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ORIGINAL ARTICLE

Get Healthy after Breast Cancer - examining the feasibility, acceptability and outcomes of referring breast cancer survivors to a general population telephone-delivered program targeting physical activity, healthy diet and weight loss

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Abstract
Purpose This pilot study assessed the feasibility, acceptability and outcomes of referring breast cancer survivors to the 'Get Healthy Service' (GHS), a state health-funded 6-month telephone-delivered lifestyle program.
Methods Pre-post study with eligible and consenting women following treatment for stages I–III breast cancer referred by nurses in a cancer treatment centre to the GHS. Feasibility was assessed via GHS uptake and completion; acceptability was assessed via patient satisfaction and nurse feedback. Changes in weight, physical activity, diet, quality of life (QoL) and fatigue from baseline to 6 months were examined.
Results Fifty-three women (mean ± SD body mass index, 31.0 ± 5.5 kg/m^2; age, 57.3 ± 10.0 years; 14.0 ± 7.1 months post-diagnosis; 43.4% born outside Australia, 49% high school or less education, 32.1% English as a second language) took up the GHS, with 62% completing the program. Almost all (92%) completers had high satisfaction ratings and breast nurses provided positive feedback. Findings from GHS completers (n = 33) show a statistically significant effect from baseline to 6 months for weight loss (mean ± SE; −2.4 ± 0.7 kg; p = 0.002) and total physical activity minutes per week (55 ± 18 min/week; p = 0.006). No significant changes in fruit or vegetable servings per day or takeaways and fast food frequency per week were observed. A significant improvement in mental QoL was observed (3.5 ± 1.6; p = 0.041), but not for physical QoL or fatigue.
Conclusion GHS referral appeared feasible, acceptable and effective for a diverse group of women following completion of treatment for breast cancer, yet more remains to be done to fully integrate GHS screening and referral into usual care.

Keywords Breast cancer · Survivorship · Telephone coaching · Physical activity · Exercise · Diet

Introduction

The incidence of breast cancer is increasing, and with improved treatments, most women in developed countries will survive at least 5 years [1]. The growing number of survivors highlights the need for attention to issues of longer-term survivorship, particularly for health promotion [2]. To promote good health following cancer, major international cancer organisations recommend that cancer survivors engage in regular physical activity, eat a healthy diet and achieve/maintain a healthy body weight [2, 3]. Research has shown that the majority of breast cancer survivors do not meet lifestyle recommendations for physical activity or fruit and vegetable intake [4, 5], and over 50% are overweight or obese [6, 7]. These factors are associated with higher risk for cancer recurrence and mortality [8–10] and the onset or worsening of other chronic diseases (e.g. cardiovascular disease, type 2 diabetes) [11].

Interventions aimed at weight loss, improving physical activity and diet have been shown to have beneficial effects on a range of outcomes in women with breast cancer (e.g. treatment-related side effects and psychosocial outcomes)

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[12–15]. However, there is limited wide-scale dissemination of these programs for cancer survivors in practice [16, 17]. Broad-reach approaches (e.g. telephone counselling) to program delivery can offer an accessible and potentially cost-effective means to provide lifestyle support to diverse and growing cancer survivor populations [16, 18]. Consideration of the appropriateness of referral to general population (non-cancer-specific) lifestyle support programs for cancer survivors is also important given limited resources [18, 19].

This pilot study assessed the feasibility and acceptability of referral to the 'Get Healthy Service' (GHS) among women who had recently completed treatment for breast cancer during follow-up visits to a breast cancer treatment clinic. The GHS is a free, state-funded telephone coaching program targeting weight loss, healthy eating and physical activity. It is available, based on self-referral or healthcare provider referral, following screening, to any Australian adult (www.gethealthynsw.com.au) [20]. It was initiated by the NSW Health Department in 2009 and has provided service to over 40,000 Australian adults since that time. The GHS is based on a large body of evidence on telephone-delivered lifestyle interventions [21–23]. Evaluation of this service has shown meaningful improvements in weight (−3.9 kg) and behavioural improvements in physical activity and servings of vegetables, fruit, takeaway meals and sweetened drinks in the general population [20].

The purpose of this study was to inform whether the GHS (without any cancer-specific adaptations) is a suitable program for lifestyle support among breast cancer survivors and whether such referrals were acceptable within the breast cancer treatment setting.

Methods

The Get Healthy after Breast Cancer pilot study employed a single group, pre-post design evaluating the primary outcomes of feasibility and acceptability of the 6-month GHS telephone-delivered lifestyle intervention. Secondary outcomes of weight loss, physical activity and diet were collected to allow for comparison to previously published GHS outcomes [24]. Quality of life and cancer-related fatigue were also assessed. Ethical approval was obtained from the Human Research Ethics Committee of The University of Queensland and Western Sydney Local Health District. All participants provided written, signed informed consent. Data collection occurred between January 2014 and September 2015.

Study population and eligibility

This study recruited women who had a first diagnosis of stages I–III breast cancer, were aged 18–75 years and had completed primary treatment with curative intent within the past 3 years (continued use of endocrine or targeted therapies was permitted). Women were excluded if they had a diagnosis of ductal carcinoma in situ (stage 0) or distant metastatic disease (stage IV), contraindications to participation in an unsupervised exercise or weight loss program (e.g. unstable heart disease, taking pharmacologic doses of warfarin, impaired mobility or pregnant), insufficient English to complete assessments and participate in a telephone-delivered program or a self-reported mental health condition that would interfere with study participation.

Participant recruitment

Participants were recruited from a publically funded breast cancer treatment centre located in Sydney, New South Wales, Australia. This treatment centre serves a disadvantaged/ethnically diverse population [25]. During routine follow-up visits, breast care nurses (BCNs) identified potentially eligible participants, who were then presented with a brief study information sheet. Women who expressed interest completed a 'Consent to Contact form' and were given a 'Study Information Pack'. During this visit, nurses assessed the height and weight of women who provided this initial consent. Potential participants were then contacted and screened (using the GHS eligibility form) by research staff. Eligible women who wanted to participate provided verbal informed consent during this phone call, which was recorded and stored on a secure computer server. A GHS referral form was completed for each consenting participant and emailed to the GHS service provider. As per the usual GHS procedure, health coaches then contacted participants in order to commence the program.

GHS intervention

Participants received up to ten personalised calls (lasting an average of 15–20 min) over a 6-month period, where support was given to set and achieve goals around physical activity, diet and/or weight loss/management. Participants could also choose to receive emails from coaches and other reminders (e.g. print materials) and were able to access a secure website to help track their goals [20]. Participants were allocated to a health coach for the duration of the 6-month service. Health coaches employed by the GHS were all university-qualified health professionals and included psychologists, nurses, dietitians, exercise physiologists, sports scientists, social workers and physiotherapists.

Data collection

Research staff collected data via a telephone interview and self-administered mailed questionnaire at baseline (before starting the intervention) and 6 months (after completing the

intervention). Demographic, health status, quality of life and fatigue data were collected via the self-administered questionnaire. Physical activity and diet assessments, similar to those used by GHS, occurred via telephone interviews. Breast cancer diagnosis and treatment data were abstracted by nurses from patient medical records at the breast cancer treatment clinic. Weight and height were measured by the nurses at baseline; self-reported weight was collected during the telephone interview at baseline and 6 months. The 6-month follow-up assessment was set to align with the end of the 6-month GHS program calculated from when the referral form was sent to the GHS service provider. A window of 2 months following the 6-month assessment was allowed to capture as many GHS completers as possible within the study timeline.

Primary outcomes

Feasibility: GHS uptake and completion

GHS uptake was ascertained by research staff systematically tracking the number of patients referred to the study from BCNs, the number contactable and consenting to participate in the GHS, the number who commenced the program and withdrawals from the program. GHS completion was defined as graduation from the GHS or being close to graduating with only 1–2 more calls to complete at study census. All others were categorised as non-completers (withdrew from GHS and/or study, did not complete calls and were uncontactable).

Acceptability: completer satisfaction and breast care nurse feedback

A self-administered satisfaction questionnaire was completed after the 6-month follow-up. The questionnaire assessed overall helpfulness of the GHS (on a scale of 1–5, 1 = very unhelpful, 5 = very helpful) and timing of the program in relation to their breast cancer diagnosis and treatment. Additional open-ended questions asked about aspects of the program that were difficult or could be improved.

Breast care nurses answered open-ended questions (via email) about their experience of recruiting into this study and their perceptions as to whether the GHS would be suitable as part of follow-up care for women with breast cancer.

Secondary outcomes

Weight, physical activity and diet

Weight and height were measured at baseline by a BCN with participants in light clothing and without shoes, using digital scales (to the nearest 0.1 kg) and a stadiometer (to the nearest 0.5 cm), respectively. Participants self-reported weight at baseline and 6 months.

Physical activity was assessed using the reliable and valid Active Australia Survey [26], an 8-item questionnaire which assesses time spent walking, in moderate and in vigorous activities, and doing household and gardening activities, over the past 7 days. As per standard scoring protocols, self-reported moderate-to-vigorous physical activity (MVPA) is calculated as the sum of time spent walking, in moderate activities and in vigorous activities (weighted by two), with truncation at 1680 min/week to reduce overreporting.

Dietary intake was assessed using three items from the Fat and Fibre Behaviour Questionnaire, daily fruit and vegetable intake and the frequency of takeaway and fast food consumption over a week [27]. The fruit and vegetable intake items have shown to be reliable and valid when compared to blood biomarkers [28, 29].

Quality of life

Health-related quality of life was measured using the Short-Form (SF)-36 Version 2 Health Survey, which has been adapted and validated for use in Australia [30]. Items are scored to form physical component summary (PCS) and mental component summary (MCS) scores, which are normalised to the Australian population and transformed to produce scores ranging from 0 to 100 (higher scores indicate better quality of life), with a mean of 50 and standard deviation (SD) of 10.

Fatigue

Fatigue was measured using the 13-item Functional Assessment of Chronic Illness Therapy–Fatigue Scale (FACIT-Fatigue), which assesses fatigue over the last 7 days on a 5-point scale [31]. Items are summed (total score range 0–52) with higher scores denoting lower fatigue [31]. The FACIT-Fatigue is a common tool used to assess fatigue in cancer patients as it is brief and easily administered.

Adverse outcomes

Adverse outcomes were assessed at the 6-month follow-up telephone interview. Participants were asked to report any new health problems or symptoms or illnesses, whether or not they were related to the study. In addition, all participants were specifically asked about unintentional weight loss (i.e. weight loss greater than expected based on changes made to physical activity and dietary intake). Adverse events reported to telephone coaches were recorded as per GHS protocols.

Statistical analysis

Primary outcomes were examined using descriptive statistics. Secondary outcomes were assessed by examining pre-test to

post-test changes using paired t tests and chi-square test (McNemar's exact test). A comparison of objectively measured weight with self-reported weight revealed minimal discrepancy between the two (mean ± SE; −0.47 ± 4.7; $p = 0.101$). Subsequently, self-reported weight at baseline and 6-month follow-up were used in analysis of weight change. Data analysis was performed using SPSS (version 23, IBM Corp, Armonk, NY). Statistical significance was set at $p < 0.05$ (two-tailed). Analyses were conducted for those who completed the GHS. Characteristics of completers and non-completers were compared using independent sample t tests or chi-square tests.

For the qualitative analysis, participant's responses to the open-ended questions were compiled using a word-processing software. A thematic analysis was conducted whereby investigators (SL and GM) independently coded and generated categories. Investigators confirmed and collapsed categories into the main themes.

Results

Feasibility: GHS uptake and completion

Overall, the BCNs estimated that 80 women visited the clinic each week, and they approached 10 women (per week) about the study. Seventy-seven participants provided consent to be contacted between February and August 2014. Of those, 58 (75%) consented to participate in the study (see Fig. 1) and 53 (69%) commenced the GHS program. There were no statistically significant differences for BMI or age scores between participants and non-participants (mean ± SD BMI (kg/m^2), 31.0 ± 5.5 and 31.6 ± 5.3, respectively; $p = 0.943$; mean ± SD age (years), 57.3 ± 10.0 and 58.7 ± 7.3, respectively; $p = 0.077$).

Participants were recruited 14.0 ± 7.1 months after diagnosis (Table 1). Almost half (43.4%) of the participants were born outside of Australia, half (49%) had no post-school qualification and a third (32.1%) reported English as a second language. Half of the sample were employed in some capacity (54.8%), with about a quarter (26.4%) reporting household income levels in the top two quintiles of the Australian population [32]. Diagnosis and treatment-related characteristics are presented in Table 1. Almost all in the sample had surgery along with an adjuvant therapy, nearly three-quarters (71.7%) were receiving endocrine treatment and over half (52.8%) of the sample had finished treatment within the last 6 months at study baseline.

At the 6-month follow-up, 33 participants had completed the GHS (62% completion rate), and 20 participants had either withdrawn from the GHS ($n = 14$) or were uncontactable ($n = 6$). Reasons for withdrawal are shown in Fig. 1. There were no statistically significant differences between the completers and non-completers on baseline demographic and treatment characteristics or baseline levels of diet and physical activity (Supplementary Table 1).

Participant satisfaction with the program and breast care nurse feedback

Results from the satisfaction questionnaire ($n = 28$) showed a high acceptability of the program, with 92% rating the GHS program as 'helpful' or 'very helpful'. Most women (66%) felt the timing of the program delivery was right, while 24% would like to have received the program earlier in their treatment.

Some participants highlighted in the open-ended questions that accountability to the health coach, as well as the support and encouragement received, was an important part of the service provided, as one participant stated: 'I just found that I needed just a little bit of reassurance that what I was doing was right'.

A few participants identified difficult aspects of the GHS. Some participants felt the coaches did not understand that physical activity really needed to be tailored to the person's age, as one participant stated: 'The coach's expectations that one can exercise the same as young people. I don't think the young have any idea what it's like to be 70 upwards'. Some participants felt that there was too much emphasis on weight loss, particularly when they were eating the right foods and exercising, but were not losing weight.

A few women also noted they would have preferred if their coaches were mindful of their medical history that was not cancer-related (e.g. coeliac disease, food intolerances) and would have liked other aspects of well-being included in the program particularly in relation to mental health.

Feedback from the two BCNs involved in the study was minimal and did not allow for a formal analysis as such but all key comments raised are fully reflected here. The BCNs felt this was an easy and positive program to discuss with patients. They stated that for patients who were ready to make lifestyle changes, it enabled them to take control of their health. The BCNs thought that the program was a good progression after active treatment, but would like to see it extended to women up to 5 years post-treatment. They also noted that alternative programs such as breast cancer-specific group-based programs with more peer support may be better suited for some patients. The BCNs liked the idea of incorporating referral into the program as part of the follow-up clinic, but felt this would work best in a nurse-led, rather than doctor-led follow-up care, given greater nurse propensity to focus on health promotion.

Weight, diet and physical activity changes

Baseline levels and changes in weight, diet and physical activity are shown in Table 2. A statistically significant mean

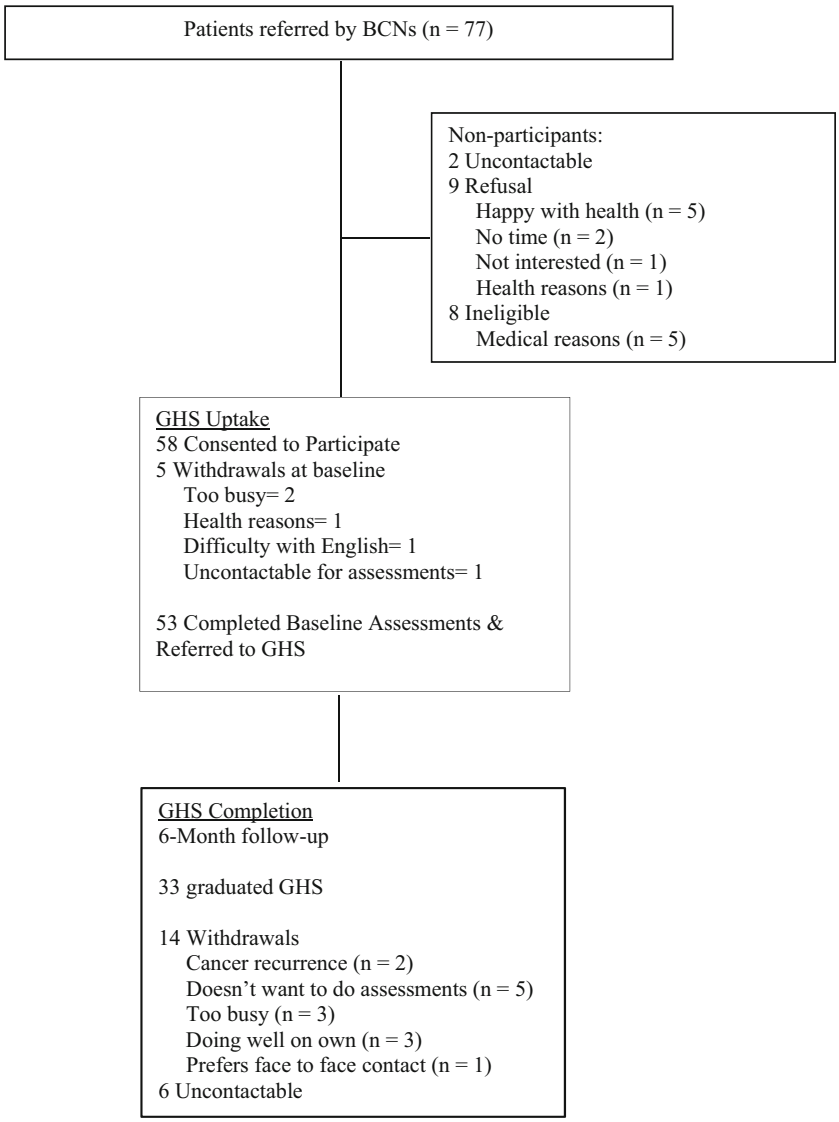

Fig. 1 Get Healthy Service (GHS) uptake and completion flowchart

The BCNs: Breast Care Nurses

reduction in weight was reported at 6-month follow-up from baseline (−2.4 kg, 95%CI −3.7, −0.9). No significant changes in daily fruit or vegetable servings were observed. An exact McNemar's test determined there were no statistically significant changes for the proportion of women consuming less than one takeaway meal per week (n = 33, pre-intervention = 68%, post-intervention = 69%; p = 1.00). There was a statistically significant increase in walking (34 min/week, 95%CI 2, 66), vigorous physical activity (12 min/week, 95%CI 1, 23) and total physical activity (55 min/week, 95%CI 16, 93) from baseline to 6 months.

Changes in quality of life and fatigue

A statistically significant improvement in quality of life was found for the mental component summary from baseline to 6 months (3.46, 95%CI 0.15, 6.76) but no significant change was observed for the physical component summary. Fatigue showed no statistically significant change (Table 2).

Adverse events

There were no adverse events related to the intervention reported; however, two participants experienced a recurrence of cancer.

Discussion

There is clear evidence that managing weight, increasing physical activity and improving diet quality are important for breast cancer survivors [2, 3]. However, there is limited availability of cancer-specific programs to support survivors in changing these behaviours and limited referral into existing

Table 1 Baseline treatment and demographic characteristics of the participants

	Participants (n = 53)
Age (years)	57.3 ± 10.0
BMI (kg/m^2)	31.0 ± 5.5
Under/healthy weight	6 (11.3)
Overweight (BMI 25.0–29.9)	17 (32.1)
Obese (BMI 30+)	30 (56.6)
Breast cancer and treatment characteristics	
Time since diagnosis (months)	14 ± 7.1
Tumour stage	
I	30 (56.7)
II	19 (35.8)
III	4 (7.5)
Type of surgery	
Breast-conserving (wide local excision)	42 (79.2)
Mastectomy	11 (20.8)
Primary treatments	
Surgery only	2 (3.8)
Surgery and chemotherapy	1 (1.9)
Surgery and radiotherapy	21 (39.6)
Surgery, chemotherapy and radiotherapy	29 (54.7)
Endocrine treatment	38 (71.7)
Time since treatment completion	
≤6 months	28 (52.8)
7–12 months	10 (18.9)
>12 months	15 (28.3)
Demographic characteristics	
Ethnicity	
Caucasian	39 (73.6)
Asian	10 (18.9)
Middle Eastern, Pacific Islander, South American	4 (7.5)
Born outside of Australia	23 (43.4)
Language spoken at home	
English	36 (67.9)
Other	17 (32.1)
Education level	
High school or less	26 (49.0)
Trade/technical	11 (20.8)
University or higher	14 (26.4)
Missing	2 (3.8)
Children <18 years living at home	10 (18.8)
Employment status	
Full-time	17 (32.1)
Part-time or casual	12 (22.7)
Retired	15 (28.2)
Other	7 (13.2)
Missing	2 (3.8)
Gross household income ($AUD)	
≤$540/week	12 (22.6)
$541–$1007/week	8 (15.1)
$1008–$1577/week	5 (9.4)
$1578–$2390/week	10 (18.9)
≥$2391/week	4 (7.5)
Do not know/refused/missing	14 (26.4)
Married or living together	34 (64.2)
Divorced/separated/widowed	13 (24.5)
Never married	5 (9.4)
Smoker status	
Never smoker	34 (64.2)
Ex-smoker	17 (32.0)
Current smoker	2 (3.8)

AUD Australian dollars

programs. This study highlighted that a state-wide telephone-delivered lifestyle program, the GHS, can be feasible and acceptable for a relatively diverse group of women following completion of breast cancer treatment. In addition, this program, developed for the general population, was effective in achieving weight loss and physical activity changes, without any adaptations for cancer survivors. However, while this program was effective for those who completed the program, some feedback suggested that it may not have been ideal, with some participants acknowledging they wanted their coaches to be mindful of other medical conditions (e.g. coeliac disease).

Overall, this study shows that it is potentially feasible for BCNs to approach breast cancer patients about the GHS during routine follow-up clinic appointments. Of those who were approached and expressed interest in the study and GHS program, program uptake was relatively high (69%). While the completion rate in this study (62%) is lower than that observed in clinical trials in breast cancer survivors [14], it is substantially higher than that in previous GHS evaluations [33] and is consistent with other telephone-delivered programs in real-world contexts [34, 35]. The study was able to recruit ethnically diverse and more disadvantaged women compared to those typically represented in the GHS [36, 37]—32.1 vs. 6.6% speaking a language other than English at home; 49.0 vs. 40.8% high school education or lower—and other breast cancer survivor interventions [14, 38]. What is important to note is that although uptake appeared relatively high in this study, nurses reported only being able to approach approximately 10% of potential patients. Possible reasons may be due to nurses not having the capacity to approach more patients, or patients not sufficiently fluent in English to take part, or perhaps nurses felt this program was not suitable for all patients attending this clinic.

Table 2 Changes in weight, diet, physical activity, quality of life and fatigue at 6 months (n = 33)

	Baseline mean (SD)	Mean change (95% confidence interval, CI)	p
Weight (kg)	80.4 (17.3)	−2.4 (−3.8, −0.9)	0.002
Fruit (daily servings)	1.7 (1.1)	0.1, (−0.2, 0.4)	0.568
Vegetables (daily servings)	2.8 (1.8)	0.3 (−0.3, 0.9)	0.315
Walking (min/week)	65 (88)	35 (3, 67)	0.035
Moderate physical activity (min/week)	9 (32)	8 (−4, 21)	0.211
Vigorous physical activity (min/week)	12 (34)	12 (1, 24)	0.038
Physical activity (total min/week of walking, moderate and vigorous)	86 (105)	55 (16, 93)	0.006
Quality of life (SF-36)			
Mental component score (0–100)	47.2 (10.0)	3.5 (0.2, 6.8)	0.041
Physical component score (0–100)	45.8 (9.0)	0.5 (−1.9, 2.8)	0.683
Fatigue (FACIT, 0–52)	38.1 (10.3)	1.6 (−0.9, 4.0)	0.202

Overall, nurses described referring patients to the GHS as positive. Yet, nurses highlighted that referral to this type of program in their current model of follow-up care (i.e. as part of physician/doctor consultation) would be challenging due to brief review appointments. These appointments are typically focussed on the detection of cancer recurrence and physical side effects [2], with no time/resources to deal with lifestyle support. Instead, nurses suggested that nurse-led follow-up care would allow greater capacity to discuss lifestyle issues and refer programs, such as the GHS [39], of which there is evidence [40]. Alternative and sustainable models of follow-up care need to be explored [41].

The majority of women who completed the study found the GHS helpful and felt the timing of the program was appropriate in the context of their treatment and recovery trajectory. However, a quarter of the women described wanting access to this program earlier in their treatment, highlighting that some desire lifestyle support at different stages of treatment; however, more feasibility studies would be needed to assess timing of lifestyle support programs. Overall, this non-cancer-specific program appeared to be valued by those who completed it; however, challenges and areas for improvement were noted. Of note, further feedback from those who withdrew from the program would have been useful to understand the suitability and acceptability of the program for these women. In particular, a number of participants withdrew because they did not want to complete assessments; understanding what was it about the assessments that caused them to drop out is important, and future studies should consider a comprehensive exit survey.

At 6 months, significant improvements in weight and physical activity were observed in those who completed the program, but not for the measures of dietary intake. Evaluation of the GHS across New South Wales over a 3-year period showed significant reductions in weight (mean −3.9 ± 5.1 kg) and increases in sessions of physical activity [33]. Mean improvements in dietary intake (fruit and vegetable servings, takeaway meals and sweetened drinks) were also observed [33]. It is possible that women prioritised their physical activity (rather than dietary) goals in the present study. Participants may have selected dietary goals that were not measured as part of the study assessment (e.g. alcohol intake). Future research should consider using more detailed assessments of dietary intake and tracking types of goals.

The mental component of the quality of life significantly improved following the GHS program (mean scores at 6-month follow-up were similar to Australian norms for women) [42], but no changes in the physical component were observed. This is in contrast to previous evidence on changes in the quality of life following lifestyle and weight loss interventions, where improvements in physical, not mental, quality of life are usually observed [43], while meta-analyses of exercise-only intervention trials have tended to show slightly stronger effects on mental health and emotional well-being subscales of quality of life than physical subscales [15, 44]. Without a (attention) control group, it is difficult to understand the quality of life changes observed in this study. The improvements in mental quality of life observed may be due in part to the regular contact and support provided by the GHS coach and/or from the positive effects on mood that are associated with increased physical activity [13]. A cancer-specific quality of life tool may have been more sensitive to detecting changes in physical quality of life; however, no significant or meaningful changes were observed using the cancer-specific tool for cancer-related fatigue.

Achieving and maintaining healthy weight, diet and physical activity following cancer is an important part of survivorship care [2, 45], but can be difficult for the many women who experience treatment-related weight gain and side effects such as joint pain which can make exercising difficult. Despite these recommendations and a strong desire of cancer survivors for lifestyle advice and support, programs to support women

in lifestyle changes are not routinely offered as part of survivorship care [17]. Healthy lifestyle programs targeted at the general population, such as the GHS, could be appropriate for cancer survivors and incorporated into follow-up care. What was not tested here was whether a cancer-specific program would have resulted in greater improvements in secondary outcomes, acceptability and retention in this ethnically diverse sample of breast cancer survivors.

Limitations of this study include the pre-post, single-group design, particularly for the patient-reported outcomes of quality of life and fatigue which naturally improve over time. Inclusion of a control group would help to determine the additional effect of the intervention. Furthermore, it is unknown exactly how many patients were informed or approached about the study in the clinic but declined to give their details for consent to contact. We have little information about why women chose not to participate, and future studies should endeavour to address this limitation. In addition, only limited information about reasons for withdrawal was gained from those participants who did not complete the program, and more detailed information would be beneficial in fully addressing feasibility and acceptability. Feedback from the two BCNs involved in recruiting the participants was obtained via non-anonymous email, but they are employed by the treatment centre and thus have no vested interest in the Get Healthy Service. Assessment of short-term (6-month) changes provides evidence for initiation of behaviour change; however, to understand if changes are maintained, longer-term assessments are needed. The strengths of this study were the clinical-research partnerships formed, the inclusion of feedback from referring healthcare providers and recruitment of an ethnically diverse, relatively disadvantaged sample that represents the general population.

Conclusion

Referral into the 'Get Healthy Service' appears feasible and acceptable for women following completion of breast cancer treatment, and for those who took part and completed the program, it resulted in meaningful improvements in weight, in physical activity and in the mental component of quality of life. With limited healthcare resources and a growing number of breast cancer survivors, identifying programs that are acceptable and effective in supporting breast cancer survivors to make lifestyle changes is needed for improving survivorship [2, 16, 17]. Existing programs targeting the general population, such as the GHS evaluated here, provide one possible solution.

Compliance with ethical standards

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Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants included in the study.

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