boys have to do something physically, some physical activity. From the base. For the women, the maximum you can do is you can dance.” (R4).

In the category “Factors influencing barriers and sex differences in barriers to PA”, several aspects were mentioned, including generation, age, religion, culture and marital status. Experiencing more barriers was associated with the older generation (not knowing the importance of PA), with middle-aged people (preoccupation, lack of time) and with religious people and certain cultures (societal views, not having the habit). Moreover, middle-aged women were perceived to have more barriers than middle-aged men due to having to balance work and family, whereas such differences were believed to decrease with age. Being more profound in religious societies and in certain cultures, traditional gender roles were mentioned as being a barrier for women to be physically active.

“Impact of healthcare provider on sex differences in PA” refers to the role of the healthcare provider in patient motivation. It was said that: “It depends on you as a doctor. How you explain and how you motivate... I think that if you cause motivation you shouldn’t have an extreme gender difference. But I think that we have a bias and we encourage women less.” (R2). Moreover, although some of the healthcare providers disagreed, the sex of the healthcare provider was said to affect interaction and patient adherence and could be particularly problematic with patients from certain religions and cultures. One of the healthcare providers said: “... if I have the ability with a very religious guy to tell my other co-worker to do the treatment and not me – I do it. Because he will react better to men.” (R9).

Heart failure has a greater impact on physical activity and physical capacity than patient sex

An opposing position was identified during the interviews reflecting a lack of differences between male and female patients with HF regarding PA and physical capacity. The healthcare providers felt that male and female patients with HF experience the same levels and types of barriers and motivations, performing equally physically. One interviewee said: “I can’t think off the top of my head of any major differences between men

and women in that respect. In terms of their wanting to do stuff and actually doing it.” (R12). A proposed explanation for the lack of sex differences in the HF population was described as the type of recommended activity, being aerobic and of low intensity: “We are talking about thirty minutes of walking! Everybody can do it I think. I didn’t notice any differences.” (R3). Apart from the type of activity, the HF itself was proposed to be the foremost reason for the lack of or reduced sex differences, both in terms of performance and in terms of barriers and motivations.

“The effect of disease limitations on sex differences in physical capacity” refers to the physical limitation accompanying the disease, which some healthcare providers argued overrules any prior sex differences in physical capability: “I think that both genders are equally debilitated by the disease” and “I don’t think there are any gender differences in the amount of improvement in the exercise capacity of patients with heart failure. I guess it would depend on the severity of the disease.” (R1).

“The disease’s effect on barriers to and motivations for PA” refers to the motivations and barriers relating to the disease. The barriers to PA mentioned as accompanying HF included depression, fear, hospitalization, lack of energy and physical limitations. However, in contrast to the increase in barriers that comes with the disease, it was also suggested to provide increased motivation to PA. “Healthy people don’t feel the clock ticking... In contrast to healthy people where every activity is preventive – here, it’s the treatment! So, it’s like you say “What is your motivation to take a pill?” – I mean, I don’t have the motivation if I don’t have any [disease]. But they have. So, they have to do it. It’s their pill.” (R9). Table III sums up the motivations and barriers that were mentioned as being common for both sexes, among which the main ones were related to the disease.

Tailoring activity advice for heart failure patients based on sex

Some healthcare providers said they did not adapt their care based on the sex of the patient. When asked,

Table III. Common motivations and barriers of patients with heart failure as described by healthcare providers

Common motivations	Common barriers
Weight and shape	Lack of time
Increasing functionality	Fear
Feeling better	Laziness
Know the importance	Physical limitations
Improving quality of life	Depression
Meeting with people	Lack of energy
Noticing that they improve	Weather barriers
Health reasons	Barriers due to holidays
	Hospitalization

one of the healthcare providers said: “No, because that strategy is unisex. It doesn’t favour one over the other.” (R7). Based on not noting any sex differences regarding physical capacity and activity in the HF population, some also argued that adapting care based on sex was unnecessary, saying “I don’t think it’s something that is essential in terms of planning future healthcare or rehabilitation for men or women.” (R12). However, based on observed sex differences, others argued that there is a value in adapting care based on the sex of the patients. Three categories make up this theme, including “Adaptions in care based on gender”, “Difficulties in adapting care based on gender” and “Factors to consider when giving PA advice”.

“Adapting HF care based on gender” refers to adaptation being done or proposals for things that can be done. These included having different attitudes, using different motivations, recommending different activities, addressing gender-specific barriers and offering gender-specific rehabilitation groups/programmes. For example, one respondent said: “I might approach it a little bit differently... I will recommend, for a woman, to go walking with a friend in the evening.” (R8). They also argued that adapting care according to the individual is essential, with gender being part of the equation: “You have to take gender into account. And you have to know the differences and to know your patient. To know the motivations and the barriers.” (R2). When asked if they tailor care to men and women, one interviewee answered: “Obviously. Not because we recommend something else. The attitude is different.” (R2).

“Difficulties in adjusting HF care based on sex” refers to an identified fear among healthcare providers of discriminating and to the lack of knowledge and research on the subject. One healthcare provider said: “It’s problematic because if you make the wrong decision, the family thinks as you say that it is discrimination. But I think it’s the lack of evidence-based medicine. If you have research to back you up, you can tell the family why this decision was made because it’s for the benefit of the patient, it’s better for the patient to treat her like this. It’s not discrimination.” (R9).

“Factors to consider when giving PA advice to HF patients.” In addition to the sex of the patients, a few other factors were mentioned as being important to consider when giving advice about PA. These included preference for activities, prior level of activity, disease state, physical capacity, and religion.

DISCUSSION

Healthcare providers identified several differences between male and female patients with HF with regard to PA and motivations for and barriers to PA. Sex dif-

ferences in patients with HF seem, however, to be more complex and more debated than in healthy people. Reflecting this, an opposing view was also identified among healthcare providers, who did not recognize sex as a discriminating factor with regard to PA in patients with HF; a fact that was proposed to relate to the similar effects of the disease on *both* sexes when considering the assessed parameters (PA and physical capacity, barriers and motivations).

The lack of consistency in the observations and beliefs of healthcare providers might be due to a lack of evidence and difficulties related to comparing patients with HF. This is supported by Rumsfeld & Masoudi (21), who present 3 possible reasons for sex differences in cardiovascular disease: “Disparities in care delivery” (are male and female patients offered the same care?), “Intrinsic biological differences” (actual biological differences that give rise to the sex differences), and “Unmeasured clinical variation” (referring to confounding by differences in disease severity, etc.), all of which were mentioned in the interviews in one way or another. They further discuss that it is essential to determine which of these reasons is behind sex differences in cardiovascular disease in order to decide whether the solution for eliminating them should be to *equalize or differentiate* care (21), further validating the confusion among healthcare providers when discussing this matter. Moreover, in the interviews, numerous factors apart from sex were mentioned as influencing PA, physical capacity, motivations and barriers and sex differences, making the subject complex. Studying correlation with these factors by quantitative means might also be an interesting approach in future studies.

In the interviews, it was certainly evident that the healthcare providers faced a conflict in terms of whether they should equalize or personalize their care. The opinions on the value of considering sex when personalizing care were, again, divergent. It has, however, been shown that a sex-tailored approach is of importance for adherence and outcome of interventions (22). In the interviews, adjustments that were suggested to be of value were mostly related to different approaches, using sex-specific motivations and addressing sex-specific barriers, whereas most interviewees believed that male and female patients should be given the same advice. As the healthcare providers found that male and female patients had different preferences for activities, another proposal was to offer sex-specific rehabilitation programmes or groups in order to increase adherence.

It is known that women with HF demonstrate similar patterns of improvement during cardiac rehabilitation as men, and even show greater improvements in fitness and longer-term exercise levels (23). It is therefore of

vital importance to enrol female patients in rehabilitation programmes where the focus often is on increasing PA in the long term. It might, however, be relevant to tailor activity programmes to the specific needs of men or women and to vary the design of the interventions in rehabilitation programmes as proposed in other disease groups (24). In addition to the differences suggested in this study, studies carried out on healthy men and women also identify sex differences in motivations for and barriers to PA, where men report being more motivated by “competition”, “strength”, “fitting in” and “avoiding social disapproval from peers” (15).

A strength of this study was the availability of healthcare providers with experience of providing advice on PA to patients with HF and a 1:1 sex distribution. We recruited from 2 different centres that had different profiles, although they were both academic medical centres. Interviews provided rich data. Additional triangulation of data including observations of healthcare providers and their patients in practice might have been preferred, but was not feasible due to language barriers; for example, patients and healthcare providers communicating in Hebrew and data collectors being Swedish.

The results, however, provide insight into the challenges faced by healthcare providers when tailoring HF care based on sex. To conclude, it may be difficult to consider sex differences in PA in HF care, and sex is not a factor that is usually considered when tailoring activity advice to patients with HF. Although some examples of alterations and approaches are used anecdotally, there is still a lack of evidence on tailored activity advice and there is a conflict of fear of discriminating vs the benefits of tailoring and personalizing care. Indeed, one should not instigate healthcare strategies based on frail evidence. Thus, to assess this matter fully, more studies are needed on the existence and reasons for sex differences in patients with HF.

Implications for practice:

- Healthcare providers might not be immune to biases or perceptions about physical activity based on sex.
- Sex might be considered more often when tailoring activity advice to patients with HF.
- Sex-specific motivations and barriers can be used to tailor interventions to improve physical activity to patients with HF.

ACKNOWLEDGEMENTS

The authors would like to thank all the healthcare providers who gave their valuable time, and to express gratitude to Dr M. Liljeroos for commenting on the paper.

This work is supported by the Swedish National Science Council (2016-01390); Swedish National Science Council/

Swedish research council for health, working life and welfare, VR-FORTE (2014-4100); The Swedish Heart and Lung Association (E085/12); The Swedish Heart and Lung Foundation (20160439); the Vårdal Foundation (2014-0018); the Medical Research Council of Southeast Sweden (FORSS 474681).

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