Expressive Writing in Women With Advanced Breast Cancer

Margaret Laccetti, PhD, RN, AOCN®, ACHPN

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Purpose/Objectives: To explore the relationships between patterns of affective word use (words with positive or negative connotations) in expressive writing conducted over four consecutive days and quality of life (QOL) three months after the writing exercise in women with metastatic breast cancer.

Design: Descriptive, correlational.

Setting: Six clinical sites in New England.

Sample: 68 women with metastatic breast cancer.

Main Research Variables: Patterns of positive and negative affective word use and QOL.

Methods: Usage patterns of affective words in expressive writing were identified through the Linguistic Inquiry and Word Count (LIWC). Relationships between patterns of affective word use and QOL were explored. QOL was measured at baseline and three months after the writing exercise by the Functional Assessment of Cancer Therapy–Breast. Correlations between patterns of word use and QOL were investigated using general linear regression.

Findings: A significant relationship was found between positive-affect word use and emotional well-being. Manual scoring of 10 expressive writing texts to validate LIWC data identified a significant difference between LIWC and manual counts for negative language. Contextual evaluation suggested marked ambivalence in how the women wrote about cancer.

Conclusions: A positive relationship between affective language in disclosure and QOL was demonstrated, illustrating a cognitive process occurring in expressive writing.

Implications for Nursing: The findings suggest that expressive writing is a positive, helpful intervention for patients with cancer attempting to reintegrate the experience in life. Nurses should gain deeper understanding of underlying cognitive processes of disclosure to identify the most effective manner in which to use such interventions.

Key Points . . .

➤ Expressive writing may provide opportunities to recognize and explore the experience and meanings of living with metastatic breast cancer.

➤ Translating distress into language, through expressive writing, ultimately may allow an individual to move beyond an experience.

➤ A correlation existed between enhanced emotional well-being and greater use of positive words than use of negative words in expressive writing texts.

➤ Cost-effective and easily implemented, expressive writing is an intervention that can be prescribed and guided by nurses as part of patient care.

QOL for women with stage IV metastatic breast cancer. Nursing, through research and clinical practice, has the opportunity to identify and expand the concept of writing interventions and to apply them in practice.

Literature Review

Disclosure and formation of narrative through expressive writing were linked to positive health outcomes in a model described by Pennebaker and colleagues (Graybeal, Sexton, & Pennebaker, 2002; Pennebaker & Beall, 1986). Disclosure is defined as the release of previously unshared or unexpressed thoughts and feelings, resulting in reduced psychological work of inhibition. Psychological work of inhibition is the subconscious effort to repress thoughts or emotions, which may result in physical, psychological, or social distress. Pennebaker and Seagal (1999) believed that translating distress into language helps people move beyond negative experiences. The theoretical background of disclosure began with description of a cathartic process, which reduced cumulative stress (Pennebaker & O'Heeron, 1984). More than a cathartic experience, disclosure in the Pennebaker model uses concepts from psychoanalytic theory and employs the process of retelling an event or life issue with the intention of changing the teller's perspective. The change in perspective facilitates

Breast cancer is the most commonly occurring cancer in women; one in eight women in the United States will develop the disease in her lifetime (American Cancer Society, 2007). Metastatic disease may be detected at the time of initial diagnosis or any time after initial diagnosis. Approximately 15% of women diagnosed will have metastatic disease at the time of diagnosis, and as many as 30% of the remaining cases will involve metastatic relapse (Vogel, 2000). Most women with metastatic breast disease are candidates for treatment with aggressive chemotherapy protocols that have many adverse side effects.

Patients often experience a wide variety of unpleasant symptoms related to disease progression and treatment choices affecting their quality of life (QOL) and ability to function at multiple levels (Goodwin et al., 2004). The role of oncology nurses includes identifying symptoms and providing interventions to maintain or improve the QOL of patients with cancer. Nurses should develop and explore appropriate, innovative interventions such as expressive writing to enhance or maintain

Margaret Laccetti, PhD, RN, AOCN®, ACHPN, is an assistant professor in the Connell School of Nursing at Boston College in Massachusetts. (Submitted January 2006. Accepted for publication April 3, 2007.)

understanding and integration or assimilation into the teller's life, through reframing the event. Reframing of a life event or story may enhance acceptance and reduce avoidance, denial, and other stressors. The process of reframing, reorganization, and construction of stories is associated with improvements in health and function (Pennebaker & Seagal).

Expressive writing is a method developed by Pennebaker to facilitate disclosure through directed writing over three or four consecutive days for 20–30 minutes each day (Pennebaker, 2002; Pennebaker & Beall, 1986; Rude, Gortner, & Pennebaker, 2004). Cost effective and easily implemented, it is an intervention that can be prescribed and guided by nurses as part of patient care. The goal of expressive writing is not necessarily sharing information with others but unburdening self through writing.

Evaluation of the language used can be incorporated into analyzing and understanding the process of reframing in expressive writing texts. Affective language, words with positive or negative connotation, can be identified in expressive writing texts, as well as changes in frequency of use of the two language variations throughout the three or four days of narrative. Pennebaker and Francis (1996) and Pennebaker, Mayne, and Francis (1997) identified a correlation between the use of positive words and health and a correlation between moderate use of negative words and health, indicating that progression in use of positive words throughout a narrative is representative of a process of reordering information. The process of reordering or reorganization and construction of stories as demonstrated by patterns of positive and negative affective word use is associated with improvements in health and function, including enhanced immune globulin mediator production and decreased number of infirmary visits in student subjects, a decrease in systolic and diastolic blood pressure, and enhanced psychological processes, such as reports of greater self-efficacy in men who were unemployed (Campbell & Pennebaker, 2005; McGuire, Greenberg, & Gevirtz, 2005; Newman, Pennebaker, Berry, & Richards, 2003; Rude et al., 2004). In a secondary analysis of texts from multiple studies, Pennebaker and Seagal (1999), using the Linguistic Inquiry and Word Count (LIWC) program as a tool to identify patterns of affective word use, determined that those who benefited most from an expressive writing exercise used high numbers of positive words, moderate numbers of negative words, and increasing cognitive (causal and insight) words over four days of writing.

Four studies have used expressive writing with patients with cancer. Three used an intervention based on Pennebaker's model. Walker, Nail, and Croyle (1999) investigated the effect of expressive writing on psychosocial adjustment in patients with stage I or II breast cancer (N = 44). The preliminary study evaluated the relationship between content in expressive writing texts and mood, intrusive thoughts, or avoidance. Although patients reported a high level of acceptance and enjoyment of the expressive writing intervention, no effect on mood, cognitive intrusion, or avoidance was evident.

Rosenberg et al. (2002) evaluated the feasibility and potential effectiveness of expressive writing in men with prostate cancer who were under observation after local treatment (surgery or radiation). The small sample (N = 30) was divided into an experimental (expressive writing) group and a control group. The expressive writing group had significantly less pain and healthcare utilization three and six months after the intervention than the control group did.

Graves et al. (2005) used Pennebaker's paradigm to evaluate emotional expression of women with breast cancer in an abbreviated expressive writing experience. Twenty-five women with breast cancer were matched with 25 healthy controls and were assigned to one of two directed writing groups, one for positive writing and one for negative writing. Analyzing language patterns using the LIWC, the researchers supported the hypothesis that being diagnosed with and treated for cancer can affect emotionally expressive behaviors.

In a small study (N = 10) restricted to women with metastatic breast cancer, Sherliker and Steptoe (2000) looked at not only the feasibility of using writing as an intervention but also content analysis and patient satisfaction. They concluded that it was a feasible intervention, reportedly accepted and enjoyed by patients. The greatest effect was seen in psychological well-being, mood, and coping responses.

QOL is a multidimensional concept that was first described by the World Health Organization in 1947 to include physical, mental, and social well-being, each of which is considered in health outcomes. Researchers in nursing and other health-related disciplines have expanded and elaborated on the definition to include multiple dimensions of the three initial categories. Cella and colleagues have expanded the three originally described dimensions to include functional ability, emotional well-being, spirituality, sexuality/intimacy, future orientation, family well-being, social functioning, occupational function, and treatment satisfaction (Brady et al., 1997; Cella, 1994; Cella & Tulsky, 1993). Their definition of the concept also emphasizes the subjective nature of QOL, relying on patient perceptions rather than assessment by others. A gap exists in the literature describing QOL in women with advanced, metastatic, or late-stage breast cancer, although QOL in women with early-stage disease has been investigated (Ferrell, Grant, Funk, Otis-Green, & Garcia, 1997; Mock et al., 1997; Ransom, Jacobsen, Schmidt, & Andrykowski, 2005). Reasons for the dearth of studies addressing the experiences and needs of women with advanced cancer may include lack of access to the population, reluctance on their part to participate, and high participant burden in research design.

Various behavioral interventions are used in attempts to enhance comfort and improve QOL for patients with cancer. Many such interventions are symptom specific (i.e., designed to provide relief for a particular symptom or symptom cluster). Others, including support groups, address psychological distress and social isolation as well as physical symptoms. Nurses have frequent clinical opportunities to identify and provide interventions for physiologic and psychosocial issues that arise as the result of disease and treatment. Expressive writing is one intervention that may be used independently by an individual with cancer to enhance QOL and relieve symptoms.

The purpose of the current study was to explore the relationship between patterns of word use in expressive writing and QOL scores at baseline and three months after a writing exercise in women with metastatic breast cancer to obtain a deeper understanding of the expressive writing process and how it relates to QOL. The researcher used linguistic analysis to identify patterns of affective words (i.e., words with positive or negative connotations) in the texts to test the hypothesis that women with metastatic breast cancer who used more positive-affect words would demonstrate greater improvements in QOL at three months after the writing intervention compared to those who used more negative-affect words.

Methods

Design

The study was a secondary analysis, using data collected initially for a randomized, two-group study evaluating the effects of a four-day expressive writing intervention in women with metastatic breast cancer. Using a descriptive, correlational design, the researcher analyzed expressive writing texts for patterns of affective word use by means of a linguistic word-analysis program and narrative analysis to explore the relationships between patterns of language use and QOL.

Sample

A convenience sample (N = 68) of women with metastatic breast cancer was recruited from six clinical sites in the New England region of the United States (three urban academic medical centers [48 participants], a rural academic medical center [13 participants], one suburban community hospital's regional cancer center [1 participant], and a suburban private-practice oncology clinic [6 participants]).

Inclusion criteria required a histologic diagnosis of primary breast cancer, clinical evidence of stage IV breast cancer, life expectancy greater than six months, and the ability to speak, read, and write English. Women with mental status precluding meaningful participation (e.g., acute confusion, psychosis) or medical status precluding meaningful participation (e.g., excessive fatigue, high symptom burden) were excluded.

Despite accrual at six different sites, demographic characteristics of the sample were largely homogeneous, not reflecting the rich diversity of Hispanic, African American, and Asian individuals at the sites. Only three racial groupings were represented: 94% white (non-Hispanic), 5% Native American, and 1% "other." Seventy percent of the participants were married or in a stable committed relationship; 18% were divorced or separated. Less than 5% reported being single, never married, or never in a committed relationship. The average age of participants was 51 years (range = 36–78 years) at the time of the expressive writing experience.

Seventy women in the primary study completed the writing intervention and three-month QOL assessment. Data from two participants who completed initial and three-month assessments were discarded. One had been written primarily in Spanish, and one had not followed the writing protocol. Thus, the resulting sample was 68 participants.

Instruments

The **Functional Assessment of Cancer Therapy–Breast (FACT-B)** is a multidimensional tool to measure QOL in patients with breast cancer. It consists of 34 items assessing current status in six subscales: physical well-being, social/family well-being, relationship with doctor, emotional well-being, functional well-being, and additional concerns specific to breast cancer (Brady et al., 1997). It has been used successfully in nursing research (King et al., 1997). Items in each subscale are designed as declarative statements. Participants respond by identifying, on a scale of 0–4, how accurately each statement represents their personal condition. The scale is identified clearly, with numerical responses corresponding to verbal descriptors (0 = "not at all" to 4 = "very much"). The maximum possible score is 136; the minimum is 0. Each subscale can be scored individually. Higher scores on the tool reflect higher QOL.

The **sociodemographic information survey** is a self-report questionnaire designed specifically for the primary study to assess relevant demographic information. Items include age, race, ethnicity, marital status, child status, living circumstances, education, income, and employment status.

The study included a **medical-information collection form** to gather information about each participant's breast cancer. It was used in the context of the secondary analysis to provide evidence of diagnosis and stage of disease.

Procedures

Potential participants were identified through direct referral by oncologists and oncology nurses or through self-referral from flyers placed at study sites. Participants were informed of potential risks; the researcher anticipated that some participants could find the expressive writing to be somewhat distressing or anxiety provoking (Smyth, 1998).

At time of enrollment, written informed consent was obtained and randomization took place. Confidentiality was assured; participants' questionnaires and writing texts were identified only by code numbers. Baseline measures, including the sociodemographic information survey and the FACT-B, were completed by participants within one week of entry into the study, and the intervention was begun within 48 hours of completion of assessments.

The intervention involved writing for 20–30 minutes a day for four consecutive days at one point in time. Participants received instructions to write about experiences with metastatic breast cancer, thoughts and feelings related to not fully recovering from cancer and facing death, and any other traumatic and upsetting experiences in life that may or may not relate to breast cancer. Survey completion and writing were done at a place and time selected by each of the participants for her comfort and convenience. Three months after the intervention, participants received, by mail, a questionnaire packet, including the FACT-B. Writing texts and all surveys were returned to the investigator in provided postage-paid envelopes.

Data Analysis

The LIWC was used to identify raw score numbers of positive-affect words in each text. Patterns of word usage have been identified consistently through use of the LIWC (Pennebaker & Francis, 1999). First developed in 1973, it analyzes text word by word to match 82 language categories, 74 of which are preset by the program, identifying and tallying words in text samples.

Despite its name, the program delineates word use only. Language implies content, but the program is unable to identify words as they are used contextually in word strings, phrases, or sentences. It has no ability to discriminate changes in meaning because of spelling errors, misunderstandings, poor grammar, or, most importantly, idioms.

The LIWC places words in categories in a hierarchical manner, using a dictionary containing 2,290 words and word stems. Instrument validity was established using 210 writing samples and two independent judges, with high levels of agreement between judges' ratings and the LIWC's objective word count (Pennebaker & Francis, 1999).

The texts that resulted from the writing intervention were analyzed. The LIWC calculated the percentages of positive-affect words and negative-affect words among the total words in each writing encounter. In addition, complete expressive

writing submissions of 10 randomly selected participants were reviewed manually to determine agreement in word count with the LIWC, as well as effective identification of positive and negative modifiers (i.e., *not* happy) and idiomatic language. The total numbers of positive- and negative-affect words were counted for four days of writing from each patient.

The relationship between QOL and word use was analyzed with a generalized linear regression model. Changes in QOL scores for each participant were indicated by differences in scores from baseline to the three-month assessment. For individuals with the highest QOL scores at baseline, the best result after treatment would be to maintain their high scores. Score change would be 0, but the score change is qualitatively different from individuals whose initial scores were low or intermediate, neither improved, or got worse following intervention. A fairer comparison needs to be conditional to the original score. To manage the comparison, baseline scores for the FACT-B or individual subscales were entered to control for regression to the mean. This allowed maintenance of high scores to be recognized as an effect of intervention.

Findings

The researcher's hypothesis was that women with metastatic breast cancer who used more positive-affect words in expressive writing texts over four days would demonstrate greater improvements in QOL three months after the writing intervention compared to those who used more negative-affect words. A statistically significant relationship was demonstrated between positive-affect language and emotional well-being subscale scores and the additional concerns subscale scores from the FACT-B (see Table 1). Women with metastatic breast cancer who used more positive-affect words in expressive writing texts demonstrated higher scores on the emotional well-being and additional concerns subscales three months after the writing intervention compared to those who used more negative-affect words.

Discussion

Considering QOL as a multidimensional concept and using the FACT-B, a tool to assess QOL that contains domain-specific subscales, the researcher could determine whether any particular domain (or dimension) was affected by the expressive writing intervention. The analysis indicated that

women with metastatic breast cancer who used more positive-affect words in their texts demonstrated higher scores on the emotional well-being subscale three months after the writing intervention compared to those who used more negative-affect words. The subscale measures only one dimension of QOL but offers some insight into the process of reframing and reintegrating as they affect emotional well-being. Use of positive-affect words is related to enhanced emotional well-being. The direction of the relationship is not indicated; although improvements in emotional well-being could occur as an outcome of cognitive activities expressed in positive-affect words, a positive outlook could, in turn, be the consequence of positive emotional well-being.

A significant relationship also was observed between greater use of positive- than negative-affect words and improved scores on the additional concerns subscale. Items on the subscale included statements concerning self-consciousness, worry, stress, and contentment. Despite that fact that item analysis was used extensively in developing the FACT-B to reduce item content redundancy (Brady et al., 1997), some overlap may still exist.

Use of Pennebaker's model for writing was a specific strength of the current study, as well as procedures in the primary study to provide for participant safety and retention. The four-day duration of the writing exercise provided structure as well as limits on the process, reducing participant burden and stress. Additionally, the four consecutive days allowed participants some time to mentally gather information, set priorities within the telling, and reintegrate their experiences. They also were afforded the psychological distance to think about and discuss traumatic issues at their own pace.

Writing as a means of expression was well received and appreciated by all participants who completed the study. Although it may have prohibited recruitment of some potential participants (e.g., those who may have not enjoyed writing, those who considered themselves unable to write effectively), writing has been demonstrated to be a potential intervention for patients with cancer. One participant summed up the benefits of writing.

> I would never have done this if you hadn't asked me. Now that I'm done, I see how great an experience it was. I learned a lot, and hope what I'm sending you will help. But, especially, I've learned that writing helps, and I will do it more in the future. Thank you for letting me have this wonderful opportunity.

Limitations

The study is currently the only one that examined patterns of language in a very ill population, women with metastatic breast cancer. Women with metastatic breast cancer may differ from healthier writers in internal and external circumstances, resulting in a different approach in writing about traumatic events.

Power: A reduction in power was the result of sampling issues in the course of the study, leading to a sample size of 68. The originally proposed sample of 100 women was not achieved. A sample of 100 participants would have been able to detect a medium effect size of $r = 0.28$ with 80% power. With the available 68 participants, to detect that effect size, the study would have only 64% power at two-sided 0.05 type I error. To achieve 80% power with 68 patients at two-sided

Table 1. Effect of Positive and Negative Word Use on Functional Assessment of Cancer Therapy–Breast Subscale Scores

Subscale	Beta Coefficient	95% Confidence Interval		p
		Lower Boundary	Upper Boundary	
Overall quality of life	4.72	−0.12	9.56	0.40
Emotional well-being	1.87	0.33	3.42	0.02
Additional concerns	1.75	0.17	3.33	0.03
Physical well-being	0.53	−0.93	1.99	0.40
Social/family well-being	0.02	−1.23	2.24	0.90
Functional well-being	1.45	−0.36	3.26	0.10

0.05 type I error, effect size would be increased to 0.34. Thus, the possibility of a type II error, rejecting the alternative hypothesis when the null hypothesis is false, would be increased. The original effect size of 0.28 was not attained, but Polit and Hungler (1999) reported that in most nursing research studies, effect size ranged from 0.2–0.4. An effect size of 0.34 remains acceptable in the current state of the science.

Sample characteristics: The findings of the study have reduced generalizability because of the lack of diversity in the sample. Although six facilities were included in the recruitment procedure, women who consented to participate were relatively young, very well educated, and willing to participate in the writing exercise. The lack of cultural diversity was not reflective of the facilities' patient populations.

The writing exercise: Restricting the study to texts generated by a writing exercise may have prohibited participation by women who had low levels of education, women who were uncomfortable writing, and women who spoke English as a second language. Using an alternative to writing (e.g., audio recordings, interviews) is possible but would increase the cost and complexity of transcription.

Implications for Nursing

At the core of nursing is an appreciation for patients' QOL. Nurses strive to enhance QOL for patients and their families through implementation of nonpharmacologic, psychobehavioral interventions such as expressive writing. The cost-effective intervention, performed by patients when and where they choose, can be implemented easily. Expressive writing can be especially useful for debilitated patients who have little energy to expend on interventions that require participation over long periods of time, travel outside the home, or physical exertion. Participation in a writing intervention can be a solitary pursuit or part of social interchange. Patients may use their writings as reflective exercises or share them with nurses to facilitate communication. Gaining a deeper understanding of the underlying principles of writing as an intervention will be important to identify the most effective manner to use such interventions.

Nursing, as a clinically applied science, designs and studies interventions that are feasible in the practice arena. The intent of the current study—to explore the cognitive processes in expressive writing—was proposed to further develop and refine an expressive writing intervention. Through complex interaction with patients and family, nurses evaluate them by considering contextual language as well as nonverbal cues. The content, whether stated or implied, and context of language are critical to evaluation. Though most nurse-patient interactions are visual and spoken, writing exercises could be prescribed to promote introspection or extend interactions. Studies similar to or replicating those conducted by Rosenberg et al. (2002) and Walker et al. (1999) are critical in evaluating the efficacy of expressive writing in patients with cancer.

Writing is a positive, helpful experience to patients with cancer (Sherliker & Steptoe, 2000; Walker et al., 1999). As stated by one participant in the current study, "writing helps." Using writing as an intervention links the model of disclosure with nursing theories such as Watson's Science of Caring (Watson, 1985) and philosophical viewpoints of hermeneutics. In the context of nurse-patient relationships, writing is a way to develop ideas and information and to promote formation of meaning. Nurses who prescribe writing interventions enable patients to engage in a cognitive process, reintegrating experience in life. By writing, individuals can identify meaning, share meaning, leave a legacy, reach out to others, and define themselves. This is reflective of the holistic nature of nursing.

Author Contact: Margaret Laccetti, PhD, RN, AOCN®, ACHPN, can be reached at laccetti@bc.edu, with copy to editor at ONFEditor@ons .org.

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