



# Improving Breast Cancer Survivors' Psychological Outcomes and Quality of Life: Alternatives to Traditional Psychotherapy

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## Abstract

**Purpose of Review** Breast cancer survivors (BCS) often experience psychological problems and lowered quality of life (QOL). While helpful, psychotherapy is often costly and inaccessible. This review aims to provide practitioners with the latest information on empirically tested interventions among BCS that may be used in lieu of, or in addition to, traditional psychotherapy.

**Recent Findings** Recent developments in cancer-related psychological interventions include a focus on facilitating emotional disclosure (e.g., expressive writing), enhancing close relationships (e.g., couples-based interventions), and increasing feasibility and accessibility via online and computer-based intervention programs. These alternatives to psychotherapy offer a number of benefits including cost-effectiveness, personalized adaptability, and ease of implementation.

**Summary** Utilizing these interventions as alternatives or supplements to traditional psychotherapy may offer BCS an opportunity to increase their QOL, improve psychosocial outcomes, and find meaning in their cancer experience. Choosing the appropriate intervention requires understanding the unique circumstances for each survivor and their family.

**Keywords** Breast cancer · Breast cancer interventions · Psychosocial outcomes · Quality of life

## Introduction

An individual diagnosed with breast cancer faces an array of emotional and physical challenges. There are more than 2.3 million breast cancer survivors (BCS) in the USA, and this number is expected to increase as new therapies continue to improve chances of survival [1]. The survivorship period is commonly marked with psychological problems and lowered

quality of life (QOL). QOL is understood as how much breast cancer symptoms impair the patient's ability to function compared to their pre-diagnosis functional abilities [2]. Due to these psychological issues, most breast cancer survivors (BCS) may benefit from individualized psychotherapy, but such treatments are costly and often inaccessible [3]. Fortunately, there are alternatives to these traditional psychological treatments, including health-based interventions.

This review will provide practitioners with the latest information on empirically tested interventions among breast cancer survivors that may be used in lieu of, or in addition to, traditional psychotherapy. Specifically, we will review writing-based interventions (e.g., "Expressive Writing"), couples and family-based interventions, and online/computer-based interventions. In addition, this review seeks to suggest future avenues of research that may expand our understanding of how these and other psychological interventions may benefit BCS as well as inform the design of new dynamic and efficacious interventions.

Before we begin the review, our use of the term "survivorship" in the current discussion is worth noting. Here, we adopt the National Coalition for Cancer Survivorship's definition of the cancer survivorship period as beginning at the time of first cancer diagnosis [4]. Thus, at times the term "cancer patient"

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and “survivor” are used interchangeably. It is important to keep in mind, however, that just because an individual has a cancer diagnosis, does not mean they identify with the term “cancer survivor.” With that being said, we will review the psychological intervention literature, which includes samples of breast cancer patients post-diagnosis, both during and after treatment.

## Expressive Writing Interventions

Having the opportunity to express cancer-related emotions may positively influence a cancer patient’s adjustment to the stressors associated with their cancer [5]. Expressive writing (EW) interventions are a unique avenue through which individuals can disclose their deepest thoughts and feelings about a stressful life event, such as a breast cancer diagnosis. The traditional EW intervention provides participants with structured writing exercises, which include a series of writing prompts [6]. The original writing prompt by Pennebaker and Beall (1986) involved asking participants to write about their deepest thoughts and feelings related to traumatic experiences, which has become known as the “emotional disclosure” (ED) condition in research trials of EW, where participants are randomly assigned to either the ED condition or some variation of this original writing prompt [6]. Numerous clinical trials demonstrate that implementing EW among cancer survivors leads to positive effects including improvements in physical symptoms, social support, depressive symptoms, and pain [7–9]. Furthermore, the structure and format of the intervention itself has changed over time. For example, the original EW intervention asked participants to write about a traumatic event for 3–5 consecutive days for 15 to 30 min each day, but these instructions have, in many cases, since been modified based on the needs of individual populations. In addition to the traditional format of the intervention, which involved having people write in a journal-like way with paper and pencil, online versions of the intervention have also been implemented among different clinical samples (e.g., people with mood disorders) and found positive impacts on psychological health indicators [10]. This is consistent with research among healthy samples connecting EW to enhanced well-being and fewer medical visits [11, 12]. Moreover, researchers have experimented with modifying the writing prompt instructions. For example, writing about a positive experience (rather than a traumatic experience) was related to improved physical health 4–6 weeks later [13].

An article by Stanton et al., 2002 introduced the idea of using EW to improve BCS’ health-related outcomes, using writing prompts modified from the original ED version [9]. Sixty early stage (stages I and II) breast cancer patients completing treatment were randomly assigned to one of three conditions with different writing instructions. Participants received the traditional ED instructions or were either instructed

to find benefit in the positive aspects of their cancer experience, or write about cancer facts unrelated to their emotions about cancer. The findings revealed that ED reduced physical symptoms, and ED and benefit finding reduced medical appointments for cancer-related issues [9]. Specifically, participants in the ED and benefit-finding condition reported an average of 0.40–0.90 medical appointments, compared to a higher average number of medical appointments reported by those in the control condition ( $M = 2.20$ ).

Researchers continue to explore EW as an alternative intervention to psychotherapy, which may help treat both psychological and physical issues that stem from the breast cancer experience. Women wrote about their deepest thoughts and feelings about their metastatic breast cancer (ED instructions) in four home-based EW sessions; interestingly, they scored no differently on a psychological well-being measure than those who wrote on a neutral control group topic. However, compared to metastatic breast cancer patients who wrote facts about their cancer diagnosis, those in the ED condition reported greater use of mental health services during the study [14]. It may be that EW cannot be oversimplified as a one-size-fits-all intervention. In line with the movement toward a more personalized approach to patient care, current research is moving in the direction of identifying for whom this intervention works best. For example, researchers recently investigated whether EW may improve QOL among BCS who develop lymphedema. While they found no statistically significant main effects of EW on QOL, they did find that EW was more effective in improving QOL among women higher in optimism and lower in avoidance since their time of diagnosis with lymphedema [15]. Similar studies suggest that the effectiveness of the intervention may vary based on individual difference factors, and both researchers and practitioners would benefit from knowing for which individuals this intervention is best suited.

EW interventions show positive physical and psychological benefits for a variety of populations other than non-Hispanic white cancer survivors. Because participation in the intervention does not require contact with others, EW can help minority groups overcome cultural and linguistic barriers that may arise in face-to-face interventions (e.g., in-person support groups). For example, EW allows personal disclosure without having to face stigma associated with having breast cancer. This is particularly an issue among the Chinese culture, making EW a prime candidate for a potentially efficacious and culturally sensitive intervention among this group [16]. In a recent RCT, 96 Chinese-speaking breast cancer survivors were randomly assigned to one of three writing conditions: a traditional ED group, a self-regulation group, or a cancer-fact group [17]. The self-regulation group wrote about one’s deepest feelings and coping efforts in addition to finding benefits from their cancer experience, a combination of Pennebaker’s original ED writing instructions and Stanton

et al. (2002)'s benefit-finding writing prompt. The cancer-fact group wrote about facts relevant to their cancer experience. Chinese speaking breast cancer survivors in the cancer-fact group reported the highest level of overall QOL at a 6-month follow-up, compared to the other writing groups. The self-regulation group had higher emotional well-being compared to the ED group [17]. These data suggest that Asians may benefit more from writing instructions that facilitate cognitive processes rather than emotional processes. However, other cultures may respond best to alternative versions of the writing prompt. It appears, based on the recent work from Lu et al. (2017), as well as other studies, that emotional expression may not benefit everyone at all times [18], and there may be important moderators of the connection between EW, psychological health, and QOL.

Likewise, in a study of 507 Danish BCS who wrote using the ED topic or a control topic, researchers found no significant differences between the groups on measures of cancer-related distress, depressive symptoms, and mood [19]. Interestingly, women who wrote about their cancer had less improvement in these negative psychological outcomes than did women who wrote about other traumatic experiences, suggesting that asking women to write specifically about their breast cancer may not be an ideal topic for BCS [19]. Given that all other EW studies using BCS samples asked participants to write specifically about their cancer in their experimental EW conditions, the current literature may not be reflective of EW's true potential in improving psychological outcomes and QOL among BCS. In addition, women participating in some of the previous EW and breast cancer studies may not have met a sufficient enough distress level to see change over time [19]. Since we know that EW reduces emotional distress among healthy participants [20], future research should continue to investigate whether high levels of cancer-related distress is a necessary component in order for EW to be most efficacious specifically among BCS.

Most EW researchers agree that additional research exploring individual differences among patient characteristics, variation in writing prompts, and specific health outcome variables related to EW in BCS must be conducted in order for practitioners to know how best to implement EW among their patients. In particular, the writing prompt may be an important place to start looking for ways to adapt EW to target breast-cancer-specific concerns. The most promising of EW prompts in improving mental health outcomes and QOL among BCS are those related to finding benefit from and making meaning of their cancer experience [9]. For example, breast cancer patients tended to express more positive emotions and include less discussion of negative feelings when responding to a benefit-finding writing prompt compared to when they were simply asked to write about their deepest thoughts and feelings [21], suggesting that the structure and content of the writing prompt may impact how patients respond in their writing.

Qualitative studies among individuals with various types of cancer have reported that EW functions effectively as an outlet for their deepest thoughts and feelings, and helps them to develop a sense of control of their life as they attempt to move on after a cancer diagnosis [22]. Those with cancer also report appreciating the freedom to participate in EW-based interventions at their own comfort level, not dictated by a manual or curriculum. Lastly, EW is highly feasible, easy to implement, and can be tailored to individual populations including ethnic minorities. However, more research is needed in order to identify potential cognitive and physiological mechanisms behind the success of this intervention.

### Couples and Family-Based Interventions

BCS often face anxiety, depression, and cancer-related stress. While BCS identify their partners as their main source of emotional support, partners are not always able to be supportive due to their own challenges with the cancer experience [23]. For example, partners of women with breast cancer report lower QOL, and higher levels of depression and anxiety, but having a sense of intimacy in their romantic relationship can buffer these negative consequences [24]. Interventions that target couples may help mitigate psychological distress in both partners by increasing communication, minimizing conflict, and addressing issues such as self-identity, body image, and sexuality [25].

Most interventions for BCS and their partners are comprised of individual couple or group therapy sessions implemented by trained psychological personnel (e.g., psychologists, social workers, or therapists) [26]. Although psychotherapeutic interventions are widely used, a systematic review of these interventions targeting couples facing breast cancer revealed mixed efficacy [23]. While two of the studies reviewed did not find improvements in QOL [27] or post-traumatic growth [28] in the intervention groups, the majority of the ten studies reviewed reported other improvements. Benefits following couples-based psychotherapy interventions included significantly better self-reported psychological well-being, post-traumatic growth, communication, sexual functioning, and relationship functioning in both partners. However, generalization of these results is limited due to small sample sizes, heterogeneous samples, lack of consideration of potential moderators, and lack of control for pre-intervention functioning, suggesting a need for more controlled intervention studies for BCS and their partners [23].

In practice, treating individual couples with therapy-type interventions often lacks feasibility. Conducting interventions in a group setting, rather than with one individual couple, allows for wider dissemination of the intervention as well as an added social support component. Due to a lack of research on group psychological interventions for couples facing breast cancer, Manne, Seigel, Heckman, and Kashy (2016)

conducted a randomized clinical trial to evaluate the efficacy of two couple-focused group interventions [29]. Three hundred two early stage breast cancer patients and their partners were randomly assigned to one of two groups: the Enhanced Couples Group (ECG), a structured skill-based group focused on building relationship communication, problem solving, and stress management between partners, or a Support Group (SG), which did not teach specific skills but allowed couples to express their emotions with supportive peers. Both groups consisted of eight weekly 90-min sessions led by trained therapists. Participants' self-reported decreased anxiety, depression, and cancer distress over time, and increased well-being over time regardless of intervention type, suggesting that breast cancer patients and their spouses benefit from both skill-based and non-skill-based group therapy. Further, couples who had higher distress levels at baseline benefited more from the Support Group, while couples who had lower baseline distress benefited more from the Enhanced Couples Group. Specifically, couples who had higher ratings of pre-intervention cancer distress were found to report lower anxiety and depression if they were in the SG rather than the ECG condition, while couples who had lower ratings of pre-intervention cancer distress were found to have lower anxiety and depression if they were in the ECG rather than the SG condition. Overall results are consistent with current research suggesting a "one size fits all" approach to psychotherapy does not benefit all cancer survivors [29].

Therapy-type psychological interventions can be costly and time-consuming. Another option is to address BCS and their spouses through brief informational sessions or leaflets as preventative interventions rather than treatment interventions. Blais and colleagues (2014) piloted information they plan to use in a future informational intervention with 35 breast cancer patients and their spouses [30]. Participants attended focus groups in which they were asked to discuss messages such as "ask for the help you need" for breast cancer patients and "show your tenderness in ways that are not sexual" for their spouses. Transcriptions of the focus groups were coded for relevance and acceptability of each message (i.e., whether messages were perceived as helpful and whether they were clear and appropriate, respectively). Proposed intervention themes included communication, practical considerations, life as a couple, and sexuality. With few exceptions, messages were judged as both relevant and acceptable. Participants drew issue with the brevity and imperative tense used in the messages, noting that this format made it seem like there are right and wrong ways to adjust to a cancer diagnosis [30]. While this study provides preliminary support for acceptability of brief informational interventions for breast cancer patients and their partners, a revised intervention needs to be piloted before a randomized trial can assess efficacy.

Mindfulness-Based Relationship Enhancement (MBRE) is a psychological intervention that has shown improvements in

relationship satisfaction, relationship stress, and overall stress in non-distressed couples [31]. The design of the intervention adds a relationship strengthening component to the traditional Mindfulness-Based Stress Reduction (MBSR) techniques, which include practices such as meditation, yoga, and present moment awareness. Mindfulness-based interventions have been previously found to be effective in lowering depression, fear of recurrence, and increasing energy, physical functioning, and QOL among BCS individually [32]. MBRE shows promise in enhancing QOL for not only the breast cancer survivor, but also their romantic partners who may be suffering due to their partner's cancer diagnosis. MBRE may improve mental and physical health outcomes by promoting relationship closeness, improving body image, and helping BCS adjust to their new sense of self [33], though these ideas have not yet been tested. See Bower in this edition for a more detailed review of mind-body interventions for cancer survivors.

### Online/Computer-Based Interventions

As a result of the limitations of in-person interventions, online-based interventions have been developed to increase access, convenience, cost-effectiveness, flexibility, and anonymity [34]. Additionally, web-based social interactions may be perceived as less stigmatizing than face-to-face interactions [35]. After participating in web-based interventions, cancer patients report higher health status [36] and QOL [37], as well as lower global symptom distress [38], anxiety [37], and depression [39], compared to controls. Caregivers have also benefited from web-based studies, showing an increase in sexual function/satisfaction [40], and less caregiver burden and negative mood [41].

Modern technology allows for the opportunity to adapt interventions previously delivered face-to-face into online intervention programs. A recent study adapted an in-person program that showed positive outcomes for both patients and caregivers into a web-based format using tailored psychoeducation messages [42]. This web-based intervention consisted of three sessions over a 6-week period, spaced 2 weeks apart to allow the participants to practice the skills they learned during program sessions. The program aimed to facilitate communication between dyads, to increase support, and to enhance participants' ability to manage illness-related demands. The computerized format allowed the interventionists to tailor the messages by using algorithms that utilized participants' baseline questionnaire data (e.g., questionnaires about communication, support, and self-efficacy), which were used to identify areas of concern for each individual and dyad. The intervention showed significant improvements in the dyad's overall QOL, physical, and functional QOL from pre- to post-intervention, as well as a significant time by role interaction that demonstrated the effectiveness of the

intervention for patients and caregivers, respectively. Patients had greater improvements in their physical QOL and their perceived benefits of illness over time than caregivers, while caregivers had greater improvement in their self-efficacy over time than patients [42]. These findings are particularly important as previous studies have shown that caregivers often lack confidence in addressing patients' needs. The psychoeducation provided by this online-intervention may have given caregivers greater confidence about ways to help the patient, significantly improving their self-efficacy over time [42]. One of the most noteworthy conclusions of this study is the feasibility of translating an in-person program to a usable, web-based format that yields high retention rates. In fact, retention rates were higher in the new web-based program (86%) compared to the original nurse-delivered program (62–83%), and participants reported that they liked completing the online program in the comfort of their own home [42].

Building on Northouse et al. (2014), Couplelinks was developed as a fully integrated online program to help heterosexual couples manage the stressors of breast cancer and improve their coping through intimacy, communication skills, and relationship awareness [43]. The intervention includes relationship enhancement exercises and other articles relevant to young couples dealing with breast cancer. At the end of each module, a facilitator communicates feedback with the couple on the intervention website. Many benefits were reported, including enhanced communication and self-other knowledge, creation of opportunities for meaningful, cancer-related discussion, affirmation of relationship strengths, and a greater sense of closeness between partners. Similar to Northouse et al. (2014), where participants reported high satisfaction with the program's ease of use, those who completed Couplelinks reported high satisfaction with the program, website usability, and professional facilitation [43]. These findings are critical given the small number of dyadic web-based interventions for cancer patients and their caregivers or romantic partners. Further research is needed to test more dyadic web-based interventions given the positive effects, usability, and user satisfaction reported in these studies.

Fear of cancer recurrence (FOR) is a leading concern for BCS due to its associations with increased psychological distress [44] and decreased QOL [45], as well as increased health care use [46]. In Otto et al. (2016), women with early stage breast cancer were randomly assigned to either a 6-week online gratitude intervention or a 6-week online control condition. Participants in the gratitude condition were instructed to spend 10 min per week writing a letter of gratitude to "someone [who] did something for you for which you are extremely grateful," which they could choose to deliver to the recipient or keep private. Those in the control condition, who simply wrote a list of recent activities they had participated in, experienced a significant decline in positive affect while death worry remained relatively stable. Alternatively, those in the

gratitude intervention experienced a significant decrease in death worry while positive affect remained relatively stable [47]. Because FOR and death worry is one of the most prevalent and disturbing concerns among BCS, there is a pressing need to further develop interventions for FOR [48]. These studies suggest that providing online gratitude interventions may reduce FOR and emphasize the need to develop similar interventions in the future.

While research on the implementation of web-based interventions has grown, only recently have researchers sought to explore the mechanisms of these interventions' effects [49]. Using participants of Project Connect Online (PCO), Clearly and Stanton conducted the first randomized controlled trial of a web-based intervention supporting existing social networks of breast cancer patients [50]. Their aim was to assess mediators at multiple time points after participants went through a 3-h workshop about creating a personal website to communicate with family and friends. The workshop session featured a presentation about the function, creation, and maintenance of personal websites and the benefits of having one. Patients had the option of bringing a friend or family member to the workshop for the support. Researchers hoped the 3-h workshop and patients' creation of their personal website would enhance coping self-efficacy and active coping strategies, and provide a medium through which patients could seek social support and express their feelings. As a result, those in the Project Connect Online (PCO) condition showed significant improvements 6 months after the workshop in depressive symptoms, positive mood, and life appreciation relative to the control group. Moreover, the hypothesized mediators increased coping self-confidence, decreased loneliness, and increased social support from friends mediated the relationship between the PCO intervention and improvement in depressive symptoms. Coping self-confidence also mediated the relationship between PCO and enhanced positive mood, and social support from friends mediated the relationship between PCO and increased life appreciation [49]. In highlighting these mediators in the PCO intervention, these findings show that intervention research questions must expand further to address potential mediators. In addition, continued investigation of web-based programs is essential in order to address concerns of inconvenience, stigma, and lack of access imposed by many in-person interventions.

## Conclusions

These interventions may offer BCS an opportunity to increase their QOL, improve psychosocial outcomes, and find meaning in their cancer experience. There are a number of benefits to expressive writing as an intervention for BCS, including cost-effectiveness, ability to personalize prompts to be culturally flexible, and ease of implementation. The most promising

results from EW occur when the prompts focus on finding meaning in one's experience with cancer, but there are clear individual differences in the effectiveness of EW interventions. Thus, practitioners must be adept at understanding the sociocultural and interpersonal factors that may impact the efficacy of EW for each survivor.

BCS and their partners/caregivers each face unique challenges in grappling with the cancer experience. Traditional therapy-type interventions have produced mixed results but couples-based therapy-type interventions have had early success in increasing psychological well-being and relationship functioning. However, the cost, time, and necessary personalization of these face-to-face couples-based interventions make them difficult to effectively execute. Fortunately, online-based interventions may be one way to address these issues. Online/computer-based interventions are a convenient and cost-effective alternative that may provide a level of anonymity for survivors that in-person interventions cannot. These programs may better retain survivors and caretakers over time due to the convenience and flexibility of online-based interventions. In sum, choosing the appropriate intervention relies on understanding the unique circumstances for each survivor and their family. Future research is needed in order to identify potential mechanisms that may explain why these interventions are linked to positive outcomes.

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### Compliance with Ethical Standards

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