

This material is protected by U.S. copyright law. Unauthorized reproduction is prohibited. To purchase quantity reprints, please e-mail reprints@ons.org or to request permission to reproduce multiple copies, please e-mail pubpermissions@ons.org.

The Feasibility and Effectiveness of Expressive Writing for Rural and Urban Breast Cancer Survivors

Erika A. Henry, MA, Rebecca J. Schlegel, PhD, Amelia E. Talley, PhD, Lisa A. Molix, PhD, and B. Ann Bettencourt, PhD

Breast cancer remains the second most frequently diagnosed cancer for women in the United States, affecting about 250,000 women annually (American Cancer Society, 2010). Women diagnosed with breast cancer undergo a series of physical and psychological changes. Increases in stress levels and depressive symptoms, which can lower immune functioning and have negative implications for survival, commonly accompany the breast cancer experience (Anderson, Kiecolt-Glaser, & Glaser, 1994; Glanz & Lerman, 1992; Herbert & Cohen, 1993a, 1993b). Therefore, interventions that help alleviate stress, lower depression, and improve physical functioning without creating additional burdens (e.g., cost, time) are critical for helping women persevere in their battle against breast cancer. Because traveling to participate in interventions is not always feasible and may create additional burdens for patients with breast cancer (particularly for those living in remote, rural areas), identifying interventions that can be implemented effectively in patients' homes is important. As a result, the current research explored the feasibility of implementing an in-home writing intervention aimed at alleviating some of the physical and psychological costs associated with breast cancer survivorship.

Expressive Writing and Breast Cancer

The emotional expressive-writing intervention developed by Pennebaker and Beal (1986) has positively influenced participants' physical and mental health (Pennebaker & King, 1999). Initially, the expressive-writing paradigm asked participants to write generally about their thoughts and emotions regarding traumatic life experiences (Pennebaker & Beal, 1986), but researchers have used a variety of writing prompts, such as writing about life goals, one's best possible self, or an imagined traumatic event (King, 2001; King & Miner, 2000). Re-

Purpose/Objectives: To determine the feasibility and effectiveness of implementing an in-home expressive-writing intervention among breast cancer survivors living in urban and rural areas.

Design: Women who had completed radiation therapy were selected to participate in either expressive writing or a usual-care control condition.

Setting: All materials were completed in the privacy of participants' homes.

Sample: Of the 57 breast cancer survivors recruited, 40 participated in the writing intervention. An additional 40 women were assigned to the control group.

Methods: Participants completed measures of physical and psychological health at two time points prior to writing and at two follow-up time points three and nine months after writing.

Main Research Variables: Participation rates and physical and psychological health.

Findings: Results showed that engaging in a single in-home writing session for women with breast cancer was feasible and showed significant improvements in physical and psychological health compared to control three months (but not nine months) after writing. Although no difference was found in effectiveness of the intervention between women living in urban versus rural areas, rural women showed slightly higher participation rates.

Conclusions: The results illustrate the utility of employing remotely administered expressive-writing interventions for breast cancer survivors.

Implications for Nursing: Healthcare professionals who wish to use writing to facilitate improvements in their patients may suggest that patients write at multiple time points, offer for the intervention to be completed at home, and target rural populations in particular.

ardless of the prompt, researchers have documented the physical and psychological benefits of expressive writing among nonpatient (Burton & King, 2008; King, 2001; Pennebaker & Beal, 1986; Sloan & Marx, 2004; Smyth, 1998) and patient populations (Epstein, Sloan, & Marx, 2005; Frisina, Borod, & Lepore, 2004; Stanton et

al., 2002; Zakowski, Ramati, Morton, Johnson, & Flanagan, 2004). The physical health benefits experienced by writing participants include decreased visits to the doctor (King & Miner, 2000; Pennebaker & Beal, 1986; Stanton et al., 2002), heightened immune functioning (Esterling, Antoni, Fletcher, Margulies, & Schneiderman, 1994), improved lung and liver functioning (Francis & Pennebaker, 1992; Smyth, Stone, Hurewitz, & Kaell, 1999), and reduced severity of cancer-related ailments (Rosenberg et al., 2002). The psychological benefits include increased positive affect (Pennebaker, Kiecolt-Glaser, & Glaser, 1988), improved psychological well-being (Park & Blumberg, 2002), reduced post-traumatic symptoms (Klein & Boals, 2001), and decreased depressive symptomatology (Lepore, 1997).

Studies examining the feasibility of implementing an expressive-writing intervention for cancer populations, in general, have proven to be successful in clinical settings (Morgan, Graves, Poggi, & Cheson, 2008). In addition, studies examining the effectiveness of expressive-writing interventions among women with breast cancer specifically have found improvements in physical health and, for some women, improvements in psychological health (Stanton et al. 2000, 2002). Although previous studies conducted in the laboratory have evidenced improvements, determining whether the benefits of writing transcend the laboratory and clinic is worthwhile. An effective in-home writing intervention would provide at least two important practical benefits. First, it would eliminate the need to travel to participate, which may be beneficial particularly for women living in rural areas, for whom traveling to more populated areas may be less feasible. Second, interventions implemented in the home provide greater opportunity for privacy. Many women may feel more comfortable engaging in expressive writing in the comfort of their own homes compared to other public forums (e.g., clinic offices, research laboratories).

Supportive of these assertions, Walker, Nail, and Croyle (1999) reported that they originally intended to conduct a writing intervention for patients with breast cancer in a clinic setting; however, the patients were reluctant to stay 30 minutes after radiation therapy. Therefore, the implementation of the paradigm was altered so that the remaining participants could complete the writing session in their homes. In spite of this innovation, Walker et al. (1999) did not find improvements in participants' psychological health and, unfortunately, did not assess the impact of the intervention on physical health. Given that procedures for administering the intervention were changed, a study is needed that addresses these limitations. That is, a study assessing the impact of an at-home writing intervention for the entire sample on both physical and psychological health is required to determine the effectiveness of writing at home.

Remotely Administered Writing Intervention for Rural Patients

Although Walker et al. (1999) did not report on the rurality of the women in their study, the innovation in their study design (e.g., administering the intervention at home) may be particularly practical for rural women with breast cancer. A review by Bettencourt, Schlegel, Talley, and Molix (2007) indicated that rural women with breast cancer have distinct experiences and challenges that may generate more stress and psychological discomfort than their urban counterparts undergo. Bettencourt et al. (2007) argued that living in a rural community restricts access to psychological support services and that rural communities also tend to have more negative attitudes about seeking psychological services; therefore, rural women may be less likely to seek mental health care because of a fear of stigmatization. The implementation of an intervention that is easy to do and private may be particularly beneficial to rural patients. As a result, the current study examined participation rates of rural women to address whether they are likely to complete the intervention given their unique issues.

Walker et al. (1999) had participants complete part of the writing intervention at home, but their null results may suggest that writing at home is ineffective for women with breast cancer. However, the lack of effect may have been caused by many factors, including a lack of directives in their writing instructions. Walker et al.'s (1999) instructions for writing stated to complete the writing exercise in a quiet room at home but did not specifically tell the women to find a private place to write for 20–30 minutes *without interruption*; however, Frattaroli (2006) found that privacy moderated the beneficial outcomes of expressive writing. Specifically, whether breast cancer survivors would (a) voluntarily engage in a single writing session at home, (b) be able to do so in a private place without interruption, and (c) benefit with regard to improved physical or psychological health is unknown. Therefore, the current research examined the feasibility and success of administering a single in-home writing intervention for breast cancer survivors.

Study Overview and Hypotheses

The current writing study was conducted as part of a larger study on breast cancer survivorship; as a result, the authors had the ability to compare the responses of the writing intervention's participants to a control group of women who did not engage in a writing exercise. Measures of depressive symptomatology, mood states, and physical symptoms were assessed during the first week of radiation treatment and about 12 weeks later, just prior to the writing intervention. The same variables

also were assessed three and nine months after the writing intervention.

Regarding feasibility, the authors hypothesized that the study would have a high rate of participation, most women would be able to find a private place to write without interruption, and most women would view the exercise positively or neutrally. The authors also hypothesized that the writing intervention would improve physical and psychological health three and nine months later.

Methods

Participants

Participants were recruited randomly through radiation oncology clinics at one of six centers in central Missouri. All women contacted were part of a larger study on psychological adjustment to breast cancer. From this population, 57 female breast cancer survivors were selected for potential participation in the writing intervention (27 rural and 30 urban), whereas an additional 40 participants were identified as matched controls for the intervention group. The matched controls were selected on the basis of similarities in age, stage of breast cancer, relationship status, and income. Analyses confirmed that the control group did not differ from the writing group on the matching variables or any dependent variables of interest prior to the intervention.

Rurality

Women were defined as urban if they lived in a standard metropolitan statistical area (SMSA). An SMSA consists of counties that have one or more places with populations of 50,000 or more. Rural women were defined as individuals living outside an SMSA, with the added restriction that the rural-urban code of their county was from 6–9. Rural-urban continuum codes distinguish metropolitan counties by size and nonmetropolitan counties by degree of urbanization and proximity to metropolitan areas (Economic Research Service, 2003). The 10 rural-urban codes range from 0 (central counties of metropolitan areas with a population of 1 million or more) to 9 (towns with a population lower than 2,500 not adjacent to a metropolitan area).

Procedure

All participants received four survey packets over the course of the first 18 months following breast cancer diagnosis. The surveys included assessments of demographics, physical health, and psychological health. A nurse at the clinic provided the first survey to participants during their first week of radiation treatment (baseline 1). The second survey was mailed directly to participants four weeks after they completed radiation

treatment (baseline 2). For the current study, the two surveys administered prior to the writing intervention constituted baseline assessments. All participants also received mailed surveys three and nine months after the writing intervention. For the current study, the latter surveys constituted postintervention follow-up assessments. Participants were paid \$25 for each completed survey.

Participants recruited for the writing intervention were sent a separate packet along with their second survey (baseline 2). To ensure an adequate sample size, the authors used a 60% predicted compliance rate, based on what past researchers have reported of their participants' willingness to engage in the writing intervention and follow-up measures (Morgan et al., 2008). No additional incentive was offered for completing the writing packet in addition to the survey. Participants were asked to complete the baseline 2 survey regardless of whether they consented to complete the writing packet. Participants in the writing group were instructed to begin the session after filling out the survey and to return it in a separate, provided envelope. The writing packet's instructions asked participants to write about positive thoughts and feelings regarding their experience with breast cancer (Stanton et al., 2002). The full instructions read as follows.

What we would like you to do is write about any *positive* thoughts and feelings about your experience with breast cancer. We realize that women with breast cancer experience a full range of emotions, but we would like you to focus on some positive emotions, thoughts, and life changes that have come out of your experiences. For example, some women feel they have gained important lessons out of their experience with cancer. In this writing exercise, we want you to try to write about any positive thoughts, experiences, and feelings that you have encountered over the course of your cancer, from the time you were diagnosed until now. You might also tie your positive thoughts and feelings about your experiences with cancer to other parts of your life—your childhood, people you love, who you are, or who you want to be (please use first names only). Ideally, we would like you to write without stopping for 20 minutes. If you run out of things to say, just repeat what you have already written until the 20 minutes are up. Don't worry about grammar, spelling, or sentence structure. Don't worry about erasing things or crossing things out, just write freely.

All participants were encouraged to write in a private place. Also, they were assured that their responses would remain completely confidential. Finally, writing participants were asked to complete a brief (six-question) form assessing practical information regarding the

intervention (e.g., interruptions, length) at the conclusion of their writing session.

Measures

Comment cards: A comment card inquiring about the women's writing experiences was enclosed in each packet. Four questions were directed at finding specific details regarding the environment in which writing had taken place.

- What time of day did you write?
- Were you able to find a private place to write?
- If not, were people around when you filled out the packet?
- Were you interrupted?

One question focused on how it felt to write: How did you feel about completing the booklet? Lastly, each comment card included a space where women could contribute any additional thoughts or comments about their writing experience.

Physical health: The physical health measure included in all surveys had 18 physical symptoms items derived from several reports for their appropriateness for the current sample (Anderson & Tewfik, 1985; Ganz & Coscarelli, 1995; Whelan et al., 1997). Example symptoms included fatigue, nausea, appetite loss, breast pain, hair loss, weight gain, hot flashes, itchiness or discomfort of the skin, decreased arm mobility, and swelling of the arm. A seven-point scale was used, ranging from 1 (not at all) to 7 (severe) ($\alpha = 0.9$).

Depressive symptomatology: At all four time points, the **Center for Epidemiologic Studies–Depression Scale (CES-D)** (Radloff, 1977) was used to assess depressive symptomatology. On the 20-item scale, participants rated the intensity and frequency of depressive symptoms they had experienced in the past week on a four-point Likert-type scale, ranging from rarely or none of the time to most or all of the time. Consistent with previous research (Devins & Orme, 1985; McCallum, Mackinnon, Simons, & Simons, 1995; Radloff, 1977; Roberts & Vernon, 1983; Stommel, Kurtz, Kurtz, Given, & Given, 2004), four subscales were calculated from the CES-D: depressed mood (7 items, $\alpha = 0.83$ – 0.92), (lack of) positive affect (4 items, $\alpha = 0.71$ – 0.9), somatization or retarded activity (7 items, $\alpha = 0.5$ – 0.9), and (lack of) interpersonal relations (2 items). The interpersonal relations subscale lacked sufficient reliability in the current study and was not used in the analyses. Previous research has indicated similar reliability values for depressed mood ($\alpha = 0.82$ – 0.84), positive affect ($\alpha = 0.74$ – 0.77), somatization or retarded activity ($\alpha = 0.78$ – 0.79), and interpersonal relations ($\alpha = 0.38$ – 0.55) (see Stommel et al., 2004). The authors administered the CES-D to assess psychological symptoms because of its ability to measure multiple dimensions of depression. By observing participants scores on the CES-D subscales, the authors were better able to

determine which depressive symptoms were improved by writing, if any.

The **Profile of Mood States (POMS)** (McNair, Lorr, & Droppleman, 1971) was administered at all four time points. The POMS consists of 34 items aimed at assessing global negative and positive affect. Instructions asked participants to indicate on a scale from 0 (not at all) to 4 (extremely often) how often they experienced a particular feeling (e.g., liveliness, forgetfulness, unhappiness) since their cancer diagnosis or since their last survey (for subsequent waves). Mood disturbance was calculated by summing the negative affect subscales (e.g., anger, depression, tension, fatigue, confusion) and then subtracting the positive affect subscale score (e.g., vigor). The authors included the POMS to assess depressive symptomatology in addition to the CES-D because it has been used in previous research examining the effectiveness of writing interventions on improving psychological health for similar populations (Stanton et al., 2002).

Results

Sample

Average ages were 58.82 years for the writing group and 58.9 years for the control group. The median estimated annual household income for women in the writing and control groups were \$45,000 and \$40,000, respectively. In the experimental group, 2 women were diagnosed with carcinoma in situ (stage 0), 19 with stage I, 9 with stage II, 3 with stage III, and 2 with stage IV; 6 women either did not know their stage of breast cancer or left the item blank. In the control group, 21 women were diagnosed with stage I breast cancer, 9 with stage II, and 3 with stage III; 7 women either did not know their stage of breast cancer or left the item blank. Most women in the control (83%) and writing groups (78%) were married. Of the nonmarried women in the control group, 2% were single, 2% were living with a significant other, 5% had been divorced within the past year, and 7% were widowed. Of the nonmarried women in the writing group, 5% were living with a significant other, 7% had been divorced for more than a year, 5% had divorced in the past year, 5% were widowed, and 1% did not specify their relationship status.

Feasibility

Retention: Initially, 57 participants (27 rural, 30 urban) from the larger study were selected for potential participation in the writing intervention. Forty-one women chose to participate and returned the associated materials. Among the 41 participants, 21 were rural women and 20 were urban women. All but one participant returned both follow-up surveys; therefore, 40

participants completed the intervention and provided complete follow-up data. Of note, rural women seemed more willing to participate in the at-home writing intervention.

Reactions to writing: Thirty-two writers returned the enclosed comment cards with their narratives. Of those who sent back a comment card, 94% indicated that they were able to find a private place to write and 91% reported not being interrupted during the writing process. Regarding overall feelings about participating in the intervention, 59% indicated that they felt mostly good about the writing process, 34% were neutral, and only one woman felt mostly bad about the writing process (one woman did not answer this item). In the open-ended comment section, many women expressed appreciation for the opportunity to write and found it helpful for coping with their feelings regarding the cancer experience. For example, one woman wrote, "I had never put my feelings in writing before. I felt it was a great tool to express my feelings concerning my cancer. Thank you!" Another comment stated, "It felt really good. Thanks for convincing me to think about it all." Two women also commented on their difficulties with writing. For example, one woman wrote, "It was very hard to come up with positive thoughts," and another wrote, "I am not good at putting my words in writing." Concerning feasibility of the intervention, 56% believed other women would be likely to participate, 38% did not believe other women would be likely to participate, and the remaining 6% women did not answer this item.

Effectiveness

Regarding the effectiveness of the intervention, the authors proposed two primary hypotheses. First, breast cancer survivors who wrote benefit-finding narratives would report better physical and psychological health three months and nine months after writing compared to a matched control group of breast cancer survivors who did not engage in the intervention. Because participants in the comparison group were matched with the writing group on a number of demographic variables, the authors tested their hypothesis with a set of paired-sample t tests. Each of the tests compared the writing group to the control group on levels of physical and psychological health prior to the writing intervention (baseline 1 and baseline 2) and after the writing intervention (three months and nine months). By using within-subjects t tests, the authors examined whether participants in the writing group reported improvements in their physical and psychological health following the intervention. For all a priori hypotheses, the reported p values are one-tailed. Finally, degrees of freedom vary slightly across analyses because of occasional missing data. To assess whether rurality was a moderating factor of the results,

the authors used a two-way analysis of variance with rurality (0 = urban, 1 = rural) and writing group (0 = control, 1 = writing) as the predicting factors.

Verifying the matching procedure, the preliminary results showed that the writing and comparison groups did not differ in age ($t[41] = 0.66, p = 0.51$), stage of cancer ($t[34] = -0.34, p = 0.73$), relationship status ($z = -1, p = 0.32$, nonparametric Wilcoxon test), or income ($t[39] = 0.36, p = 0.71$). As expected, the results for physical and psychological health indicated that at the baseline measurement periods, the writing group and the matched control group did not differ in reported intensity of physical symptoms (baseline 1: $t[40] = -1.18, p = 0.25$; baseline 2: $t[40] = -0.66, p = 0.51$), levels of depressive symptoms (baseline 1: $t[38] = -0.84, p = 0.41$; baseline 2: $t[40] = -1.02, p = 0.31$), or levels of mood disturbance (baseline 1: $t[36] = -0.63, p = 0.54$; baseline 2: $t[40] = -1.03, p = 0.31$).

Benefit-Finding Outcome Assessment

Physical symptom severity: The results for the reported severity of physical symptoms are displayed in Figure 1. As predicted, participants in the writing group reported significantly fewer physical symptoms than control at three months after the intervention ($t[39] = -2.37, p < 0.03$). However, contrary to predictions, the writing and control groups did not differ in their reports of physical symptoms nine months after the writing intervention ($t[33] = -0.12, p = 0.91$). Analyses verified that participants in the writing group experienced significantly fewer physical symptoms from the baseline 2 assessment to three months after writing ($t[39] = 3.38, p < 0.005$), but no significant parallel changes in physical symptoms were evident for participants in the control group ($t[40] = 0.82, p = 0.42$). The results also showed that for the writing group, physical symptoms increased to baseline levels at nine months.

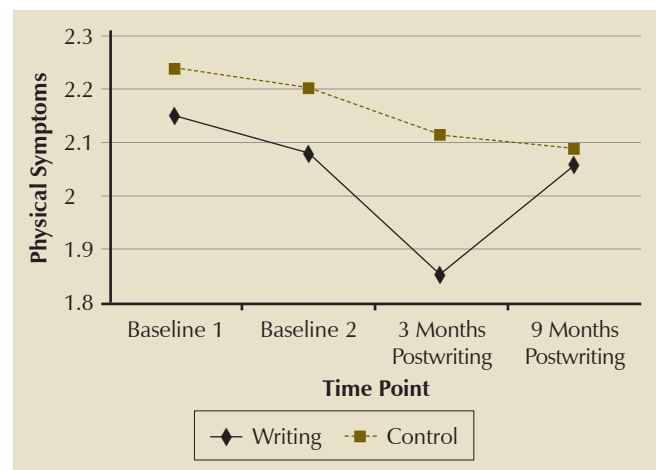


Figure 1. Mean Levels of Self-Reported Physical Symptoms for Writing and Control Groups

months compared to three months after writing ($t[36] = -3.05, p < 0.01$), but no corresponding change occurred for the control group ($t[36] = 0.93, p = 0.036$). Rurality did not moderate the effects ($F < 2, p > 0.05$).

Depressive symptomatology: For the analysis of depressive symptomatology, the authors created a single index of depressive emotion by combining the depressive mood and lack of positive affect subscales and retained a separate index of somatization or retarded activity. The findings for the depressive emotion index were similar to those for physical symptom severity. As hypothesized, participants in the writing group reported significantly lower levels of depressive emotion than control three months following the writing intervention ($t[39] = -2.38, p < 0.03$) (see Figure 2). Similar to the symptom severity findings, levels of depressive emotion were not different between the two groups nine months after the writing intervention ($t[36] = -0.53, p = 0.6$). Consistent with the previous sets of analyses, participants in the writing group experienced significant decreases in depressive emotion between the baseline 2 assessment and three months after writing ($t[39] = 1.96, p < 0.05$), but no corresponding decrease occurred in the control group ($t[39] = 0.38, p = 0.7$). Again, the benefits of writing seemed to have been attenuated between the three- and nine-month follow-up periods. Participants in the writing intervention reported levels of depressive emotion that had returned to baseline levels at nine months after writing ($t[38] = -1.81, p = 0.078$) compared to three months after writing. No difference was observed for the control group between the same time points ($t[38] = 0.41, p = 0.68$). Finally, no differences were found between the writing and control groups on the somatization or retarded activity subscale. Rurality did not moderate either effect ($F < 1, p > 0.05$).

Mood: Similar to the findings for the physical symptom and depressive symptomatology outcomes,

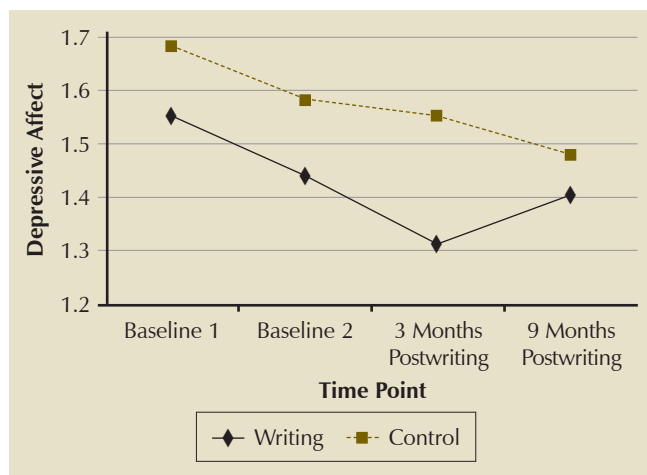


Figure 2. Mean Levels of Self-Reported Depressive Affect Symptoms for Writing and Control Groups

participants in the writing group reported significantly lower levels of mood disturbance than control three months after the writing intervention ($t[38] = -1.78, p < 0.05$). Levels of mood disturbance were not different between the two groups nine months following the writing intervention ($t[37] = 0.63, p = 0.53$). Consistent with the previous analyses, participants in the writing group experienced significant decreases in mood disturbance between the baseline-2 and three-months postwriting surveys ($t[38] = 2.62, p < 0.05$), but no corresponding decrease occurred in the control group ($t[40] = 1.34, p < 0.19$). The change in mood disturbance from three months to nine months after the intervention was not significant for writers ($t[37] = -1.49, p < 0.15$) or the control group ($t[39] = 0.05, p < 0.96$). Rurality did not moderate the effects ($F < 1, p > 0.05$).

Discussion

The current study examined the feasibility and effectiveness of a single, 20-minute benefit-finding writing session on measures of physical and psychological health for women with breast cancer. In addition to assessing the overall benefits of writing, the current study also investigated the longevity of the benefits by examining relevant outcomes three and nine months after writing. Given the high rate of participation and positive feedback received regarding the writing experience, the current research indicates that implementing a single, in-home writing intervention for breast cancer survivors is a practical and rewarding intervention for this population. Results suggest that participants mostly were able to find a private place to write without interruption, thus successfully allowing them to think about their experience with breast cancer and put their thoughts on paper.

Consistent with past research (Stanton et al., 2002), the findings showed that participation in a writing intervention decreased the severity of physical symptoms and depressive emotions three months later. The authors also found a decrease in mood disturbance for writers; however, the effect was not as robust as the changes observed in other outcomes. Although findings from past research examining the effect of writing interventions on breast cancer survivors' reports of physical health have been robust, results for improvements to their psychological well-being as measured by mood have not been successful (Stanton et al., 2000; Walker et al., 1999). The current research provides promising evidence to support the notion that writing interventions may improve physical and psychological health among breast cancer survivors.

Despite the positive effects of a single writing session on physical and psychological outcomes three months after the intervention was administered, the benefits were not sustained six months later. The finding has at

least two possible explanations. First, participants only engaged in one writing session. Although previous research on narratives has varied the number and frequency of writing sessions, Pennebaker (1997) concluded that writing expressively once a week for one month is likely to be most effective at creating improvements in physical and psychological health. Therefore, the effects of writing may not have endured in the current study because more writing sessions were needed to sustain or prolong the benefits.

A second possible explanation is that the rebound is specific to breast cancer survivors. The mechanism responsible for the improvements may be part of a process that needs to be systematically reimplemented to help survivors cope with the emotional ups and downs of the cancer experience. Because the participants in the sample had cancer that was in remission at subsequent follow-ups, they continued to have to cope with the emotions associated with the potential for recurrence. The fluctuation of emotions throughout survivorship may require a sort of emotional maintenance that sustained writing may provide. Writing provides an opportunity to recenter oneself, enhancing goal-relevant and self-regulatory processes (King, 2001). Ultimately, writing allows participants a safe place to put down their emotions and reappraise their situation, which may facilitate effective coping with emotional trauma. Therefore, expressive writing completed at various time points throughout the cancer experience, as opposed to just once, may be most effective in sustaining improvements to physical and psychological health for populations that experience chronic stressors (e.g., breast cancer survivors).

Although rurality did not prove a significant moderator for the writing experience, rural women also experienced benefits. Given that past research has found rural women to have limited access to mental health facilities and the stigmatization of professional mental health care often is reported in rural communities, writing at home may provide a much needed outlet to cope with the emotions induced by cancer. Although the effectiveness of expressive writing for urban versus rural women was not different, the authors did observe slightly higher rates of participation for rural women, suggesting that, despite the lack of resources in their community, rural women still seek out assistance for coping with the cancer experience—assistance that expressive writing can provide.

Limitations

The current study had several limitations. First, the study used self-report measures that may have been subject to demand characteristics or other unintentional biases. Nevertheless, self-reported physical symptoms have replicated results that have been found through medical records (Stanton et al., 2002), suggesting the

validity of such self-reports. Second, the severity of physical symptoms and level of depressive emotion for the control group appeared to be somewhat higher than for the writing group, although no statistical analysis suggested that the differences were reliable. However, this type of finding has been shown in other research and does not negate the fact that the writing group improved compared to the control group and their own prior reports. In addition, the current study does not describe the benefits that may or may not be experienced by breast cancer survivors who do not receive radiation therapy. Women who do not receive radiation therapy undergo different experiences throughout their cancer journey; therefore, they may show differing results compared to the population used in the current research. Finally, the effectiveness of the writing intervention may have been caused, in part, by the self-selection of women who participated in the intervention. Therefore, women who chose to engage in the intervention may have been more proactive in their efforts to recover from their breast cancer experience. However, the results should not be dismissed given the high rate of response among women who decided to engage in the writing intervention. Rather, they should be interpreted with caution.

Clinical Implications

Healthcare professionals who wish to use writing to facilitate physical and psychological well-being in patients with cancer may suggest that patients write at multiple time points throughout treatment and survivorship, rather than just once. The current intervention was practical and easily administered (e.g., successfully completed at home, high response rate, positively reviewed); therefore, writing at multiple time points in one's home could be a feasible way to cope with illness-related stressors.

Research that uses writing to enhance coping and well-being has provided evidence for the usefulness of this exercise in clinical settings (Low, Stanton, & Danoff-Burg, 2006; Morgan et al., 2008). The current research expands on the literature by suggesting that a single writing session for patients with cancer can help facilitate psychological and physical health for at least three months following the intervention. The easily administered clinical intervention may produce maximum benefits if healthcare professionals give patients with cancer a writing exercise to complete at home during each clinical follow-up visit. The follow-up visits create conveniently timed writing sessions that may facilitate coping at critical moments during cancer survivorship. Based on the preliminary findings, future research should focus on implementing writing interventions at various time points throughout the breast cancer experience to determine whether

the effects of writing are sustained. In addition, future research should determine whether women who do not undergo radiation treatment also experience the same benefits of expressive writing observed in the current sample.

Conclusion

The current study suggests that a single expressive writing intervention can be feasibly and successfully conducted at home. The finding is important, particularly for healthcare professionals who want to facilitate improvements in their patients but have limited time and resources. At-home writing interventions can be conducted with minimal effort from healthcare providers, requiring only a few moments to gauge patients' interest and a few sheets of paper with instructions that can be distributed at regular visits to the clinic. At-home writing interventions can assist all women with breast cancer, particularly those living in remote rural areas

who may experience health disparities and lack access to healthcare resources and information.

The authors gratefully acknowledge the assistance of the staff at the radiation oncology clinics, particularly Linda Robb, RN, a radiation oncology nurse at the Ellis Fischel Cancer Center in Columbia, MO.

Erika A. Henry, MA, is a graduate student in the Department of Psychological Sciences at the University of Missouri in Columbia; Rebecca J. Schlegel, PhD, is an assistant professor in the Department of Psychology at Texas A&M University in College Station; Amelia E. Talley, PhD, is a postdoctoral research fellow in the Department of Psychological Sciences at the University of Missouri; Lisa A. Molix, PhD, is an assistant professor in the Department of Psychology at Tulane University in New Orleans, LA; and B. Ann Bettencourt, PhD, is a professor and the chair of psychology in the Department of Psychological Sciences in the University of Missouri. Data collection and manuscript preparation were supported by a grant from the National Cancer Institute. Henry can be reached at eahenry2003@gmail.com, with copy to editor at ONFEditor@ons.org. (Submitted November 2009, Accepted for publication July 9, 2009.)

Digital Object Identifier: 10.1188/10.ONF.749-757

References

- American Cancer Society. (2010). *Cancer facts and figures 2010*. Atlanta, GA: Author.
- Andersen, B.L., Kiecolt-Glaser, J.K., & Glaser, R. (1994). A biobehavioral model of cancer stress and disease course. *American Psychologist, 49*, 389–404. doi: 10.1037/0003-066X.49.5.389
- Anderson, B.L., & Tewfik, H.H. (1985). Psychological reactions to radiation therapy: Reconsideration of the adaptive aspects of anxiety. *Journal of Personality and Social Psychology, 48*, 1024–1032.
- Bettencourt, B.A., Schlegel, R.J., Talley, A., & Molix, L.A. (2007). The breast cancer experience of rural women: A literature review. *Psycho-Oncology, 16*, 875–887.
- Burton, C., & King, L. (2008). Effects of (very) brief writing on health: The two-minute miracle. *British Journal of Health Psychology, 13*, 9–14. doi: 10.1348/135910707X250910
- Devins, G.M., & Orme, C.M. (1985). Center for Epidemiological Studies Depression Scale. In D.J. Keyser & R.C. Sweetland (Eds.), *Test critiques* (vol. 2, pp. 144–160). Kansas City, MO: Test Corporation of America.
- Economic Research Service. (2003). Measuring rurality: Rural-urban continuum codes. Retrieved from <http://ers.usda.gov/Briefing/Rurality/ruralurbcon>
- Epstein, E.M., Sloan, D.M., & Marx, B.P. (2005). Getting to the heart of the matter: Written disclosure, gender, and heart rate. *Psychosomatic Medicine, 67*, 413–419. doi: 10.1097/01.psy.0000160474.82170.7b
- Esterling, B.A., Antoni, M.H., Fletcher, M.A., Margulies, S., & Schneiderman, N. (1994). Emotional disclosure through writing or speaking modulates latent Epstein-Barr virus antibody titers. *Journal of Consulting and Clinical Psychology, 62*, 130–140. doi: 10.1037/0022-006X.62.1.130
- Francis, M.E., & Pennebaker, J.W. (1992). Putting stress into words: The impact of writing on physiological, absentee, and self-reported emotional well-being measures. *American Journal of Health Promotion, 6*, 280–287.
- Frattaroli, J. (2006). Experimental disclosure and its moderators: A meta-analysis. *Psychological Bulletin, 132*, 823–865. doi: 10.1037/0033-2909.132.6.823
- Frisina, P.G., Borod, J.C., & Lepore, S.J. (2004). A meta-analysis of the effects of written emotional disclosure on the health outcomes of clinical populations. *Journal of Nervous and Mental Disease, 192*, 629–634. doi: 10.1097/01.nmd.0000138317.30764.63
- Ganz, P.A., & Coscarelli, A. (1995). Quality of life after breast cancer: A decade of research. In J.E. Dimsdale & A. Baum (Eds.), *Quality of life in behavioral medicine research* (pp. 97–113). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Glanz, K., & Lerman, C. (1992). Psychosocial impact of breast cancer: A critical review. *Annals of Behavioral Medicine, 14*, 204–212.
- Herbert, T.B., & Cohen, S. (1993a). Depression and immunity: A meta-analytic review. *Psychological Bulletin, 113*, 472–486.
- Herbert, T.B., & Cohen, S. (1993b). Stress and immunity in humans: A meta-analytic review. *Psychosomatic Medicine, 55*, 364–379.
- King, L.A. (2001). The health benefits of writing about life goals. *Personality and Social Psychology Bulletin, 27*, 798–807. doi: 10.1177/0146167201277003
- King, L.A., & Miner, K.N. (2000). Writing about the perceived benefits of traumatic events: Implications for physical health. *Personality and Social Psychology Bulletin, 26*, 220–230.
- Klein, K., & Boals, A. (2001). Expressive writing can increase working memory capacity. *Journal of Experimental Psychology: General, 130*, 520–533. doi: 10.1037/0096-3445.130.3.520
- Lepore, S.J. (1997). Expressive writing moderates the relation between intrusive thoughts and depressive symptoms. *Journal of Personality and Social Psychology, 73*, 1030–1037.
- Low, C.A., Stanton, A.L., & Danoff-Burg, S. (2006). Expressive disclosure and benefit finding among breast cancer patients: Mechanisms for positive health effects. *Health Psychology, 25*, 181–189.
- McCallum, J., Mackinnon, A., Simons, L., & Simons, J. (1995). Measurement properties of the Center for Epidemiological Studies Depression Scale: An Australian community study of aged persons. *Journals of Gerontology. Series B: Psychological Sciences and Social Sciences, 50*, 182–189.
- McNair, D.M., Lorr, M., & Droppleman, L.F. (1971). *Manual for the Profile of Mood States*. San Diego, CA: Educational and Industrial Testing Services.
- Morgan, N.P., Graves, K.D., Poggi, E.A., & Cheson, B.D. (2008). Implementing an expressive writing study in a cancer clinic. *Oncologist, 13*, 196–204. doi: 10.1634/theoncologist.2007-0147
- Park, C.L., & Blumberg, C.J. (2002). Disclosing trauma through writing: Testing the meaning-making hypothesis. *Cognitive Therapy and Research, 26*, 597–616. doi: 10.1023/A:1020353109229
- Pennebaker, J.W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science, 8*, 162–166.

- Pennebaker, J.W., & Beal, S.K. (1986). Confronting a traumatic event: Toward an understanding of inhibition and disease. *Journal of Abnormal Psychology, 95*, 274–281.
- Pennebaker, J.W., Kiecolt-Glaser, J., & Glaser, R. (1988). Disclosure, traumas, and immune function: Health implications for psychotherapy. *Journal of Consulting and Clinical Psychology, 56*, 239–245.
- Pennebaker, J.W., & King, L.A. (1999). Linguistic styles: Language use as an individual difference. *Journal of Personality and Social Psychology, 77*, 1296–1312.
- Radloff, L. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385–401. doi: 10.1177/014662167700100306
- Roberts, R.E., & Vernon, S.W. (1983). The Center for Epidemiologic Studies Depression Scale: Its use in a community sample. *American Journal of Psychiatry, 140*, 41–46.
- Rosenberg, H.J., Rosenberg, S.D., Ernstoff, M.S., Wolford, G.L., Am-dur, R.J., Elshamy, M.R., . . . Pennebaker, J.W. (2002). Expressive disclosure and health outcomes in a prostate cancer population. *International Journal of Psychiatry in Medicine, 32*, 37–53.
- Sloan, D.M., & Marx, B.P. (2004). A closer examination of the structured written disclosure procedure. *Journal of Consulting and Clinical Psychology, 72*, 165–175. doi: 10.1037/0022-006X.72.2.165
- Smyth, J.M. (1998). Written emotional expression: Effect sizes, outcome types, and moderating variables. *Journal of Consulting and Clinical Psychology, 66*, 174–184. doi: 10.1037/0022-006X.66.1.174
- Smyth, J.M., Stone, A.A., Hurewitz, A., & Kaell, A. (1999). Effects of writing about stressful experiences on symptom reduction in patients with asthma or rheumatoid arthritis. A randomized trial. *JAMA, 281*, 1304–1309.
- Stanton, A.L., Danoff-Burg, S., Cameron, C.L., Bishop, M., Collins, C.A., Kirk, S.B., . . . Twillman, R. (2000). Emotionally expressive coping predicts psychological and physical adjustment to breast cancer. *Journal of Consulting and Clinical Psychology, 5*, 875–882. doi: 10.1037/0022-006X.68.5.875
- Stanton, A.L., Danoff-Burg, S., Swarowski, L.A., Collins, C.A., Branstetter, A.D., Rodriguez-Hanley, A., . . . Austenfeld, J.L. (2002). Randomized, controlled trial of written emotional expression and benefit finding in breast cancer patients. *Journal of Clinical Oncology, 20*, 4160–4168. doi: 10.1200/JCO.2002.08.521
- Stommel, M., Kurtz, M.E., Kurtz, J.C., Given, C.W., & Given, B.A. (2004). A longitudinal analysis of the course of depressive symptomology in geriatric patients with cancer of the breast, colon, lung, or prostate. *Health Psychology, 23*, 564–573. doi: 10.1037/0278-6133.23.6.564
- Walker, B.L., Nail, L.M., & Croyle, R.T. (1999). Does emotional expression make a difference in reactions to breast cancer? *Oncology Nursing Forum, 26*, 1025–1032.
- Whelan, T.J., Mohide, E.A., Willan, A.R., Arnold, A., Tew, M., Sellick, S., . . . Levine, M.N. (1997). The supportive care needs of newly diagnosed cancer patients attending a regional cancer center. *Cancer, 80*, 1518–1524.
- Zakowski, S.G., Ramati, A., Morton, C., Johnson, P., & Flanagan, R. (2004). Written emotional disclosure buffers the effects of social constraints on distress among cancer patients. *Health Psychology, 23*, 555–563. doi: 10.1037/0278-6133.23.6.555