Title page

Title

Comparison of the **acceptability and benefits of two mindfulness-based interventions** in women with breast or gynaecologic cancer: **A pilot study**.

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Abstract

Purpose: To compare the relative benefits and acceptability of two different group-based mindfulness psychotherapy interventions among women with breast and gynaecologic cancer.

Methods: Data from 42 women who completed an **8-week** mindfulness-based cognitive therapy (MBCT) program comprising 22 contact hours were compared to data from 24 women who completed a **6-week** mindfulness meditation program (MMP) comprising 9 contact hours. Distress, quality of life (QOL) and mindfulness were evaluated pre- (T1) and post-intervention (T2). ANCOVA was used to analyse the relationship between intervention type and T1 score on outcome variable change scores. Participants' perceptions of benefit and acceptability were assessed.

Results: Participants did not differ on clinical or demographic variables other than MBCT participants were more likely than MMP participants to have a past history of anxiety or depression ($p=.01$). Scores on distress, QOL and mindfulness improved from T1 to T2 with medium to large effect sizes for the MMP ($p=.002$, $d=.07$; $p=.001$, $d=.08$; $p=.005$, $d=.06$, respectively) and MBCT ($p<.001$, $d=.06$; $p=.008$, $d=.04$; $p<.001$, $d=.09$, respectively) interventions. ANCOVA showed no main effect for intervention type on outcome change scores and no interaction between intervention type and respective T1 score. Distress and mindfulness scores at T1 had a main effect on respective change scores ($p=.02$, $\eta_p^2=.87$; $p=.01$, $\eta_p^2=.80$, respectively). Both programs were perceived as beneficial and acceptable with no differences between the intervention types.

Conclusions: Within the limits of a small, non-randomized study, these findings provide preliminary support for the utility of a brief mindfulness intervention for improving distress and QOL in a heterogeneous group of women with cancer. Abbreviated interventions are less resource intensive and may be attractive to very unwell patients.

Key words

Oncology, cancer, mindfulness, distress, quality of life, cognitive therapy

Manuscript

Introduction

Together, breast and gynaecologic cancers account for the majority of cancer diagnoses in Australian women [2]. Diagnosis and treatment of these cancers are associated with high rates of often persistent psychological distress and ongoing challenges to quality of life (QOL) [1, 6, 9, 10, 12]. As survival rates improve and more individuals diagnosed with cancer are living longer, the importance of identifying effective, cost-efficient psychosocial interventions for these individuals is increasingly important.

Group-based meditative practices such as mindfulness-based stress reduction (MBSR) [8] and mindfulness-based cognitive therapy (MBCT) [11] which employ training in mindfulness skills, are increasingly popular in oncology settings and their effectiveness is supported by a burgeoning empirical evidence base [9, 12]. Mindfulness has been described as bringing one's attention to experiences in the present moment in an accepting and non-judgemental way [8]. Mindfulness training, with its focus on self-compassion and present moment awareness, may be effective in counteracting the worry about the future and striving that are commonly experienced by women with breast and gynaecologic cancers. The development of equanimity brought about by mindfulness practice is thought to directly target the reactive processes that contribute to psychological distress [15].

The current setting, a tertiary women's hospital in metropolitan Australia, provides services to women with breast and gynaecologic cancer. From 2010 to 2011, our centre piloted an MBCT group program in 2 rounds of 3 groups per round among a sample of 42 women with these cancers [14]. This intervention was closely modelled on the original MBCT manual [11] with its focus on daily mindfulness meditation together with targeting the cognitive processes associated with relapse to depression [11] and was adapted for oncology populations by the third author. Accordingly, the intervention comprised 2 hour therapy sessions across 8 weeks as well as an extended (6-hour) mindfulness practice session between weeks 6 and 7. The program was associated with significant improvements in distress, QOL, mindfulness and post-traumatic growth, and was perceived as highly beneficial and acceptable to participants; however, the resources required to implement this program (in terms of clinician time and service costs), made it too expensive to incorporate into routine cancer care. Consequently, an **alternative, abbreviated** group-based mindfulness meditation program (MMP) was developed by the second author. The MMP was designed to be less resource-intensive and could be delivered across 6 weeks in 90 minute sessions. The intervention content focused specifically on the meditative practices found in MBCT but excluded the cognitive components. Like the MBCT program, MMP sought to include women seen in routine care without reference to their tumour stream, stage of disease, or psychological status with the rationale that coordinating psychosocial interventions stratified by these variables is unwieldy and inefficient. The MMP was delivered in five rounds of a one group per round across a three year period from October 2011 to December 2013.

In this manuscript, we set out to compare the relative benefits and acceptability of the two interventions, MBCT and MMP, among women with breast and gynaecologic cancer. The outcomes of interest were distress, QOL and mindfulness as well as the participants' perceptions of perceived benefit and acceptability. We hypothesized that there would be no statistically significant differences between the improvements brought about in levels of distress, QOL or mindfulness by the respective interventions and that participants would not perceive a difference in their respective acceptability.

Method

Sample

For both intervention types, women with a diagnosis (new or recurrent) of breast or gynaecologic cancer in the past 12 months who were engaged in current cancer treatment or active follow-up, were recruited. Other eligibility criteria were age 18 years of age or older, a clear understanding of written and spoken English, absence of cognitive impairment or mental illness that would impair ability to provide consent or participate in the program; physical ability to attend and participate in the program and commit to regular attendance, and not being at acute risk of suicide or psychosis requiring urgent psychiatric care. The study was approved by the local hospital ethics committee and was performed in accordance with the ethical standards laid down in the Declaration of Helsinki. All participants provided informed consent prior to inclusion in the study.

Procedure

Recruitment

Recruitment for the MMP and MBCT programs was via information flyers at the hospital and promotion by clinicians. Participants could either self-refer or be referred by a treating clinician. The same eligibility criteria were used in recruitment and screening for the MMP and MBCT interventions except

that for the MBCT group, letters of invitation were also mailed to women known to have been diagnosed with breast and gynaecologic cancer in the preceding 6 months (one participant was recruited in this way). All women who expressed interest in participation were assessed telephonically for eligibility in the first instance. The two pilot interventions did not occur simultaneously but occurred separately and consecutively. The MMP pilot study commenced several months after completion of the MBCT pilot study. As such, there was no selection process for either program. Participants were not able to choose between the two intervention programs as they were not offered concurrently.

Interventions

As noted above, both programs were based on the original MBCT manual [11] and involved training in mindfulness meditation, provision of theoretical material and group discussion. The differences between the two programs were: 1. The MBCT program followed the original manual more strictly in terms of structure and content e.g., program delivery across eight 2-hour sessions, the inclusion of the extended meditation practice towards the end of the program, and the focus on cognition including periodic cognitive and behavioural exercises prescribed as part of homework (e.g., Pleasant and Unpleasant Events Calendars); 2. The greater time allocation in the MBCT program meant that more meditations were taught and more time was devoted to enquiry and group discussion; 3. Participants in the MBCT program viewed a documentary film showing the MBSR program in action; 4. Facilitators of the MBCT intervention received weekly clinical supervision from a mindfulness expert and attended annual mindfulness retreats, whereas the MMP facilitator did not. Features in common were that: 1. Facilitators for both interventions had clinical experience in oncology and their own mindfulness practice (though the experience of the MBCT facilitators was more extensive); 2. Both groups received written information summarizing the weekly sessions and describing homework, meditation CDs with recording of classical meditations (although the range of meditations was smaller in the MMP group), and copies of Jon Kabat Zinn's *Full Catastrophe Living* [7], which discusses the main themes of the MBSR/MBCT program (and was prescribed as optional reading homework); 3. Both interventions were delivered in small groups with 8 to 10 participants in the MBCT groups and a maximum of 8 in the MMP groups; 4. The content of both interventions were modified for oncology patients to include awareness of treatment-related discomfort and distress in areas of the body affected by cancer and its treatment, and acknowledgement of this discomfort during meditation practice; and 5. Time allowed for discussion of existential issues such as role changes, relationship difficulties, concern for their children, changes in identity, and fears regarding mortality, and pain and suffering, was included in both groups. Table 1 provides an overview of the themes, main content, meditative practice and homework component of the respective programs.

Measures

Participants completed self-report assessments measuring distress, QOL and mindfulness prior to the start (T1) of the respective interventions and again immediately after completion of the programs (T2). MBCT participants completed these questionnaires at home and returned them via reply paid mail, while MMP participants completed questionnaires in-session.

Distress was measured with the Depression, Anxiety, Stress Scale short form (DASS-21) [5] which measures features of depression, physical arousal, agitation and psychological tension. Higher scores on this 21-item instrument indicate greater symptom severity. Internal consistency and concurrent validity of the DASS-21 have been confirmed [1, 13].

QOL was measured with the Functional Assessment of Cancer Therapy-General (FACT-G) [4], a 28-item self-report measure of QOL for cancer patients. The FACT-G score is a composite of subscales relating to physical, social, emotional and functional well-being. Higher scores indicate better well-being. Reliability and validity of the FACT-G have been well documented [9]. The Physical Wellbeing Subscale of the FACT-G was used as a measure of physical disability at time of study enrolment as it includes items relating to energy, nausea, pain, side effects of treatment, feeling ill, being able to meet family needs, and having to spend time in bed. This measure was thought to comprise a more accurate measure of wellness than variables such as stage of cancer at diagnosis and receipt of chemotherapy, radiation or endocrine therapy.

Mindfulness was measured with the short form of the Freiburg Mindfulness Inventory (FMI) [16], a 14-item instrument which includes items relating to attentive awareness of the present moment, disidentification, diminished emotional reactivity, insightful understanding of the personal experience, and an accepting attitude. Higher scores denote higher levels of mindfulness. The FMI has been found to have acceptable psychometric properties [36].

Program evaluation

At T2, the self-report questionnaire included items examining the acceptability, accessibility, perceived effectiveness, and level of satisfaction with the group-based intervention. Participants were asked to comment on the experience of participating in a group with women of varying degrees of illness, and to provide feedback on helpful and unhelpful aspects of the course. Additional questions related to meditation practice in the past, at enrolment (asked at T1) and the likelihood of maintaining practice (asked at T2).

Analyses

Analysis was undertaken with SPSS version 21.0. Within each intervention, paired t-tests were used to examine changes from T1 to T2 on the outcomes variables (DASS-21, FACT-G and FMI). Change scores (i.e., T2 score – T1 score) of the three outcome variables were computed. Independent t-tests were used to analyse differences between change scores for the respective interventions. To assess whether the relationship between intervention type and T1 score on change scores, analysis of covariance (ANCOVA) models were performed for each of the three outcomes with intervention type and T1 score entered as fixed effects. Other univariate analyses to compare groups were conducted with chi squared tests and t-tests, as appropriate.

Results

Recruitment outcomes and study participation

A total of 105 women were telephonically assessed for participation in the MBCT program of whom 23 (22%) women were ineligible (all of whom did not meet the criterion of currently receiving active treatment or follow-up), 29 (28%) declined and 53 (51%) consented. Among these 53 women who consented to participate, 3 did not attend any sessions and 8 women attended only briefly (n=5 attended 2 sessions, n=3 attended 1 session). Two women were too ill to continue with the program. Consequently, 42 women (84% of attendees) completed the MBCT program (i.e., attended at least 6 of the 8 sessions, or 75%). For the MMP, 43 women were telephonically assessed. Among these women, 11 (26%) declined and 32 (74%) women consented to participate. Of these 32 women, 4 attended only briefly (n=1 attended 2 sessions, n=3 attended 3 sessions). Four women did not complete the program due to ill health. A total of 24 women (75% of attendees) therefore completed the MMP (i.e., attended at least 5 of 6 sessions, or 80%). There were complete DASS-21, FACT-G and FMI data for 23 of the 24 participants in the MMP group and among the MBCT group, there were complete data DASS-21 and FACT-G data for 40 participants, and for the FMI, for 38 participants.

Sample characteristics of women who completed the respective programs

Sample characteristics of women who completed the respective programs are shown in Table 2. As can be seen from this table, there were no significant differences between participants in the two groups in terms of marital or educational status, age, type of cancer, whether living alone, current and past meditative practice, perception of physical wellbeing, receipt of adjuvant treatment and treatment for anxiety or depression at enrolment. The only statistically significant difference between the groups was that women who attended the MBCT program were more likely than women attending the MMP to have a past history of receiving formal treatment for anxiety or depression, resolved at study enrolment ($p=.01$).

Distress

Mean DASS-21 (SD) scores changed significantly from T1 to T2 for MBCT participants from 40.65 (21.02) to 29.30 (18.71) ($p=.001$, $d=0.6$); and for MMP participants from 41.54 (27.49) to 24.29 (13.39) ($p=.002$, $d=0.7$). Mean (SD) change scores on the DASS-21 for the MBCT and MMPs were -11.35 (19.48) and -17.25 (23.11), respectively. These scores were not significantly different, $t(61)=1.08$, $p=.34$. Results of the ANCOVA for the change score of the DASS-21 showed a main effect for T1 DASS-21 score, $F(34,15)=2.84$, $p=.02$, $\eta_p^2=.87$. There was no main effect for intervention group, $F(1,15)=2.13$, $p=.17$, $\eta_p^2=.13$ and no interaction between intervention group and T1 DASS-21 score, $F(12, 15)=1.04$, $p=.46$, $\eta_p^2=.45$.

QOL

Mean FACT-G (SD) scores changed significantly from T1 to T2 for MBCT participants from 63.80 (17.61) to 69.28 (16.37) ($p=.008$; $d=0.4$) and for MMP participants, from 71.40 (17.43) to 82.17 (14.56) ($p=.001$, $d=0.8$). Mean (SD) change scores on the FACT-G for the MBCT and MMPs were 5.47 (12.44) and 10.76 (12.94), respectively. These scores were not significantly different, $t(61)=1.60$, $p=.11$. Results of the ANCOVA for the change score of the FACT-G revealed that neither the main effect of T1 FACT-G score [$F(52,8)=1.18$, $p=.44$, $\eta_p^2=.88$] nor the intervention group [$F(1,8)=2.87$, $p=.13$, $\eta_p^2=.26$] was significant, and there was no interaction between these two factors, $F(1,8)=.01$, $p=.94$, $\eta_p^2=.001$.

Mindfulness

Mean FMI (SD) scores changed significantly from T1 to T2 for MBCT participants from 39.55 (7.16) to 46.39 (6.26) ($p < .001$, $d = 0.9$) and for MMP participants, from 33.30 (8.53) to 39.43 (7.59) ($p = .005$; $d = 0.6$). Mean (SD) change scores on the FMI for the MBCT and MMPs were 6.84 (7.53) and -6.13 (9.41), respectively. These scores were not significantly different, $t(59) = .33$, $p = .44$. Results of the ANCOVA for the change score of the FMI showed a main effect for T1 FMI score, $F(30,21) = 2.82$, $p = .01$, $\eta_p^2 = .80$. There was no main effect for intervention group, $F(1,21) = 1.30$, $p = .27$, $\eta_p^2 = .06$ and no interaction between intervention group and T1 FMI score, $F(8,21) = 1.56$, $p = .20$, $\eta_p^2 = .37$.

Acceptability and benefit of the intervention

As depicted in Table 3, most women (93% in MBCT and 88% in MMP) found the overall program to be *quite a bit helpful* or *very helpful* and all individual components of the program were similarly endorsed by the majority of women. Participants particularly enjoyed (*liked this aspect a little or a lot*) doing the program as a group, meditating and the experiences that arose as a result of practising mindfulness and more than half of the participants also liked the emphasis on home-based practice and the time commitment required. There were no significant differences between the two intervention types. All women (100%) in both intervention streams said that they would recommend the program to other women with breast or gynaecologic cancer.

In answer to the open-ended question of how participants experienced participation in a program with women of varying degrees of wellness, most responses from both groups were positive.

“This was the most interesting part. I found there were others more fortunate and less fortunate than myself and that was the greatest discovery as self-reflection was imminent. There were lots of tears of joy and sadness.” (MBCT participant)

“I liked listening to other women's stories as it helped me see I wasn't alone. There are other who are in better or worse situations than myself”. (MMP participant)

Maintenance of meditative practice

As noted in Table 2, prior to commencing the intervention, 21% women from each subsample reported having some form of meditative practice. At T2, 37 of 39 women (95%) who completed the MBCT program reported their likelihood of maintaining a mindfulness practice as *quite likely* or *very likely*. Among the MMP completers, 22 of 23 women (96%) endorsed these responses. There were no significant differences between the two intervention groups.

Discussion

We present a comparison of two mindfulness-based interventions among heterogeneous groups of women with breast and gynaecologic cancer seen in the same centre: an MBCT intervention comprising 22 contact hours of therapy (including the optional extended mindfulness practice sessions), and a less formal meditation-based program, comprising 9 contact hours of therapy. As hypothesized, both interventions were associated with significant improvements in distress, QOL and mindfulness with medium to large effect sizes and neither intervention was shown to be significantly superior (in the statistical sense) in the amount of improvement observed. Analyses showed that changes from T1 to T2 for distress and mindfulness were dependent on their respective T1 scores, indicating that there was greater improvement when there was more ‘room’ for improvement. There was, however, no main effect for intervention type or an interaction between intervention type and T1 score in determine outcome. Simultaneously, participants reported finding both programs beneficial and provided positive feedback of the interventions as a whole as well as their individual components. There were no statistically significant differences between intervention types in this respect.

There has recently been a call for research on simplified mindfulness interventions that are briefer and more flexible [12]. The MMP described here is one such intervention with these preliminary data suggesting it may present a valid alternative to the formal 8-week MBSR or MBCT programs, particularly in busy, under-resourced clinical environments. The shorter contact time also means the MMP is possibly less daunting a commitment for potential participants particularly if terminally ill or undergoing intensive treatment. Furthermore, the findings of our study suggest that therapy contact time is not associated with benefits gained, at least in the short term. These findings are consistent with a recent review which found non-significant correlations between in-class MBSR hours and mean effect size for psychological distress among clinical and non-clinical samples, suggesting the utility of abbreviated class time [3].

It is possible that the benefit of the more intensive mindfulness training offered by the MBCT intervention would be more apparent in the maintenance of gains. **Both the MMP and MBCT interventions introduce the key elements of mindfulness and teach core mindfulness meditation practices but due to the shorter session time and overall duration of the MMP, there is less opportunity for in-depth discussion of the concepts introduced in each session and also of the experiences that arise during meditation both in the group and at home. There is also less session time allocated to meditation practice in the MMP compared to MBCT program. Potentially, these differences may result in MBCT participants having a greater understanding of the experience of meditation compared to the MMP participants and therefore being more likely to continue practice after formal program completion. Furthermore, MBCT includes a meditation practice focusing on observing one's physical and psychological reactions to difficulty while simultaneously holding the intention of 'allowing and letting be'. In the MMP, while participants are given time to discuss difficult experiences that may arise during meditation practice, a mindfulness meditation focusing specifically on observing reactions to difficulty is not included. Given that these interventions were implemented in an oncology population likely characterised by substantial levels of bodily and mental distress, it is possible that the inclusion of a meditation practice that could enhance understanding of one's reactions to challenging experiences might influence ability to cope with such challenges in the future and, in turn, reduce distress and improve QOL.**

Similarly, the benefit of the cognitive therapy component present in the MBCT intervention but not in the MMP may only become apparent in the maintenance of gains. This is particularly so since MBCT participants received an intervention specifically targeting rumination, a cognitive mechanism directly implicated in the relapse of depression [11]. Data from our earlier trial of MBCT [14] showed that improvements in distress, QOL and mindfulness were maintained 3 months after completion of the intervention; however, comparable data from the MMP are not available. Maintenance of improvement could also not be examined in the review paper [3] referred to above. Furthermore, it is also possible that increased contact time may itself be important to the development of the proposed mechanistic factors of mindfulness interventions, such as greater self-compassion and reduced rumination, not measured here or elsewhere [3]. Future research should evaluate the specific effects of the cognitive therapy component and the role of potential mechanisms of change on the longer term outcomes of participants.

The skill of the mindfulness instructor is thought to be a key factor in determining the outcome of these interventions. For MBSR and MBCT facilitators, best practice requirements include ongoing personal mindfulness practice, receiving supervision from a mindfulness teacher, and attendance at annual mindfulness retreats [7, 11]. These requirements, which have significant cost implications when considering inclusion of a mindfulness intervention in routine care, were met among the MBCT facilitators. The MMP facilitator, however, did not meet all these requirements, but was nonetheless highly skilled. Specifically, the MMP facilitator was an experienced clinical psychologist with specialization in psycho-oncology who had received training in the application of mindfulness across a range of settings over several years. This variable has not been directly studied, but it is possible that such highly skilled facilitators are necessary to achieve optimal benefits in abbreviated interventions. It is also possible that the skill level of therapist has an impact on the maintenance of gains. These issues require further scrutiny.

We acknowledge the limitations of this study with its non-randomized design and small sample size. The non-significant results observed here may be attributable to low power associated with small sample size. **While the study was sufficiently powered to detect within group differences, it was not sufficiently powered to detect small effect sizes for the between groups differences (i.e., between the two interventions). At this stage, however, the clinical relevance of small effect sizes is unclear, and this could be matter for future investigation.** It is recognized that the sample was highly self-selected and that it is likely that very motivated individuals, who were willing to learn new skills, attended the respective programs. Furthermore, clinical and demographic data of non-participants were not collected so the representativeness of the sample is not known; and similarly, information regarding reasons for women not being interested in the study was not recorded. A large proportion of this sample had high levels of education, a finding that is consistent with recent reviews of mindfulness-based interventions in cancer care [9, 12]. Finally, even though the intervention groups differed significantly on only one sample characteristic (past history of anxiety or depression resolved by time of enrolment), in the absence of a randomized design, it is not possible to conclude that the respective interventions are the agents of change responsible for improvements, or indeed, whether is it mindfulness, peer interaction, or cognitive therapy or a combination of these that brings about the observed improvements [12, 13]. Accordingly, the results should be interpreted with caution. Further study incorporating a randomized design with one of more of these alternate conditions as comparison is required to clarify the essential or active ingredient of a successful group psychosocial program. **Future research might also investigate the influence of participant motivation**

on MBCT and MMP treatment outcomes and determine which patient characteristics are associated with benefits from these interventions. Nonetheless, these data provide preliminary evidence for the utility of a brief mindfulness intervention for improving distress and QOL in a heterogeneous group of women with cancer.

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Conflict of interest

The authors do not have a financial relationship with the Pratt Foundation, the Collier Charitable Trust or the Preston and Loui Geduld Trust. The authors have full control of all primary data and agree to allow the journal to review these data if requested.

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Table 1

Comparison of program content for the MBCT and MMP interventions

Sess ion	Prog ram	Theme	Content overview	Meditation component	Homework
1	MBC T	Stepping out of automatic pilot	Rationale for course Defining mindfulness and ‘automatic pilot’ Present moment awareness Introducing the body as a focus	Eating meditation Breath and body scan	Mindfulness of everyday activities Formal practice (body scan)
	MM P	Stepping out of automatic pilot	Introduction to mindfulness with a specific focus on breast/gynaecologic cancer Defining mindfulness and ‘automatic pilot’ Present moment awareness Cost of being reactive to inner experiences	Eating meditation	Eating meditation Awareness of moving into and out of autopilot Present moment awareness of thoughts, feelings and body sensations
2	MBC T	Dealing with barriers	Identifying common barriers Thoughts and feelings exercise	Body scan Mindfulness of breath	Mindfulness of everyday activities Mindfulness of breath Formal practice (body scan) Pleasant Events Calendar
	MM P	Breath and body as the focus	Identifying common barriers 3 elements of experience: Awareness of thoughts, feelings, body sensations Introducing the breath and body as a focus	Three minute breathing space Body scan meditation	Body scan meditation Three minute breathing space
3	MBC T	Attending to the present	Identifying the “doing” mode and the “being” mode Breath as a focus and anchor	Mindfulness of seeing, hearing and breath Mindful stretching	Formal practice (alternate body scan and moving meditation) Mindfulness of breath

				and walking	Unpleasant Events Calendar
	MM P	Present moment awareness Foundations of mindfulness	Present moment awareness Attitude and intention of mindfulness practice Identifying the “doing” mode and the “being with” mode	‘The Pause’ Body scan meditation Mindfulness of everyday activities Mindful movement meditation	Body scan meditation Three minute breathing space) Moving meditation
4	MBC T	Taking a wider perspective	Aversion and attachment Present moment awareness Focus on reactions to distress including reactions to cancer experience View first half of MBSR documentary	Mindfulness of seeing, hearing, breath and body, sounds and thoughts Three minute breathing space	Formal practice (alternate mixed meditation and moving meditation) Three minute breathing space Notice automatic reactions to stress
	MM P	Patterns of rumination Breath as the focus	Traps of rumination Reactions to stress and rumination: Being responsive versus reactive Observer stance and observer self Breath as a focus and anchor	Three minute breathing space Body scan meditation Sitting meditation / Mindfulness of the breath meditation	Alternate body scan meditation with mindfulness of the breath meditation Three minute breathing space Notice automatic reactions to stress
5	MBC T	Allowing/letting be	Group discussion about allowing/letting be ‘Introducing a difficulty’ and noticing physical and psychological reactions View second half of MBSR documentary	Mindfulness of seeing, hearing, breath and body, sounds and thoughts with difficulty introduced Three minute breathing space with coping instruction	Formal practice (mixed meditation) Three minute breathing space
	MM P	Allowing/letting be	Allowing/“letting go” reviewed Working with the wandering mind Letting go of thoughts and worry	Sitting meditation / Mindfulness of the breath meditation Leaves on a stream meditation	Alternate body scan meditation with mindfulness of the breath meditation Leaves on a stream meditation Three minute breathing

					space
6	MBC T	Thoughts are not facts	Group discussion including identifying common thinking themes Breathing space as the first step towards a wider view	Mindfulness of seeing, hearing, breath and body, sounds and thoughts with difficulty introduced Three minute breathing space	Formal practice (mixed meditation) Three minute breathing space Cultivate awareness of thinking themes
	MM P	Summary and relapse prevention planning	Review of program Building mindfulness into daily schedule Plans for future practice and strategies to combat potential barriers Breathing space (and The Pause) as the first step towards mindful decisions Group exercise: What drains us and nurtures us (relapse prevention planning) Personal reflections	Three minute breathing space Body scan meditation (if time permits)	Considering how to build mindfulness into one's daily schedule and respond to stress Relapse prevention planning
7	MBC T	Taking care of myself	Exploring link between activity and mood Integrating mindfulness into daily schedule Recognizing signs of personal distress and how to respond Breathing space as the first step towards mindful decisions	Mindfulness of seeing, hearing, breath and body Three minute breathing space	Relapse prevention exercises – increasing mindfulness in daily schedule and responding to stress Formal practice (participant choice) Three minute breathing space
8	MBC T	Acknowledging efforts and planning for future struggles	Review of program Plans for future practice and strategies for maintaining momentum Personal reflections	Body scan Closing meditation	

Table 2**Comparison of sample characteristics of program completers for the MBCT and MMP interventions**

Characteristic	MBCT N=42	MMP N=24
Age, M (SD)	50.41 (9.86)	48.9 (9.07)
Breast cancer, n (%)	30 (71)	15 (63)
Gynaecologic cancer, n (%)	12 (29)	9 (38)
Receiving chemotherapy at enrolment, n (%)	11 (26)	11 (46)
Receiving radiotherapy at enrolment, n (%)	9 (21)	1 (4)
Receiving endocrine therapy at enrolment, n (%)	12 (29)	6 (25)
Married/cohabiting, n (%)	26 (62)	16 (67)
Lives alone, n (%)	9 (21)	3 (13)
Tertiary educated (bachelor degree/higher) , n (%)	25 (60)	15 (38)
Receiving formal treatment for anxiety or depression at enrolment, n (%)	23 (55)	7 (29)
Past history of receiving formal treatment for anxiety or depression, n (%)	26 (52)	6 (26)*¥
Current meditative practice, n (%)	9 (21)	5 (21)
Past meditative practice, n (%)	12 (27)	9 (38)
Physical Wellbeing Subscale of the FACT-G, M (SD)	18.02 (5.71)	19.67 (6.50)

*n=23

¥ P=.01

Table 3**Comparison of participant evaluation of the respective mindfulness interventions**

	MBCT N=40	MMP N=24
	<i>Quite a bit helpful/Very helpful</i>	
Overall, how helpful did you find it to attend the therapy?	37 (93)	21 (88)
Getting to know other women with breast or gynaecologic cancer	27 (68)	19 (79)
Becoming more aware of my body, thoughts and feelings	36 (90)	21 (88)
Learning how to live more in the present moment	34 (85)	21 (88)
Learning how to meditate	35 (88)	21 (88)
Finding ways to cope with difficult thoughts, feelings or bodily sensations	34 (85)	19 (79)
	<i>I liked this aspect a little/liked this aspect a lot</i>	
Doing the course as part of a group (rather than one-to-one)	38 (95)	21 (88)
Meditating	39 (98)	20 (83)
Emphasis on home-based practice	35 (88)	19 (83)*
Experiences that arose as a result of practising mindfulness	36 (90)	21 (88)
Time commitment required	26 (65)	15 (65)*

*n=23