

# A Cardiac Rehabilitation Program to Improve Psychosocial Outcomes of Women with Heart Disease

PATRICIA DAVIDSON, R.N., M.Ed., Ph.D.,<sup>1</sup>  
MICHELLE DIGIACOMO, M.Hlth.Sc.(Hons), Ph.D.,<sup>1</sup> ROBERT ZECCHIN, R.N., M.N.,<sup>2</sup>  
MARY CLARKE, R.N.,<sup>3</sup> GLENN PAUL, B.N. (Hons),<sup>3</sup> KATE LAMB, Grad. Dip.,<sup>2</sup>  
KAREN HANCOCK, Ph.D.,<sup>4</sup> ESTHER CHANG, Ph.D.,<sup>4</sup> and JOHN DALY, R.N., Ph.D.<sup>4</sup>;  
THE HEART AWARENESS FOR WOMEN PROGRAM INVESTIGATORS

## ABSTRACT

**Background and aims:** Heart disease in women is characterised by greater disability and a higher rate of morbidity and early death after an acute coronary event compared with men. Women also have lower participation rates than men in cardiac rehabilitation. This study sought to describe development of a nurse-directed cardiac rehabilitation program tailored to the needs of women following an acute cardiac event to address their psychological and social needs.

**Methods:** The Heart Awareness for Women program (HAFW) commenced in 2003 with phase I involving development of program elements and seeking validation through consumers and clinical experts. The program was then trialed in an 8-week program in a convenience sample of 6 women. Phase II applied the revised program using action research principles focusing on enabling clinical staff to implement the ongoing program. A total of 54 women participated in this phase, 48 of whom completed baseline questionnaires. A mixed-method evaluation, using questionnaires, interviews, and observation, assessed the impact of the intervention on psychological and social aspects of women's recovery following an acute coronary event.

**Results:** Women welcomed the opportunity to discuss their individual stories, fears, and challenges and to derive support from contact with other women. Via health professional facilitation, women were able to develop strategies collectively to address risk factor modification and achieve optimal cardiovascular health. No statistically significant changes in depression, anxiety, stress, cardiac control, role integration, or perceived social support were found; however, descriptive and qualitative findings revealed decreases in anxiety and an increased sense of social support.

**Conclusions:** On the basis of this study, a cardiac rehabilitation program tailored to the needs of women appears to be feasible and acceptable. The efficacy of this intervention to improve health-related outcomes needs to be tested in a randomized, controlled trial.

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<sup>1</sup>School of Nursing and Midwifery, Centre for Cardiovascular and Chronic Care, Curtin University of Technology, Australia.

<sup>2</sup>Area Cardiac Rehabilitation and Chronic Care Programs, Sydney West Area Health Service, Australia.

<sup>3</sup>South Eastern Sydney Illawarra Area Health Service, Australia.

<sup>4</sup>School of Nursing, University of Western Sydney, Australia.

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## INTRODUCTION

CARDIOVASCULAR DISEASE (CVD), manifest as acute coronary syndrome (unstable angina pectoris or acute myocardial infarction (MI)) and heart failure (HF), is a major cause of morbidity and mortality in industrialised society.<sup>1</sup> Given the high rates of morbidity and cardiac procedures in elderly Australians, interventions that facilitate recovery and rehabilitation are in demand.<sup>2</sup> Although it is commonly believed that heart disease is primarily a male problem,<sup>3,4</sup> it is the leading cause of death in women.<sup>5</sup> Heart disease among women is characterized by a poorer prognosis, greater disability, and a higher rate of morbidity and early death after MI compared with men.<sup>6</sup> HF is a significant burden for women, with shortness of breath and fatigue the primary physical symptoms reported.<sup>7</sup> When contrasted with men, women experience reduced activity tolerance and have more difficulty performing activities of daily living.<sup>8</sup>

### *Reasons for poor outcomes of women with CVD*

Following cardiac events, women are diagnosed less promptly and aggressively than are men.<sup>3,5</sup> This observation is likely attributable to consumer, systems, and provider factors. Women are more likely than men to delay seeking medical treatment for their symptoms, and once they do, although they have chest pain as often as men, they tend to have less typical symptoms that can hinder making a diagnosis of heart disease.<sup>9</sup> The presence in women of such conditions as arthritis, peptic ulcer disease, or chronic lung disease may produce symptom complexes that contribute to delays or a missed diagnosis in the event of an acute MI.<sup>10</sup> Failure to meet the stereotypes of a heart attack often means women's access to diagnostic and therapeutic interventions is limited. Potentially, further biases occur once women enter the hospital system, where they receive less access to therapeutic and diagnostic modalities than men.<sup>11</sup> Furthermore, the literature that informs the care of people with heart disease is mainly derived from studies largely conducted on men.<sup>9</sup>

It is uncertain whether women's poorer outcome after diagnosis of heart disease is more related to differential treatment or to differences in presentation that may delay intervention.<sup>5</sup> Outcomes may also be related to women's attitudes,

values, and beliefs. Although women experiencing CVD tend to be older and have comorbid illnesses,<sup>12</sup> delays in seeking care, misdiagnosis, and less aggressive treatment are likely to result in poorer outcomes in women that are not explained solely by their advanced age or comorbidity.<sup>13</sup> Differences in women's presentation and outcomes with heart disease indicate the need for interventions targeting the assessment and management of women, particularly in those of advanced years.<sup>14</sup> Adverse outcomes in women are reflected in high rates of hospitalization, less adherence to recommended treatment regimens, and poorer quality of life compared with men.<sup>12</sup> Encouragingly, evidence demonstrates that targeted interventions can improve individual and organizational outcomes for women.<sup>15-17</sup>

Unfortunately, women have lower rates of participation in cardiac rehabilitation (CR).<sup>18</sup> The reasons for this are multifactorial. First, as there is a tendency for women to be older than men and to have more severe pathologic conditions, physicians tend to refer women to CR less often than men.<sup>19</sup> Programs are often not tailored to the specific needs of women, and there is often a perception that the primary emphasis is on physical aspects, such as exercise.<sup>20,21</sup> Women often have less self-efficacy with regard to exercise and lower tolerance levels for physical activity than men,<sup>22</sup> thereby hindering participation. Many women with heart disease prefer to set their own goals and not to exercise to the point of fatigue/pain.<sup>23</sup> High rates of musculoskeletal conditions and periods of deconditioning compound challenges associated with increasing physical activity. For these reasons, it is preferable that rehabilitation be based on level of need and preferences for intervention rather than clinical diagnosis. Investigation into one site of the current study revealed participation rates among women eligible for CR were 22.4%, compared with 77.5% participation in eligible men.<sup>24</sup> This disparity prompted the research team to look at tailoring a CR program to meet the needs of women.

### *Intervention for women*

One previous intervention study that attempted to address the needs of women with heart disease was called PRIDE (Women Take Pride).<sup>25,26</sup> Clarke et al.<sup>25</sup> evaluated a disease management program based on the principles of

self-regulation for women >60 years old with heart disease. The intervention consisted of weekly education sessions for 4 weeks that were adapted to women's unique concerns, particularly focusing on physical activity and functioning. Findings of this study suggested that women benefited from participating in this program by losing weight, improving functioning and ambulation, and experiencing fewer symptoms. Results of psychosocial measures indicated no improvement, however, perhaps relating to the intervention's focus on physical activity or lack of time available in education sessions to devote to these issues, or this may be a reflection of insensitive measurements. In contrast to the PRIDE program, the Heart Awareness for Women (HAFW) program focused more on psychological and social factors that may impact risk factor modification and recovery from an acute cardiac event.

### *Aim*

This descriptive, exploratory study sought to pilot the acceptability and feasibility of a CR program tailored to the needs of women. Specifically, the intention of this preliminary study was to (1) determine the acceptability of the intervention and feasibility of outcome measures, (2) identify logistical issues in configuring groups and working through course content, (3) obtain opinions of end-users to inform ongoing intervention development, and (4) pilot the intervention prior to progressing to a randomized, controlled clinical trial.

## MATERIALS AND METHODS

The HAFW study was informed by action research processes and used a mixed-methods design for the evaluation. The action research sequence of reflection, assessment, planning, action, and observation helped develop the program in conjunction with program participants, consumer representatives, and clinical staff. This research design enabled critical evaluation of program elements to increase the acceptability, feasibility, and capacity to improve health-related outcomes in women with heart disease.

Action research uses a range of processes, some of which may be identified prospectively, whereas others are developed with the partici-

pants as the study progresses.<sup>27</sup> The mutual engagement, reciprocity, empowerment, and reflection are key attributes of this method.<sup>28</sup> Consumers, clinicians, and researchers on the steering committee all had a chance to influence the process and direction of the project. Although enabling, this approach can challenge traditional forms of scientific enquiry where there is a distance and objectivity on the part of researchers.<sup>29</sup> The mixed-method approach uses multiple data sources and approaches.<sup>30</sup> In this study, both quantitative and qualitative approaches were used and were considered to be of equal weight. The use of this approach was not only elucidating in the pilot process of intervention development but also increased the depth and scope of exploring women's recovery and adjustment processes.

### *Phase I*

The first half of phase I of HAFW development comprised a systematic literature review, consumer consultation, and a consensus program among cardiovascular professionals.<sup>31</sup> Findings of these activities revealed that key elements of the intervention would focus on increasing awareness of risk of heart disease among women, negotiating goals and strategies to improve cardiovascular health, prioritizing needs, and balancing competing life demands. The program was then developed and underpinned by the theoretical premises of the mutual aid model.<sup>32</sup>

In the second half of phase I, the intervention was trialed in a sample of 6 women, aged 64–83 years, who had recently had an acute coronary event or coronary artery bypass surgery. These women did not have a diagnosis of chronic heart failure. Three complementary qualitative methods were used to evaluate the pilot phase, namely, participant observation, reflective journaling, and interviewing key informants. The research team made observations from participating in the process, considered these observations in reflective journaling, and verified and validated assumptions with coresearchers, study participants, and cardiac rehabilitation personnel. During and following each session, the researchers summarized observations, key points, and themes as the first phase of the analysis process. This was done to assist in interpreting values, beliefs, and opinions declared by individual participants within the context of other

data collected. These data were then discussed and verified at team meetings and also informed semistructured interview schedules.

Findings revealed that women embraced the opportunity to come together to discuss their experiences and gain comfort from the commonality of experience. Unanimously, participants reported a process of confusion, uncertainty, and misinterpretation of cardiac symptoms before diagnosis of heart disease. The diagnosis of heart disease was a sentinel event in their lives, representing a process of adjustment, processing of events, and contemplating the future. All were keen to increase energy levels and levels of physical activity. In spite of incorporation of monitoring techniques, such as pedometers and diaries, it remained difficult to increase rates of physical activity beyond the rehabilitation class. This difficulty emerged as a facet requiring further development. Following a review of content, the program was reduced to 6 weeks to eliminate repetition and redundancy.

### *Phase II*

The revised program was implemented in phase II on a larger scale and in a different setting with funding received as part of the National Women's Health initiative. Phase II spanned the period from February 2005 through January 2006. Human ethics committee approval was obtained

for the conduct of the study from the relevant area health services and the university associated with the study. The intervention was conducted in two acute hospital facilities in a metropolitan setting with cardiac surgery and interventional cardiology services. Because of the social and demographic characteristics of this setting, the sample comprised younger women (age range 42–80). Women eligible for CR were purposively recruited by CR staff. The majority of women had an acute coronary syndrome event, and the minority had coronary artery bypass grafting and chronic heart failure. Eighty-six percent of the participants were attending the mainstream CR program. Women were targeted on the basis of gender issues, not their clinical diagnosis.

Media dissemination about the program commenced 6 weeks into the program. As a result, additional participants were recruited. Women in the geographical catchment area attended the program, and the CR program linked women from outside the area with available services and provided relevant literature. The rationale for targeting local and national media is to address the misrepresentation in the popular media that heart disease is primarily a man's disease.

### *The intervention*

Each intervention consisted of a 6-week program in which a group of 5–10 women met

TABLE 1. TOPIC SCHEDULE

<i>Week</i>	<i>Topic</i>	<i>Concept</i>
1	Introductions	Assessment using surveys Information on heart disease: lowering risks of heart disease, issues related to delay in presentation of symptoms
2	Heart disease and women Coping with multiple and changing roles	Role integration, stress, and satisfaction Social support Coping with lifestyle adjustment Following doctors' treatment recommendations Self-confidence: achievement of therapeutic goals Prioritizing your health
3	Activity and exercise Your daily schedule	Adaptation to exercise Time management and prioritizing your health Strength training for prevention of osteoporosis
4	Depression and anxiety: knowledge and awareness of signs	Recognition and management of depression and anxiety Self-talk as a technique, diary monitoring
5	Coping with challenge and stress	Taking care of yourself Relaxation Conflict resolution
6	Communicating effectively	Importance of understanding what is being said to you and importance of being understood Benefits of communicating effectively Communicating to gain information about treatment



weekly for a 2-hour session in the CR department. Each week, a CR nurse or nursing research center-based researcher facilitated sessions promoting education and awareness, social support, and strategies for behavior change. A topic schedule (Table 1) guided the content of each week's session, although discussions remained flexible to allow for emerging issues within each different group of women.

The program was based on a mutual aid model,<sup>32</sup> wherein a group facilitator assists participants to help and support each other. According to Shulman, the group facilitates a coalition between participants to address common issues and problems. The forging of relationships and the iterative discussing and trialing solutions to problems can create bonds and nurture supportive and enabling relationships.<sup>32</sup> The commonality and mutuality of experience and the sense of understanding are a key driver in this process. Some of the mutual aid processes that take place within a group are the sharing of information, the fact that participants share a similar experience/problem, mutual support, mutual demand, individual problem solving, and the notion of strength in numbers when the group comes together with a similar link.<sup>33</sup>

The health professional-facilitator guides the program to achieve its objectives. In contrast to a support group where participants establish the agenda and the facilitator plays a moderator role, the nurse's role was more directive to achieve positive behavioral change. Promoting mutual support and sharing a commonality of experience, views, and emotions were important strategies. Time was also taken to resolve ambivalence and perceived and actual barriers to behavior change. Positive behaviors among group members were affirmed, and the strategies were shared with participants. Behavioral prompts, such as pedometers, were used in addition to the provision of relaxation tapes and material to prompt behavioral change. The program was conducted in a convivial setting, providing and modelling heart-healthy afternoon tea and promoting social interaction. At the end of each 6-week cycle, the women graduated from the program, and a new group of women commenced the program.

### *Instruments*

Participants were asked to complete a questionnaire packet assessing a range of psychoso-

cial characteristics at baseline and on completion of the intervention. The measures included are described here.

*Perceived control.* The Cardiac Control Index consists of 19 belief statements measuring perceived control and its converse, helplessness, in the context of cardiac disease. The participant rates her agreement to statements on a 5-point Likert scale. High scores indicate high levels of perceived control. This instrument is currently being used in the National Institutes of Health (NIH)-funded PROMOTION (Patient Response to Myocardial Infarction Following a Teaching Intervention Offered by Nurses) study in Australia and has been determined acceptable in an Australian population.<sup>26</sup>

*Depression, anxiety, and stress.* The DASS 21 is the short form of the Depression, Anxiety, Stress Scales (DASS)<sup>34</sup> which is a set of three self-report scales designed to measure the negative emotional states of depression, anxiety, and stress. The depression subscale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The anxiety subscale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress subscale assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/overreactive, and impatient. These scales have been found to demonstrate high internal consistency. Alpha values for the 7-item scales are: depression 0.81, anxiety 0.73, and stress 0.81. The items demonstrate substantial factor loadings on their own scales and low loadings on the other two scales. However, similar to other scales measuring mood states, there are moderate to high interscale correlations: depression-anxiety 0.55, anxiety-stress 0.68, and depression-stress 0.60. This scale has been used in Australians after an acute cardiac event and has demonstrated reliability and the ability to document changes over time.<sup>34</sup>

*Role integration.* The Women's Role Interview Protocol (WRIP)<sup>35</sup> was developed to determine the degree of stress and satisfaction derived from five traditional female gender roles. Role integration is defined as the balance between stress and satisfaction for primary roles of women: wife/partner, mother, houseworker, caregiver, and paid employee.<sup>35</sup> For each role, women were asked to rate their level of stress and satisfaction along a 10-point scale. The stress ratings for each

role range from 1 (not stressful at all) to 10 (very stressful), and the satisfaction ratings for each role range from 1 (not satisfying at all) to 10 (very satisfying).

*Social support.* Social support pertains to the level of emotional and instrumental support derived through interpersonal relationships. This can take the form of information, reassurance, or the capacity to rely on another person for support. It is beyond mere provision of instrumental support or information and also infers a degree of empathy and reciprocity. The Multidimensional Scale of Perceived Social Support (MSPSS)<sup>36</sup> is a 12-item scale designed to measure perceived adequacy of social support. The items divide into factor groups relating to the source of the social support, namely, family, friends, or significant other, that has been confirmed by a principal components factor analysis.<sup>36</sup> The MSPSS has been found to have good reliability across a range of subject groups, and strong factorial validity confirmed the subscales.<sup>36,37</sup> Participants were asked to indicate to what extent they agreed or disagreed (ranging from very strongly disagree to very strongly agree) with statements depicting the presence of friends or family members on whom they could rely, share experiences, and problems and people they believed generally cared about them and could comfort them.

### *Analysis*

Data from all questionnaires were entered into SPSS version 14.0 for descriptive and parametric analysis (SPSS, Chicago, IL). Paired samples *t* tests were performed on pretest and posttest questionnaire data. Scores for the WRIP were separated into the two dimensions measured: stress (1, 3, 5, 7, 9) and satisfaction (2, 4, 6, 8, 10) items. Each item's score was summed and averaged within these categories. Eight items (3, 4, 5, 8, 11, 14, 16, 18) of the Cardiac Control Index were reverse scored. Scores of the MSPSS were compared together as well as by construct (family, friends, significant other).

Qualitative data were procured for analysis via notes taken by a scribe within the group sessions (48 sessions) and eight semistructured telephone interviews, each lasting approximately 20 minutes, following completion of the program. Group session notes included topics and questions raised by participants, observed interactions among par-

ticipants and facilitators, and participant quotes. Questions asked during telephone interviews related to women's perceptions of how their involvement in the program impacted various domains of their lives, knowledge and awareness levels of heart health and related action strategies, and barriers and facilitators to program participation. Questions broadly reflecting psychosocial issues covered in the questionnaires were posed in an attempt to ascertain women's perceptions of the impact of the program within these realms. Having women freely comment on these topics allowed them to further elaborate on contextual issues that may not have been captured in questionnaire items. This mixed-method approach further informs feasibility of outcome measures. Moreover, the interviews and field notes had potential to provide valuable information about the acceptability of the intervention and logistical issues of the program as well as to obtain the opinions of end-users to inform ongoing intervention development.

Notes of interview proceedings and observation notes were analyzed. The first level of analysis involved two researchers separately interpreting field and interview proceedings by reading, rereading, and note taking. The researchers then met to explore, debate, and synthesize their interpretations. During the final stage of analysis, themes that emerged from the qualitative findings were considered in light of quantitative results.

## RESULTS

### *Quantitative data*

Fifty-four women were enrolled in the program in the study period. Of these, 48 women with a mean age of 60.85 (SD 9.1) completed the questionnaires. The women ranged in age from 42 to 80 years. Reminder notes were posted to participants to promptly return the posttest questionnaires, although just over half (58%, *n* = 28) returned the postprogram questionnaire. Only 1 woman declined participation in the program, stating "the program is not for me." One woman disclosed that she was illiterate and opted not to complete the questionnaire with the assistance of a CR nurse. She did, however, participate in weekly group sessions and the qualitative portion of the study.

TABLE 2. PAIRED SAMPLES *t* TEST RESULTS

<i>Instrument/construct</i>	<i>Pretest mean (SD)</i>	<i>Posttest mean (SD)</i>	<i>p value</i>
DASS/Depression	9.04 (11.90)	7.36 (6.92)	0.310
DASS/Anxiety	6.44 (8.00)	6.81 (7.92)	0.617
DASS/Stress	9.36 (8.90)	11.20 (6.95)	0.231
WRIP/Stress	4.26 (3.19)	3.33 (2.27)	0.162
WRIP/Satisfaction	7.10 (2.28)	6.81 (2.25)	0.581
CCI	3.71 (0.42)	3.83 (0.47)	0.304
MSPSS	5.76 (0.78)	5.68 (0.86)	0.402
MSPSS/Significant other	5.99 (1.34)	5.98 (1.44)	0.940
MSPSS/Family	5.76 (0.81)	5.60 (0.84)	0.159
MSPSS/Friend	5.55 (0.85)	5.50 (0.88)	0.750

The majority of the women (67.4%) were married and living with their spouse or intimate partner (60.5%). Most had no children living at home, and about a third had between 1 and 4 children at home whose ages ranged from 1 to 48 years. Twelve percent of the women cared for people living outside of their homes. Women in paid employment comprised 16.6% of the sample, and a further 7% held volunteer positions in various organizations.

Results of *t* tests for each instrument indicate no statistically significant changes from preintervention to postintervention, with a 95% confidence interval (95% CI) (Table 2). Results of descriptive analysis for all measures appear in Table 3. Descriptive analysis of the DASS 21 reveals de-

creases in self-reported depression, anxiety, and stress scores. Figure 1 shows the percentages of participants whose self-report scores indicated mild, moderate, severe, or extremely severe levels of depression, anxiety, and stress at baseline and on completion of the program. Those participants whose scores were classified as normal are absent from this chart, as we were looking at any scores classified in the DASS 21 as representing a nonnormal level. In addition, there were reduced levels of severity within all three constructs. For example, depression and stress were reported as extremely severe by some women before the program, but after the program, no participant reported this level of severity in these constructs. Instead, following the intervention,

TABLE 3. DESCRIPTIVE ANALYSIS RESULTS

<i>Test/construct</i>	<i>Timing</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>SD</i>
DASS/Depression	Pre	0.00	38.00	9.35	11.24
	Post	0.00	26.00	7.62	6.91
DASS/Anxiety	Pre	0.00	34.00	8.32	9.54
	Post	0.00	32.00	6.81	7.93
DASS/stress	Pre	0.00	38.00	10.86	9.82
	Post	0.00	28.00	11.23	6.81
WRIP/Stress	Pre	0.00	14.50	4.35	2.89
	Post	0.00	8.00	3.33	2.27
WRIP/Satisfaction	Pre	0.00	10.00	7.07	2.04
	Post	2.00	10.00	6.76	2.23
CCI	Pre	2.00	5.00	3.58	0.53
	Post	2.68	5.42	3.83	0.46
MSPSS	Pre	2.92	7.00	5.60	0.89
	Post	3.67	7.00	5.69	0.85
MSPSS Significant other	Pre	1.00	7.00	5.87	1.16
	Post	1.00	7.00	5.95	1.40
MSPSS/Family	Pre	1.00	7.00	5.52	1.17
	Post	3.50	7.00	5.61	0.82
MSPSS/Friend	Pre	2.75	7.00	5.40	0.95
	Post	4.00	7.00	5.53	0.87

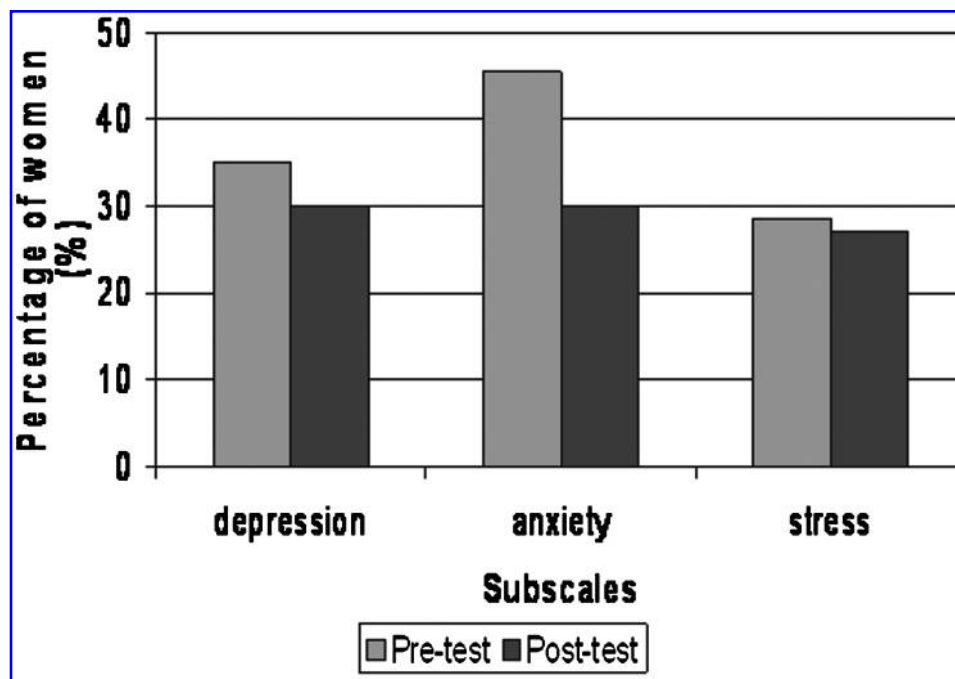


FIG. 1. DASS subscales before and after participation in the Heart Awareness for Women Program ( $n = 48$ ).

there appear to be more women reporting mild levels of depression and stress. Despite the trends evident in the descriptive data, no statistical differences were observed.

#### Qualitative findings

The four themes derived from the qualitative data were (1) lack of understanding/awareness of symptoms, (2) perception of isolation, (3) not prioritizing one's own health, and (4) benefits of support and supportive education/awareness.

*Lack of understanding/awareness of symptoms.* Participants' comments on the prodromal period before diagnosis underscore the importance of promoting the significance of heart disease and women in the community. The women reflected on the period prior to diagnosis with the following statements: "Just wasn't myself. . . . I lost my oompf." "GP [general practitioner] said it is just stress."

These statements highlight the lack of information/awareness held by women and, in some cases, health professionals, regarding prodromal symptoms of heart disease in women. One participant talked about her key "angina equivalent" symptom being a dry throat. This woman spent several weeks sucking butterscotch and even commented that she felt worse over the Easter

holiday but did not want to bother anyone. This underscores the importance of appreciating differences in symptoms between men and women and facilitating strategies that minimize delay in seeking treatment.

*Isolation.* The lack of information and awareness in women about heart disease and symptoms of heart attack or angina were associated with the feeling of being alone or isolated in the experience. Following a cardiac event, women often felt that family and friends could not understand what they were going through. The women sometimes had difficulty expressing themselves to health professionals and family members as depicted in the following quotes: "I thought I was the only one feeling like this." "I find it difficult to make my doctor and family understand how I feel."

The women described being fearful and worried about future events, such as the possibility of surgery, another heart attack, or not being able to take care of their families or return to life as it was before this disruption. They felt frustrated that this was happening to them, that they could not get relief from symptoms, and that they did not seem to be improving. Most difficult to many of the women was the perception that they could not confide in anyone about these feelings. Some



women referred to the social support measure included in the baseline questionnaire packet they were asked to complete. Results of the MSPSS indicated that although the majority of women felt supported by friends and family, a subset of women (10%) did not believe they had adequate emotional support. In group discussions, some of these women reported that they did not complete this instrument because they found the social support questionnaire to be particularly confronting. Women explained that reading such items as "I get the emotional help and support I need from my family," "I have a special person who is a real source of comfort to me," and "I have friends with whom I can share my joys and sorrow" evoked sadness and tearfulness because they perceived themselves to be lacking in these areas. These reactions highlight the emotional fragility and possible depression of a subset of participants at this time point.

*Not prioritizing own health.* The issue of women putting the needs of others, mainly their children, grandchildren, partners, and other family members, ahead of their own was a prominent issue discussed within groups. The roles included in the WRIP (maternal, spousal, caregiver other than maternal or spousal, housework, and paid employment) were further explored in interviews with participants. Findings indicated that although women reported positive associations with these roles, such as establishing and maintaining connections with family and friends, feeling a sense of being needed, and feeling a sense of purpose, there were negative aspects as well. These negative aspects included feeling emotionally or physically exhausted from being there for and doing for others. They explained that they did not want to contribute to a family members' stress levels or make a fuss by disclosing physical symptoms or psychological burdens. A statement uttered by several women in different groups, "I didn't want to worry anyone," supports research that has demonstrated that women tend to put the needs of others before their own, often at the expense of their own health.<sup>37</sup> Women also reported not having time for exercise or stress minimization strategies because of their multiple roles.

*Benefits of support and supportive education/awareness.* Women explained that within the groups, they were able to talk about subjects rel-

evant to their heart condition in a way that was not possible with their family or friends. A women's CR group meant that the women felt able to freely discuss unique problems women face following a cardiac diagnosis as well as other women's health issues, such as having Pap smears and experiencing incontinence. They were able to discuss the difficulties they experienced communicating with their spouses that may not be possible in a mixed-gender group. When members expressed problems, group members readily empathized with the experience, even though the types of cardiac diagnoses varied. These open and frank discussions served to ease the feelings of anxiety and loneliness in several women. Instead, the women felt reassured that they were not alone in their concerns and challenges.

Within the groups, women engaged in mutual aid behaviors to support and help each other. For example, one participant recommended to the group that going to bingo was an activity to facilitate social interaction but also to maximize cognitive acuity. It was also observed that when participants would sometimes challenge negative beliefs of another participant, this facilitated empowerment of the participant.

Women also explained that they valued the small groups in comparison to larger groups characteristic of mainstream programs. One participant commented that she had difficulty hearing and appreciated the opportunity to reflect on individuals' stories. Furthermore, the women appreciated the contact with knowledgeable CR nurses who were able to answer their questions and propose useful suggestions to symptom-related problems. They did not feel overloaded by the information they received because they had time to process it, ask questions, and hear perspectives of the other women in the group.

## DISCUSSION

The results of this study identify a need to develop and assess the efficacy of CR treatments that address the specific needs of women. The reporting of delays in diagnosis by women<sup>9</sup> underscores the importance of emphasizing this issue in program content. This pilot phase has been useful in determining acceptability of the intervention and the feasibility of outcome measures. As the majority of women attended a mainstream CR program, the HAFW intervention demon-

strated that a program focused more on psychological and social issues complemented CR services and appropriately responded to the needs of these women.

The program development process identified logistical issues in configuring groups and working through course content. The format of the program evolved to meet the priorities of participants. This program provided not only social support for women with heart disease but also employed strategies to improve knowledge about secondary prevention and facilitated self-management strategies. It was important that the group leader play a facilitator role rather than a didactic one. Evaluation of the program determined that it was necessary to achieve a delicate balance between providing information and encouraging the sharing of individual experiences and opinions in the group.

The program was conducted within a multidisciplinary context; however, we found it necessary to have a cardiac nurse present in the group because of the possibility that participants might discuss medical incidents. Key challenges for group facilitators were focusing discussion on key topics for the group and ensuring equal contribution of all participants.

### *Feasibility*

As in other published series, transportation was recognized as a barrier to participation.<sup>38</sup> Of note, several participants would not have been able to attend the sessions had it not been for provision of taxi fares subsidized by the study. Thus, this pilot study supports the concept that financial assistance for convenient transport is a highly beneficial strategy to increase attendance of women in CR programs. We also recognized the special needs of some older women and altered the group's structure to accommodate hearing and visual limitations. Program attendance is affected also by women's roles and, in particular, paid employment. The employed women (16.6%) in the current study were able to adjust their work schedules to attend the six midafternoon sessions. However, we recognize that consideration of timing of future programs must reflect the needs of participants.

As in many studies, participant completion of surveys and monitoring behaviors during the week via diaries was found to be burdensome. Rather than deter participants from participating,

we attempted to minimize responder burden by using as few tools as necessary. As the baseline data were collected with the assistance of the CR staff and research team, issues relating to literacy were not apparent except for 1 woman who disclosed that she was illiterate. On the basis of this experience, we would endeavour to address issues relating to literacy and decrease the complexity of the test battery. In addition, content of instrumentation evoked emotions that led to non-response in some participants. Further work to identify women's perceptions of the construct of social support needs to be explored. Their attitudes may reflect the ambivalence that some women feel as well as their regret about unsatisfactory relationships.

In spite of the poor response rate to the posttest questionnaire, it is the policy of the ethics committee that participants are not to be repeatedly followed-up in the case of nonreturn of questionnaires. In view of these issues, we would recommend that participants complete the evaluation questionnaire within the program setting with assistance available if required.

### *Strengths and limitations of the pilot phase*

The research team recognizes several limitations to this study. A purposive, nonrandomized sample of participants limits the ability to generalize the study findings beyond the study sites. The research team also acknowledges the small sample size and selection bias. Approximately half of the participants did not return the post-program questionnaire yet attended ongoing activities, such as social outings and maintenance CR, implying that they were not dissatisfied. In addition, the majority attended the launch of the program manual for a Valentine's Day event. As discussed, subsequent approaches to women were not allowed by the ethics committee. No differences were determined between responders and nonresponders and women who did not complete the survey. All participants contributed to the qualitative portion of the study.

Despite the implicit methodological limitations of this non-randomised pilot study, this study has several strengths. This study has provided the ability to 'road test' a model of intervention for acceptability and utility. The action research process treats the women as 'partners' rather than 'participants'. This flexibility and participatory nature of the project may have impacted on the

women's attitude to completing evaluation questionnaires; in that they did not see the importance of this to the project. In addition, this intervention has been informed by a far-reaching and eclectic literature review, consumer and clinician consultation, and sequential development. The involvement of consumers and clinicians in a partnership model has allowed the development of an intervention that has the potential to increase participation of women in cardiac rehabilitation.

#### *Implications for intervention development in women*

Women with heart disease have greater risk of mortality and psychosocial morbidity than men<sup>39</sup> yet participate less in CR. There is a need to develop and assess the efficacy of CR treatments that address the specific needs of women. Data and feedback from this pilot phase provide preliminary evidence of the acceptability, feasibility, and potential utility of the HAFW intervention, particularly in relation to psychological and social outcomes. Clearly, to determine the effectiveness of the HAFW as a model of intervention, a randomized, controlled clinical trial is required.

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Address reprint requests to:  
*Patricia Davidson, R.N., M.Ed., Ph.D.*  
*Curtin University of Technology*  
*Centre for Cardiovascular and Chronic Care*  
*Curtin House*  
*39 Regent Street*  
*Chippendale NSW 2008*  
*Australia*

*E-mail: p.davidson@curtin.edu.au*



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