Expressing Positive Emotions within Online Support Groups by Women with Breast Cancer

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Abstract

Based upon Fredrickson's *Broaden-and-Build Theory of Positive Emotions*, this study examined the role of expressing positive emotions in online support groups for women with breast cancer. Underserved women with breast cancer in rural Wisconsin and Detroit, Michigan were recruited from 2001 to 2003, and they were given access to online support groups. Both pretest and a 4-month posttest surveys were conducted with a sample of 231 women. Messages from 96 active participants were analyzed using a computerized text analysis program. Psychological benefits that occurred following the expression of positive emotions were greater among those who expressed more negative emotions.

Keywords

Positive emotions; Emotional expression; Online support groups; Breast cancer

Introduction

Breast cancer is the most common form of cancer and the second leading cause of cancer-related death among women in the United States (American Cancer Society, 2007). Not surprisingly, past research has found that breast cancer patients face a variety of physical concerns such as body image and sexuality (Gustafson et al., 2005), psychosocial concerns such as isolation and loneliness (Ashing-Giwa et al., 2007), as well as psychological difficulties such as distress, anxiety, and depression (Ashing-Giwa et al., 2007). Given the high prevalence of breast cancer and suffering associated with the diagnosis and subsequent treatments, it is vital to understand how various coping mechanisms help reduce distress and improve quality of life for cancer patients.

A review of the literature suggests that an increasingly common way women with breast cancer seek to cope with their illness is participation in computer-mediated social support (CMSS) groups. While early studies were mostly descriptive, exploring how breast cancer patients use CMSS groups, recent research offered some explanations about what psychosocial benefits were associated with participation in online support groups. For example, Winzelberg et al. (2003)'s randomized controlled trial found that CMSS groups are effective in reducing patients' depression, stress, and cancer-related trauma. Further, more recent research has begun to examine how specific *expressions* within CMSS groups are associated with potential outcomes. For instance, Lieberman and Goldstein (2006) examined how expression of specific negative emotions was beneficial for breast cancer patients and found that the expression of anger was associated with improved quality of life, while the expression of fear and anxiety were not.

In fact, emotional expressiveness has long been regarded as a critical part of the research and practice of psychology. Particularly relevant is Pennebaker's emotional writing paradigm where *emotional expression* is often conceptualized as not having to overly control the expression of anger, anxiety, and depression (Pennebaker & Chung, 2007). As Smyth's (1998) meta-analysis of the writing paradigm implied, however, most studies on the efficacy of writing interventions during periods of emotional upheavals have primarily focused on the role of expressing negative emotions and associated physical and mental benefits, but researchers often fail to identify the added value of expressing positive emotions in those lines of inquiries (Fredrickson, 2001). As King (2001) pointed out, it is not surprising that positive writings have been largely overlooked since researchers have speculated that catharsis is the psychological mechanism behind the beneficial effect of writing. Unfortunately, the emotional catharsis hypothesis has received little empirical support (Smyth, 1998). This study advances the literature by examining the unique role of expressing positive emotions for women with breast cancer participating in online support groups.

The Role of Positive Emotional Expression

Fredrickson's (2001) *Broaden-and-Build Theory of Positive Emotions* provides a theoretical explanation for why expressing positive emotions may be beneficial for cancer patients in improving psychological and physical health outcomes. The theory argues that cultivating positive emotions evokes improvement in cognitive abilities because they broaden individuals' scopes of attention and cognition and thus enables flexible, creative, and integrative thinking (Fredrickson, 2001). Furthermore, the theory also argues that positive emotions in turn help build coping resources, including physical benefits (Fredrickson, 2001). For instance, Fredrickson and Levenson (1998) found that positive emotions accelerated cardiovascular recovery, returning the body to more normal levels of physiological activation. Therefore, we hypothesize that writing a higher percentage of positive emotion words will be associated with fewer breast cancer-related concerns. In contrast, Fredrickson (2001) argues that negative emotions serve to shrink the array of thoughts and actions, which may hinder physical and psychological functioning. Accordingly, the second hypothesis is to demonstrate that writing a higher percentage of negative emotion words will be associated with more breast cancer-related concerns.

Another important implication of the *Broaden-and-Build Theory of Positive Emotions* is that positive emotions may "serve as a particularly effective antidote for the lingering effects of negative emotions" (Fredrickson, 2000, p. 8). Fredrickson (2000) argues that, by broadening a person's physical and psychological coping resources, "positive emotions loosen the hold that negative emotions gain on an individual's mind and body by undoing the narrowed psychological and physiological preparation for specific action" (p. 1). More specifically, Fredrickson and Levenson (1998) proposed that "positive emotions can be seen as assuming

a complementary role, efficiently restoring equilibrium to the organism both in terms of returning physiological activation to prior levels, and restoring psychological openness to a wide range of action possibilities" (p. 215). Thus, we also hypothesize that the mental and physical health benefits that may occur from expressing positive emotions will be more pronounced among those who expressed more negative emotions as compared to those who did not.

Methods

Participants

The support group examined in this study is part of a particular Interactive Health Communication System called the Comprehensive Health Enhancement Support System (CHESS) "Living with Breast Cancer" program, which is a computer-based system that provides patients and their families with a range of conceptually distinct services (Gustafson et al., 2005). The data were collected as a part of a larger Digital Divide Pilot Project where underserved women with breast cancer in rural Wisconsin and Detroit, Michigan were given access to CHESS for 4 months. Both pretest and a 4-month posttest surveys were conducted with a sample of 231 women. Study protocols were approved by the Institutional Review Boards (IRB) at the University of Wisconsin-Madison. Study participants were identified through a variety of sources, including the National Cancer Institute's Cancer Information Service, hospitals and clinics, public health departments, and the Medicaid program. Recruitment began in Wisconsin in May 2001 and ended in April 2003. Detroit recruitment began in June 2001 and ended in April 2003.

Criterion

We considered women as active participants in the CMSS groups if they wrote at least three messages over the course of the study. As part of the training process, we encouraged women to write a message introducing themselves to the rest of the group, which provided the participant the opportunity to show during the in-house training that she could use the communication function that allowed her to participate in those groups. The first two messages tended to be short, containing simple background information about diagnosis, marriage, children or where they lived. Based on the criterion, 97 active participants were initially included. Following the guidelines by Tabachnick and Fidell (2001), we identified one multivariate outlier by using Mahalanobis distance with $p < .001$. With one outlier deleted, 96 active participants out of 231 women were finally included in the subsequent analyses. When comparing women classified as active participants in the discussion groups with the inactive group, statistical tests indicated that the active group was more likely to be younger ($t=3.71$, $p<.001$) and Caucasian ($\chi^2= 18.83$, $p<.001$).

Measures

Breast Cancer-Related Concerns—This study employed breast cancer-related concerns as a primary health outcome measure. Breast cancer-related concerns is one of the most widely used scales for cancer patients' quality of life as it addresses breast cancer patients' emotional, physical, and body image concerns and distress related to treatments and side effects (Brady et al., 1997). An eight-item breast cancer-related concerns (pretest $M=1.27$, $SD=1.13$; posttest $M=1.32$, $SD=1.38$) asked, on a five-point scale, ranging from 0 = *not at all* to 4 = *extremely*, if they were short of breath; bothered by swollen or tender arms; fatigued; self-conscious about the way they dress; worried about the effect of stress on their illness; their skin bothered them as a result of radiation treatment; their change in weight bothered them; their hair loss bothered them. Those scores were averaged to construct an index for breast cancer-related concerns (Cronbach's $\alpha = .63$).

Emotional Expression—Both positive and negative emotional expressions are our primary independent variables. This current study analyzed the entire body of each subject's text messages within the CHESS computer mediated support groups for women with breast cancer using the LIWC (Linguistic Inquiry and Word Count) 2001 computerized text analysis program (Pennebaker & King, 1999). This program has been widely used in previous writing studies as a tool of assessing word usage (Pennebaker & Chung, 2007) and also applied to examine breast cancer patients' word use and associated physical and psychosocial benefits (e.g., Lieberman & Goldstein, 2006; Shaw et al., 2007; Shaw, Han, Hawkins, McTavish, & Gustafson, 2008). The positive emotion dimension within LIWC captures 261 words and their derivatives suggestive of positive feelings (e.g., happy, joy, love) and optimism and energy (e.g., certainty, pride, win). The negative emotion dimension captures 345 words and their derivatives that suggest anxiety or fear (e.g., nervous, afraid, tense), anger (e.g., angry, frustrate, annoy), and sadness or depression (e.g., grief, cry, sad). The LIWC program counted the percentage of positive and negative emotion words for each subject.

Analysis—Since one might assume that a patient's clinical situation is a likely determinant of both emotional expression and cancer-related concerns, a variety of clinical factors, including stage of cancer and whether or not patients were going through major treatment events such as chemotherapy, radiation therapy, mastectomy, and lumpectomy, were controlled. Additionally, we examined zero-order correlations between types of emotional expression and baseline variables such as demographics (i.e., age, education, ethnicity, insurance status, and living status), and pretest score of the dependent variable. The result revealed that pretest score of the dependent variable was the only variable that was significantly related to the independent variable. Accordingly, we included the pretest measure and four clinical factors as the final control variable to reduce confounding effects.

To examine our research hypotheses, hierarchical regression analysis was conducted with pretest breast cancer concerns and four clinical factors being controlled first, followed by the main effects of the two types of emotional expression, and finally by the interaction term. To address the issue of multicollinearity between the product term and its components, the main effect variables were standardized by translating them into z-scores prior to creating the interaction terms (Cohen & Cohen, 1983).

Results

In the four-month intervention, women wrote a fairly high percentage of positive emotion words. The mean percentage of positive emotion words written for the 96 active group members was 4.05 (translating to an average of 473 positive emotion words per woman). The mean percentage of negative emotion words was lower than that of positive emotion words: 1.14 for negative emotion words (translating to an average of 133 words per woman).

As expected, the pretest score of the outcome measure was a strong predictor of corresponding four month outcome ($\beta = .589$, $p < .001$). The second hypothesis that a higher percentage of negative emotion words would predict higher levels of breast cancer-relatedconcerns received support ($\beta = .145$, $p < .05$). However, the percentage of positive emotion words written was not significantly associated with lower levels of breast cancer-related concerns ($\beta = -.01$, n.s.). Finally, the interaction between writing positive and negative emotion words was significant ($\beta = -.214$, $p < .01$). To examine the nature of this finding, we plotted it and the figure indicated that there was a weak positive effect of writing positive emotion words among those who wrote a lower percentage of negative emotion words, but a stronger negative and tempering effect between writing positive emotion words

and breast cancer concerns among those who wrote a higher percentage of negative emotion words.

Discussion

The findings of the present study provide some support for the hypotheses that not all emotional expression is salutary but combined use of negative and positive emotion words within computer mediated networks can be a beneficial coping mechanism for women with breast cancer facing a life threatening illness. The results of this study support Fredrickson's (2000, 2001) theoretical argument that cultivating positive emotions can serve to alleviate mental health problems related to negative emotions and also lends support to the applicability of the theory to the clinical population of breast cancer patients who may be overwhelmed by a cancer diagnosis and accompanying distress and symptoms.

Additionally, evident from the linguistic analysis of written text was that, on average, more than 70% of emotion words were positive. This result implies that positive emotional expressions during stressful cancer experiences are not just possible but even commonplace, which further calls for our need to develop and test theories of coping that integrates positive emotional coping during this difficult time (Folkman, 1997). To date, little research attention has been paid to the role of positive emotional expression for this at-risk population, and we encourage researchers to further examine the salutary effect of expressing positive emotions for treating stress-related problems in a variety of health contexts.

While this study provides some useful insight about the mechanisms of how expression within CMSS groups may contribute to a health outcome, the correlational analysis is only suggestive and a randomized experimental design would provide stronger evidence of the suggested effects (Pennebaker & Chung, 2007). Nevertheless, it should be noted that this study cannot determine whether emotional expression examined here actually causes the change in breast cancer-related concerns or is simply reflecting such change. However, we controlled for the clinical factors in testing our hypotheses, providing evidence that the emotional expressions are not determined by the patient's physical state.

There are several other limitations in this study. First, breast cancer related concerns, the primary dependent variable of this study, only had a consistency alpha of .63. Although the scale has been validated and widely applied to understand breast cancer patients' quality of life, future research should focus on building a more reliable scale for this dimension. Second, the LIWC content analysis program simply counts words, which some may logically criticize as reducing the richness of emotional expression occurring in CMSS groups. While there is a growing acknowledgement that the subjects of patient concerns may be analyzed using computerized content analysis program (Krippendorf, 2004), emotional expression is often a more complex process to quantify as most computer-based text analysis programs do not appraise context efficiently (Pennebaker & Chung, 2007). However, it is also possible that this study may be under-powered due to the small sample size. Future studies should employ larger samples to increase statistical power in detecting significant effects from positive and negative emotional expressions in CMSS groups. Finally, the sample is comprised solely of underserved breast cancer patients who accepted CHESS and actively used CMSS groups. Thus, the degree of generalization to other populations remains to be tested.

Overall, the findings of this study suggest that the way a woman expresses her emotions via language within CMSS groups might play a significant role in how she perceives her cancer experience. It is important to note that there appears to be an optimal style of emotional expression, defined here as either reducing negative emotional expression or expressing

positive affective reactions in combination with negative reactions associated with the episode. From a practical standpoint, results from the current study contribute to the growing evidence of the value of CMSS groups for the breast cancer patient population. For instance, if patients express too much negative affect within CMSS groups, this could be a marker of their increasing concerns related to illness experience. Clinicians could encourage them to see their cancer experience in a different and positive light and allow them to express more positive affect, which could alleviate their concerns as they cope during this difficult time.

Acknowledgments

References

American Cancer Society. Cancer facts and figures 2007. Atlanta, GA: 2007. at: http://www.cancer.org/downloads/STT/CAFF2007PWSecured.pdf

Ashing-Giwa KT, Tejero JS, Kim J, Padilla GV, Hellemann G. Examining predictive models of HRQOL in a population-based, multiethnic sample of women with breast carcinoma. Quality of Life Research. 2007; 16(3):413–26. [PubMed: 17279444]

Brady MJ, Cella DF, Mo F, Bonomi AE, Tulsky DS, Lloyd SR, et al. Reliability and validity of the functional assessment of cancer therapy-breast quality-of-life instrument. Journal of Clinical Oncology. 1997; 15(3):974–986. [PubMed: 9060536]

Cohen, J.; Cohen, P. Applied multiple regression/correlation analysis for the behavioral sciences. 2. Hillsdale, NJ: Lawrence Erlbaum; 1983.

Folkman S. Positive psychological states and coping with severe stress. Social Science and Medicine. 1997; 45:1207–1221. [PubMed: 9381234]

Fredrickson BL. Cultivating positive emotions to optimize health and well-being. Prevention & Treatment. 2000:3.

Fredrickson BL. The role of positive emotions in positive psychology: thebroaden-and-build theory of positive emotions. American Psychologist. 2001; 56(3):218–226. [PubMed: 11315248]

Fredrickson BL, Levenson RW. Positive emotions speed recovery from the cardiovascular sequelae of negative emotions. Cognition and Emotion. 1998; 12:191–220. [PubMed: 21852890]

Gustafson DH, McTavish FM, Stengle W, Ballard D, Hawkins R, Shaw B, et al. Use and impact of eHealth system by low-income women with breast cancer. Journal of Health Communication. 2005; 10(1):194–218.

King LA. The health benefits of writing about life goals. Personality and Social Psychology Bulletin. 2001; 27:798–807.

Krippendorf, K. Content Analysis: An Introduction to Its Methodology. Thousand Oaks, CA: Sage; 2004.

Lieberman MA, Goldstein BA. Not all negative emotions are equal: the role of emotional expression in online support groups for women with breast cancer. Psycho-Oncology. 2006; 15:160–168. [PubMed: 15880627]

Pennebaker, JW.; Chung, CK. Expressive writing, emotional upheavals, and health. In: Friedman, H.; Silver, R., editors. Handbook of health psychology. New York: Oxford University Press; 2007. p. 264-284.

Pennebaker JW, King LA. Linguistic styles: Language use as an individual difference. Journal of Personality and Social Psychology. 1999; 77:1296–1312. [PubMed: 10626371]

Shaw B, Han J, Hawkins R, McTavish F, Gustafson D. Communicating about Self versus Others as Mechanisms of Effect within an Online Support Group for Women with Breast Cancer. Journal of Health Psychology. 2008

Shaw B, Han J, Kim E, Gustafson D, Hawkins RP, Cleary J, et al. Effects of prayer and religious expression within computer support groups on women with breast cancer. Psycho-Oncology. 2007; 16(7):676–687. [PubMed: 17131348]

Smyth JM. Written emotional expression: effect sizes, outcome types, and moderating variables. Journal of Consulting and Clinical Psychology. 1998; 66:174–184. [PubMed: 9489272]

Tabachnick, BG.; Fidell, LS. Using Multivariate Statistics. 4. Allyn & Bacon; 2001.

Winzelberg AJ, Classen C, Alpers GW, Roberts H, Koopman C, Adams RE, et al. Evaluation of an internet support group for women with primary breast cancer. Cancer. 2003; 97:1164–1173. [PubMed: 12599221]