6-8-2010

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Recommended Citation
Woods, Kristine N., "The Effects of Written and Verbal Emotional Expression on Cancer Patients' Health" (2010). *Theses and Dissertations (All)*. 951.
http://knowledge.library.iup.edu/etd/951

THE EFFECTS OF WRITTEN AND VERBAL EMOTIONAL EXPRESSION ON CANCER PATIENTS' HEALTH

A Dissertation

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Doctor of Psychology

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August 2010

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Title: The Effects of Written and Verbal Emotional Expression on Cancer Patients' Health

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Previous research examining the effects of written emotional expression on health indicates that written expression about emotional or traumatic events reduces the number of medical visits made by the participants involved. In breast cancer patients, written emotional expression reduces perceived levels of distress and number of medical appointments and improves perceived health status. Verbal disclosure, for example, during therapy is also effective in improving perceived health status as well as encouraging a variety of other benefits. However, no studies have examined the combined effects of written and verbal disclosure on health. Self-concealment is another factor that can contribute to poor physical and psychological health, and the research indicates that those who withhold information from others actually benefit from written disclosure. This study had two purposes. First, it examined the effects of written and verbal disclosure on physical and psychological health in a sample of breast cancer patients (n=27). Second, it examined these same effects on women who withheld information from others (high self-concealment) and those who shared information with others (low self-concealment). Information about physical and psychological symptoms was collected at three time points during the study through the use of several self-report measures. There were no significant differences between groups on the POMS, PILL, or IES-R, and groups did not differ on the number of physician appointments due to illness. Similarly, there were no significant differences between the High and Low Self-Concealment groups with respect to the POMS, PILL, or number of physician appointments due to illness. There were split findings on the IES-R, with no difference on the IES-Intrusion scale, but a difference on IES-Avoidance scale, suggesting that high self-concealment contributed to more avoidance behaviors. Overall, however, the study’s hypotheses were not supported. Implications and limitations of this study, including small sample size, are addressed and recommendations for future research are discussed.

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CHAPTER I

INTRODUCTION

Cancer is a serious medical diagnosis that often involves many physical and psychological symptoms during the course of treatment. Currently, the most utilized psychological interventions for cancer patients include individual psychotherapy and group psychotherapy. Verbal disclosure, for example, during therapy has also been found to be effective in improving perceived health status as well as encouraging a variety of other benefits. A review of the relevant literature suggests that these treatments have been effective in reducing psychological distress in cancer patients. Additionally, studies have been conducted using James Pennebaker's (Pennebaker & O'Heeron, 1984) written emotional disclosure procedure as a form of psychological intervention. Previous research examining the effects of written emotional expression on health indicates that written expression about emotional or traumatic events reduces the number of medical visits made by the participants involved. In breast cancer patients specifically, written emotional expression has been shown to reduce perceived levels of distress, reduce the number of medical appointments for physical symptoms unrelated to cancer treatment, and improve perceived health status. However, a search of the literature for studies that have examined the effects of both written and verbal emotional disclosure on health yields no results. This study proposes to remedy this lack in the literature by combining written and verbal emotional disclosure in order to examine their effects on perceived health status in women diagnosed with breast cancer.

According to the World Health Organization, over 10 million individuals were diagnosed with cancer in 2002, and over 20 million people were living with cancer (as cited in Knight, 2004). In 2007, it is estimated that over 1,440,000 new cancer cases will be diagnosed, and over 559,000 Americans will die of cancer. With numbers this large, it is not difficult to understand why cancer is the second leading cause of death in the United States (American Cancer Society, 2007b).

With the exception of skin cancers, breast cancer is the most common form of cancer in women and, although rare, men are at risk for developing breast cancer as well. According to the American Cancer Society (2007a), over 178,000 women will be diagnosed with invasive breast cancer and approximately 40,000 women will die from breast cancer in 2007. In contrast, approximately 2,000 men will be diagnosed with breast cancer, and it is estimated that 450 men will die from breast cancer in 2007. Gender is not the only factor that plays a significant role in breast cancer. Both age and ethnicity affect the probability of being diagnosed with breast cancer. The probability of being diagnosed with breast cancer increases with age, with the lowest incidence rate in women between the ages of 20-24 and the highest among women between the ages of 75-79. After the age of 40, Caucasian females have a higher likelihood of developing breast cancer than African American women, but before the age of 40 African American women are more likely to develop breast cancer (American Cancer Society, 2007a).

According to Salander and Hamberg (2005), breast cancer patients are a distinct group of cancer patients who have experiences that are very different from other cancer patients. Typically, cancer patients are the ones who initiate consultation with doctors before being diagnosed with cancer because they do not know what is wrong with them. After the initial consultation, these patients may undergo multiple tests or procedures before being diagnosed with cancer. However, breast cancer patients are often contacted by their doctors after having a mammogram (Salander & Hamberg). Therefore, a diagnosis of breast cancer may be more surprising to this population because there may not have been any signs or symptoms of a medical problem as threatening as cancer.

The treatment of cancer has become a large part of the healthcare field due to the increasing number of people living with cancer each year. Therefore, it is imperative that health professionals, both medical and psychological, work together to provide the most comprehensive and effective treatment possible to patients diagnosed with cancer. Due to the wide variety of concerns that cancer patients face, as well as the different concerns among cancer patients, there is no single psychological treatment that is effective for treating everyone and every problem or concern the patients will face. Therefore, traditional psychological interventions may range from dealing with depression and anxiety to reducing pain and fear of relapse or death. Both individual and group formats have been used with cancer patients, and both types of therapy have been shown to be beneficial to not only psychological well-being, but also to physical well-being in cancer patients (Knight, 2004).

Psychological Issues in Cancer Patients

Cancer is a collective name for approximately 150 different tumor orientations and is a disease that is treated in many ways, both medically and psychologically. In addition to the pathology of the tumor, different individuals diagnosed with cancer have different problems and concerns depending on such things as the type and stage of the cancer as well as the treatments that are being administered. Many of the recommended treatments cause unpleasant side effects, both physical and psychological. Addressing psychological sequelae is one area of cancer treatment where psychological services can be valuably incorporated into the treatment regimen (Burton & Watson, 1998). However, helping with treatment sequelae is not the only way that psychology can be incorporated into cancer treatment.

Psychological treatment of cancer can be somewhat more complex than the medical treatment of cancer. Although choices of chemotherapy drugs or radiation sites can be straightforward based on the location, stage, and pathology of a tumor, cancer patients present with various psychological complaints or issues with seemingly few similarities between patients. Psychological concerns may range from, but are not limited to, depression or anger associated with the initial diagnosis, needle phobias, anticipatory nausea associated with chemotherapy treatments, or concerns about physical appearance after the loss of a body part due to surgery. Because cancer patients present with such a wide array of problems that are specific to the individual, and not all cancer patients experience the same psychological stressors, psychological treatment is specific to the individual patient (Burton & Watson, 1998).

After a diagnosis of cancer, many patients will seek psychological services as a way to handle their distress as they adjust to their diagnosis. Adjustment to cancer and cancer-related hassles are often problems experienced by cancer patients. For example, these patients may spend quite a bit of time at the hospital where they are exposed to unfamiliar surroundings and people as well as the different sounds and sights associated with the hospital and their treatment (Burton & Watson, 1998). Additionally, these patients often want reassurance they are doing everything possible to manage and treat their illness. At this stage of the illness, patients most often experience anxiety. Their anxiety surrounds a myriad of issues such as shock, worries about continuing with employment or school, paying for treatments, the impact of the disease on socialization, and worries about what treatment will be like for them. Feelings of helplessness, hopelessness, or depression in general are also common at this stage of the illness, and these feelings have been attributed to the cancer itself as well as to the disruption of daily life due to the cancer. Anger is another emotion frequently experienced at this stage, and patients often wonder what they did to deserve a cancer diagnosis (Burton & Watson).

Once cancer patients begin medical treatments, they may present for psychological services for help with such issues as talking to medical professionals about their diagnosis and treatment, family relationship issues and sexual concerns, or for help in dealing with the side effects due to medical treatments. The patient’s physicians may also recommend psychological services if treatment compliance becomes an issue (Knight, 2004). Because cancer has so many negative and distressing side effects, some patients do not follow their physician’s recommendations or decide they want to discontinue treatment all together. In these instances, it is important to consider whether the patient is experiencing so much distress from the treatment that it is thought to be worse than the disease itself or if noncompliance is due to feelings of depression or avoidance. For patients who feel that their treatment is causing more distress than it is beneficial, they may become frustrated and feel that their treatment is a waste of their time and money. Dealing with this issue concerns the medical treatment team because different treatment options may need to be discussed, or treatment may be discontinued completely. However, if a patient is noncompliant with treatment due to depression, psychological techniques may be incorporated into treatment in an attempt to relieve these feelings (Burton & Watson, 1998).

After treatment is complete, cancer patients may need help with balancing the different emotions associated with this stage in the illness. Research indicates that, in the post-treatment phase, approximately 13% of cancer patients develop symptoms of posttraumatic stress disorder (PTSD), and approximately 46% will report experiencing distress at the subclinical level (Petersen, Bull, Propst, Dettinger, & Detwiler, 2005). For example, cancer patients may experience relief that treatment is finished. However, they may also experience fear of relapse because their cancer is no longer being treated. During this time, if the cancer patient experiences any physical symptoms, this may trigger fears of a relapse. Additionally, the completion of treatment may also be a confusing time for the cancer patient because he or she may not know how his or her life will be once he or she returns home (Wiard & Jogal, 2000). The cancer patient who has relapsed has different concerns compared with other cancer patients. Often times, the recurrence of cancer can be even more distressing than the initial diagnosis, and the patient may be referred for therapy to help deal with his or her relapse (Burton & Watson, 1998). In later stages of cancer, patients may present for psychological services concerning their anxiety about death and dying (Knight, 2004).

For cancer survivors, issues concerning a fear of relapse may be the focus of therapy as well as issues surrounding the loss of a significant body part (Knight, 2004). Cancer treatments take their toll on the patient's body, so it is no wonder that many cancer patients present with concerns about their appearance and body image, or issues surrounding self-esteem and sexuality (Wiard & Jogal, 2000).

Coping with Cancer

In reviewing different theories of coping, no universal definition emerged. Before the increased interest in coping research, coping was viewed to be the same as adaptation or adjustment, and coping was defined as how well a person deals with a particular challenging situation. However, more recent research identifies these three terms as being distinctly different. Adaptation is viewed as an active process where the individual interacts with his or her environment, and it is often used in studies as an outcome measure or end point. Adjustment is defined as an individual’s ability to accommodate to the demands of his or her environment. When defining coping, one definition views it as an individual’s attempt to deal with the pressures of his or her environment (Kupst, 1994). Some researchers believe coping is “a temporary and situation-specific process” that takes into consideration what an individual does in response to a stressful situation (Last & Grootenhuis, 1998). Others believe coping is “a dynamic process that occurs over time,” and these researchers focus on changes in coping strategies.

According to Lazarus and Folkman (1984), there are two traditional views of coping. One of these views derives from the animal model of stress and control, whereas, the other theory has its roots in psychoanalytic ego psychology. In the former, coping is viewed as any act that is employed by the organism as a way to control the environment and lower physiological changes. In the latter, coping focuses more on the thoughts and behaviors that are used to reduce problems and eliminate stress. Both of these traditional approaches have some major issues. For example, viewing the coping process as a trait or style does not account for the complexity of the coping process, and it does not explain the variability in coping strategies used in real-life situations. Often, individuals use several different coping strategies in different situations or different coping strategies when confronted with the same situation repeatedly. Additionally, these two traditional approaches view virtually all adaptive behaviors as coping. Lazarus and Folkman believe that only adaptive behaviors that involve effort should be considered to be coping. They stress the importance of effort that is exhibited as a way to manage stress from the environment. Their criticism of these traditional views of coping led to the development of an alternative view of the coping process (Lazarus & Folkman).

According to Lazarus and Folkman (1984), two of the most common cognitive models of coping are Weiner's model and Lazarus's model. Although these two models share some similarities, there are several differences. For example, Weiner's model is a model of attributions and emotions, whereas, Lazarus's model is a model of stress, appraisal, coping, and emotions (Burgess & Haaga, 1998). Weiner's model assumes that an individual's emotional response, either positive or negative, is determined by an event's outcome. Lazarus's model defines stress as "an encounter with a situation perceived as taxing or exceeding one's resources" (Lazarus & Folkman, p. 141). Negative emotions resulting from a stressor, therefore, will depend on a person's cognitive appraisals and his or her response to that stressor (Burgess & Haaga). This model views a coping strategy as being effective if it helps achieve a particular task and, therefore, individual coping strategies are appraised in reference to the situation in which they are used (Kupst, 1994).

Lazarus defined coping as being "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person," (Lazarus & Folkman, 1984, p. 141). This definition implies that coping is process-oriented, whereas, the traditional approaches view coping as trait-oriented. In viewing coping as a process, one must consider three factors: the actual thoughts or actions of the person, the context within which the person is reacting, and the challenges that occur within the situation. In viewing coping as a process, the individual is able to make initial appraisals of the situation and revise or reappraise the situation as it changes. Additionally, Lazarus's theory makes a clear distinction between coping behaviors and adaptive behaviors by viewing coping as a process that requires effort (Lazarus & Folkman).

Lazarus's model places emphasis on the situation and the coping strategies an individual uses to react to the situation. Thus, coping is not viewed as a disposition or a state, but rather it is seen as a specific action or reaction in a specific situation (Kupst, 1994). Lazarus identified two different forms of coping: problem-focused coping and emotion-focused coping. In situations that are interpreted as changeable, most individuals use problem-focused coping whereas emotion-focused coping is most often used in situations that are considered unchangeable (Burgess & Haaga, 1998). Problem-focused coping generally refers to efforts used to diminish the problem, and emotion-focused coping refers to efforts used to regulate negative emotions (Last & Grootenhis, 1998).

Problem-focused coping refers to coping mechanisms that attempt to change the stressful situation. Problem-focused coping skills are usually developed by the preschool years, and this is thought to be due to the effects of modeling adult behaviors (Compas et al., 1992). Problem-focused coping strategies are typically used to identify the problem and generate solutions to the problem. These strategies may be directed at the environment (e.g., eliminating barriers or reducing stressors) or the self (e.g., learning new skills, changing level of motivation; Lazarus & Folkman, 1984). According to Lazarus (1990), problem-focused coping involves a change in the relationship between the person and the environment, and this affects appraisal of the situation. Problem-focused coping strategies include seeking information, seeking social support, and planful problem solving (Kupst, 1994).

On the other hand, emotion-focused coping refers to coping mechanisms that attempt to regulate the person's negative emotions that arise from the stressful situation. Emotion-focused coping skills generally do not develop until late childhood or early adolescence. These strategies are most effective when the stressful situation is seen as uncontrollable or unable to be changed (Compas et al., 1992). Most often, emotion-focused coping strategies are used to decrease emotional distress, and individuals typically use these strategies to maintain hope in stressful situations. Emotion-focused coping strategies include denial, avoidance, making comparisons, and mental disengagement (Lazarus & Folkman, 1984).

In Lazarus's model, cognitive appraisals are broken down into primary and secondary appraisals. Primary appraisals assess the extent to which an event is relevant to the situation and if it is stressful (i.e., the degree of threat) whereas secondary appraisals focus on who is accountable, the potential to use problem-focused coping, the potential to use emotion-focused coping, and whether there is a possibility of future occurrences (i.e., resources available to manage the situation). The emotional outcome of a particular situation, that is, whether the stress response is experienced or not, is the result of both primary and secondary appraisals combined (Burgess & Haaga, 1998). The emotional outcomes, therefore, should be influenced by the coping process that is influenced by these primary and secondary appraisals.

Other emotion-focused coping strategies include positive reappraisal, helplessness, acceptance, and distraction. Positive reappraisal occurs when an individual believes a positive outcome will result from the situation, and examples of this include optimism and self-confidence. Helplessness, on the other hand, occurs when an individual believes nothing will help the situation, and this includes feeling helpless and taking no action. Acceptance occurs when an individual displays that they have accepted their situation either with or without rationale for the acceptance. Finally, distraction occurs when an individual diverts his or her attention away from the situation at hand, and this can occur through a postponement of worry, thought displacement, or a distracting action (Parle, Jones, & Maguire, 1996).

Teaching cancer patients how to cope with their illness and its treatment is a significant aspect of psychological treatment that occurs at all stages of the illness. Because cancer and its treatment often leave the patient feeling weak, ill, and fatigued, these individuals have significantly less energy with which to cope with their illness. However, research suggests that, despite their poor and declining health, medically ill patients are capable of coping quite well (Lazarus & Folkman, 1984).There are several different coping styles, and patients may use only one or several of these styles when dealing with their illness (Burton & Watson, 1998). Although some of these different coping styles are beneficial to the cancer patient, others may be problematic. For example, denial or avoidance can be extremely harmful if it is not adaptive for the cancer patient. Most often, cancer patients do not experience denial of the disease itself, but rather they are in denial of the emotional aspect of cancer. Those patients who use avoidance as a coping strategy often push stressful events from their conscious awareness because they are frightened by it, but they do understand and have a good understanding of the seriousness of their condition. Working with a cancer patient who often uses denial or avoidance as a coping strategy may be difficult because this type of coping may be the only method the patient knows for reducing anxiety or depression. Therefore, it may be useful to teach the patient alternative methods for reducing his or her distress before encouraging him or her to face the illness rather than avoid it. To do this, the therapist should encourage the cancer patient to discuss his or her fears or concerns associated with the illness (Burton & Watson).

Individuals who are dealing with a serious illness such as cancer generally proceed through the coping process in stages due to the ever-changing demands of the diagnosis and treatment. For example, when they first learn of their diagnosis, the typical reaction is shock. During this stage, individuals often feel detached. This stage progresses to the encounter stage, which is marked by the patient feeling helpless and panicky. The third stage, retreat, is marked by denial. However, this stage gradually gives way to the final stage, reality testing, when the individual can begin to make sense of his or her diagnosis. However, the individual may progress back and forth between the stages, and this is viewed as adaptive because it allows the individual to prevent a breakdown (Lazarus & Folkman, 1984).

Another method of coping, social support, is an important factor in many aspects of psychological well-being, and it can even act as a buffer or moderator of health-related problems. When a person's social support network provides a positive experience in which the individual is supported in problem-solving efforts and feels emotionally supported, it can have a powerful effect on cancer patients (Burton & Watson, 1998). However, when the cancer patient perceives a lack of social support or an inadequacy of the social support available, the cancer patient is more likely to avoid sharing his or her emotions or concerns regarding the cancer experience.

Several factors can influence how an individual copes with a given situation. For example, positive beliefs about the self and hope are two aspects that are important to the coping process. Having hope in stressful situations allows an individual to have more positive beliefs regarding the situation and may help the individual to feel in control of the situation. Thus, an internal locus of control may be helpful in fostering effort on the part of the individual to facilitate change (Lazarus & Folkman, 1984). Research indicates that, in medical patients, those who have an internal locus of control are more likely to play a more active role in their treatment by seeking information and taking action (Strickland, 1978). Additionally, individuals with an internal locus of control tend to incorporate more problem-focused coping strategies into their lives, whereas, those with an external locus of control tend to employ more emotion-focused coping strategies to deal with their problems (Lazarus & Folkman).

Due to the varying results of studies assessing the effectiveness of coping strategies, no one strategy has been found to be more useful than others, and not all strategies work for every individual in every situation. For example, some studies suggest that there are particular times during treatment that denial can be an adaptive and appropriate coping strategy. Other strategies that have been found to be useful include focusing on positive aspects, seeking and maintaining social support, open communication, and living “one day at a time,” (Kupst, 1994). However, in dealing with stressful medical situations in general, active, information seeking strategies are more effective in helping individuals cope (Tyc, Mulhern, Jayawardene, & Fairclough, 1995).

There are several resources available in the community for women diagnosed with breast cancer. For example, the American Cancer Society offers several different types of programs for breast cancer patients as well as family members of those diagnosed with breast cancer. These programs are designed to teach women and their families about their cancer diagnosis and learn to live with the breast cancer diagnosis (American Cancer Society, 2007a).

Written Emotional Disclosure

A review of the literature reveals that the written disclosure paradigm, which was developed by James Pennebaker, has been used in numerous research studies with a variety of different populations (e.g. de Moor, Sterner, Hall, Warneke, Gilani, Amato, et al. 2002; Gillis, Lumley, Mosley-Williams, Leisen, & Roehrs, 2006; Radcliffe, Lumley, Stevenson, & Beltran, 2007; Rosenberg, Rosenberg, Ernstoff, Wolford, Amdur, & Elshamy, 2002; Sloan, Marx, & Epstein, 2005; Stanton, Danoff-Burg, Sworowski, Collins, Branstetter, Rodriguez-Hanley, et al., 2000; Stanton, Danoff-Burg, Cameron, Bishop, Collins, Kirk, et al., 2002; Zakowski, Ramati, Morton, Johnson, & Flanigan, 2004). Pennebaker's own research in this area typically involves working with the college student population. Overall, the work of Pennebaker and his colleagues suggests that those individuals who repress feelings associated with a traumatic event are more prone to illness compared to individuals who disclose feelings associated with a traumatic experience (Pennebaker & O'Heeron, 1984). However, when these individuals are asked to write about their trauma, Pennebaker and his colleagues found that, compared to the control group who wrote about trivial topics such as time management, the experimental group participants who wrote about their trauma experienced improvements in physical health and were significantly happier than those who wrote about events other than those related to their trauma (Pennebaker, Kieolt-Glaser, & Glaser, 1988). As a result of the improvement in health, these college students utilized the health center less frequently than the participants in the control group (Pennebaker, Colder, & Sharp, 1990).

Pennebaker's written disclosure procedure has been extended to other populations in addition to college students. A meta-analysis conducted by Frisina, Borod, and Lepore (2004) indicates that written disclosure impacts physical health more than psychological health. Therefore, the written disclosure paradigm has been used in various medical populations, including individuals diagnosed with arthritis and asthma (Smyth, Stone, Hureqitz, & Kaell, 1999), chronic pelvis pain (Norman, Lumley, Dooley, & Diamond, 2004) and fibromyalgia (Gillis, et al., 2006). However, the written disclosure procedure has been studied most frequently in the cancer population (Low et al., 2006; Rosenberg et al., 2002; Stanton et al., 2000; Stanton et al., 2002; Zakowski et al., 2004).

For example, Stanton and her colleagues (Stanton et al., 2000) studied the written emotional disclosure procedure in breast cancer patients. These researchers examined emotionally expressive coping as a mediator between hope and adaptive outcomes. They hypothesized that women who used emotion-focused coping would have improved psychological functioning and health at the 3-month follow-up. Additionally, the researchers hypothesized that emotional expression would be a predictor of women's adjustment to cancer. The results suggest that when women diagnosed with breast cancer used emotional expression to cope with their cancer, it was associated with lower psychological distress, fewer medical appointments, and enhanced perception of their health status.

In another study by Stanton and her colleagues (Stanton et al., 2002), breast cancer patients were assigned to one of three groups: emotional expression group, positive emotion group, or control group. Participants in the emotional expression group were asked to write about their deepest thought and feelings associated with breast cancer; participants in the positive emotion group were asked to write about their positive thoughts and feelings associated with breast cancer; and participants in the control group were asked to write about facts regarding their breast cancer and its treatment. The researchers hypothesized that participants in the emotional expression and positive expression groups would report enhanced perception of physical functioning, as indicated by fewer medical appointments, and increased psychological functioning compared to the control group participants. Results from their study indicate that, at the 3-month follow-up, the emotional expression and positive emotion groups showed a decrease in physical symptoms compared to the control group. Additionally, results indicate that, in the emotional expression group, avoidance was related to distress in that those women who were low on avoidance showed a decrease in distress, but those women who were high on avoidance expressed more distress. In the positive emotion group, women who were low on avoidance reported higher distress, whereas, women high on avoidance reported lower distress.

In yet another study, in 2006, Low, Stanton, and Danoff-Burg studied the written emotional disclosure procedure in breast cancer patients in a more in-depth, descriptive, and attributional manner than in their previous studies. The researchers randomly assigned these women into one of three groups: emotional disclosure group, positive emotion group, and a control group. The emotional disclosure group was asked to write about their deepest thoughts and feelings regarding their cancer diagnosis; the positive emotion group was asked to write about their positive thoughts and feelings regarding their cancer diagnosis; and the control group was asked to write about the facts regarding their cancer diagnosis and treatment. Examining consideration for attributions for observed effects, the researchers hypothesized that the emotional disclosure group and the positive emotion group would have improved health due to regulation of physiological, affective, and cognitive experiences. Additionally, they believed that, in the emotional disclosure group, positive health effects would be due to a decrease over time in physiological arousal related to thoughts about cancer. In the positive emotion group, they believed that positive health effects would be due to the reversal of arousal related to a stressful experience through the expression of positive emotions. The results indicate that, at the 3-month follow-up, women in the emotional disclosure group and the positive emotion group reported fewer physical symptoms and fewer medical appointments for cancer-related symptoms. Their results also suggest that heart rate has a mediating effect between the emotional disclosure group and self-reported physical symptoms. The authors postulate that this is due to those in the emotional disclosure group having greater heart rate habituation during writing than both the positive emotion group and the control group. Therefore, this study supports the written emotional disclosure procedure as an effective intervention to reduce physical symptoms in breast cancer patients.

De Moor and colleagues (2002) conducted a pilot study with patients diagnosed with metastatic renal cell carcinoma. These patients were participating in a phase II trial of vaccine therapy, and de Moor and colleagues hypothesized that expressive writing would have an effect on the psychological and behavioral adjustment of these individuals. Participants were randomly assigned to either the expressive writing group, which was instructed to write about their deepest thoughts and feelings regarding their cancer, or the neutral writing group, which was instructed to write about a different health behavior at each session. De Moor and colleagues found no significant differences between groups on the Impact of Events Scale (IES) or the Perceived Stress Scale (PSS). No differences were found on the Profile of Mood States (POMS) total; however, the Vigor subscale showed a statistically significant difference among groups. More specifically, those patients assigned to the expressive writing group reported higher levels of vigor. Additionally, there were significant differences on the Pittsburgh Sleep Quality Index (PSQI), with the expressive writing group experiencing less sleep disturbance and daytime dysfunction and higher quality and duration of sleep compared to the neutral writing group.

A study conducted by Rosenberg and colleagues (Rosenberg et al., 2002) examined expressive disclosure in prostate cancer patients. The authors hypothesized that participants in the expressive disclosure group would have fewer visits to the physician, improvement in immune function and disease markers, improvement in physical symptoms, improvement in quality of life, and a decrease in psychological symptoms compared to the control group. Their results indicate that participants in the expressive disclosure group showed improvement in physical symptoms (pain), a reduction in the use of medication, and fewer medical office visits. However, there were no improvements on psychological variables, quality of life, or aspects of immune functioning or disease markers. The authors concluded that their results show support for the use of expressive disclosure as an intervention with men diagnosed with prostate cancer. However, their study showed benefits only on the domain of physical symptoms, and some support on the domain of health care utilization, but no benefits on measured psychological variables.

A study conducted with gynecological and prostate cancer patients attempted to address several things. First, Zakowski and colleagues (Zakowski, et al., 2004) hypothesized that cancer patients would benefit from written emotional disclosure as indicated by decreased levels of distress. Second, they hypothesized that those cancer patients with high levels of social constraint would benefit the most from written emotional disclosure. Third, the researchers believed that the reduction in distress would be accounted for by a reduction in cognitive avoidance due to social constraints. Finally, they hypothesized that participants in the experimental group would have lower levels of distress compared to those participants in the control group. Their first hypothesis was not supported, and the authors attributed this finding to the use of self-reports of distress that were subjective. The second hypothesis was supported in that those participants who had high levels of social constraint had lower levels of distress when given the opportunity to write about their emotions, as opposed to the control group whose level of distress continued to be high. The third hypothesis was not supported, but they did find that those who perceived high levels of social constraint and were in the control group continued to use avoidance compared to those in the experimental group. In tying their results together, they concluded that written emotional disclosure may be helpful to cancer patients whenever they lack this opportunity in their social environment due to social constraints.

In order to determine the underlying efficacy of written emotional disclosure, Sloan and colleagues (2005) studied undergraduate students with moderate posttraumatic stress. Students were randomly assigned to groups asked to write about the same topic each day (repeat disclosure group), different topics each day, or a trivial topic each day. The researchers wanted to determine whether there were significant differences in writing about the same traumatic event for several days compared to writing about different traumatic events for several days. Results indicated that those in the repeat disclosure group had significantly lower posttraumatic stress symptom severity at the 4- and 8-weeks follow-up, whereas, the different disclosure group and control group (writing about a non-traumatic event, with no emotional disclosure) did not. Depressive symptom severity in the repeat disclosure group was also significantly lower compared to the other groups and the repeat disclosure group reported fewer physical health complaints and fewer sick days than the other two groups at both 4- and 8-week follow-ups. It is important to note that only the participants who wrote about the same topic each day showed significant improvement in both psychological and physical symptoms. This is important because standard written disclosure protocols do not explicitly tell participants to write about the same event; they allow participants to choose the event they write about each day. Therefore, these researchers conclude that emotional disclosure about the same topic appears to be more beneficial than writing about different topics, and this is consistent with the outcome research for repeated exposure in exposure therapy.

Another aspect of Pennebaker's written emotional disclosure procedure that has been studied recently is whether there are differences between private and shared disclosure. To test this, Radcliffe et al. (2007) told one group of participants that their writing would be kept private and no one, including the researchers, would read their writing. They told the other group that their writing would be read, but only by the researchers conducting the study. Results from this study indicate that there is more benefit from written disclosure that is shared versus private. The group whose writing was shared showed significant effects on measures of intrusion, avoidance, depression, interpersonal sensitivity, and physical symptoms, whereas, the group whose writing was private only showed significant effects on the measures of intrusion, avoidance, and interpersonal sensitivity. Therefore, Radcliffe et al. concluded that although private disclosure did produce an effect on some measures, to achieve maximum effectiveness, written disclosure should be shared with others.

Many people refuse to participate in traditional psychological interventions, and, therefore, are not exposed to the benefits of therapy. Writing about a traumatic event has been found to be just as effective as psychotherapy. Therefore, for cancer patients who refuse traditional psychological interventions, the written emotional disclosure procedure may be an alternative method of intervention (Pennebaker et al., 1988).

The Use of Narratives in Coping with Cancer

Narrative therapy has recently been incorporated into the psychological treatment of cancer patients. Similarly to written disclosure, narrative therapy allows the cancer patient to construct his or her own narrative about his or her personal experiences with the cancer diagnosis and treatment. Using narratives allows the patient to order events in a meaningful way, which may help the individual to reevaluate his or her experiences and feelings (Carlick & Biley, 2004). The nature of the narrative, then, is the patient's story that can be elaborated upon and changed as more details are remembered or new meanings and interpretations are constructed. The narrative provides the cancer patient with a form of self-care that may extract meaning from the entire cancer experience. Writing the narrative, therefore, acts as a reflective process in which the individual may appraise and reevaluate the experience (Salander & Hamberg, 2005).

A positive aspect of using narratives is that the narrative can be expressed in a variety of ways such as written and spoken language, but more artistic events such as performances and artwork can be a form of narrative as well (Carlick & Biley, 2004). The variation in ways of expressing the narrative may be helpful in medical populations such as cancer patients because each individual patient may be in a different stage of the illness. Narratives provide the opportunity for the individual to incorporate emotion into the personal experience, thus allowing for insight into the event that, in turn, allows for the narrative to be updated and revised. In some patients, the use of a narrative allows the patient to express her emotions surrounding all aspects of her cancer diagnosis, and this can be a useful way for organizing thoughts and feelings regarding the experience. Through writing, narratives allow the patient to evaluate the situation from several different perspectives so that issues can be identified and clarified. Through this continuous reconstruction of the narrative, the patient becomes better equipped to include her illness as a part of her life. Additionally, writing the narrative allows the patient to extract thoughts and feelings from the mind and, when this happens, she can create distance which is a feature of emotion-focused coping. According to one cancer patient, an advantage of the written narrative over spoken narrative is that she was able to be honest about her thoughts and feelings, whereas, in conversation with others, she was not able to do this. The written narrative, therefore, allowed this patient to express her innermost thoughts and feelings without the worry of how they would affect her loved ones (Carlick & Biley).

Because there are multiple forms of expression that constitute narrative therapy, it can be a useful way of expressing feelings for cancer patients who have difficulty finding words for their feelings (Petersen, 2005). However, when cancer patients are in denial about their cancer or its treatment, they may be unwilling to participate in therapy and be unwilling to write about their cancer. Thus, using a narrative would be inappropriate and ineffective (Carlick & Biley, 2004).

Narratives offer the cancer patient a variety of benefits. For example, narratives allow the cancer patient to structure and organize her thoughts and feelings surrounding her diagnosis and treatment. Additionally, through the narrative, the cancer patient can identify problems and explore various solutions to the problem. This helps the patient to begin more problem-focused coping through problem-solving, but still incorporates the emotional aspect of cancer into the experience (Carlick & Biley, 2004).

Research suggests there are gender differences between male and female cancer patients. For example, such things as risk factors that contribute to the development of cancer may be different in men and women. Additionally, there are differences between the sexes in help-seeking behaviors and psychosocial adaptation to cancer. In general, women tend to report more symptoms and utilize the health care system more frequently than men, but these gender differences have not been found among patients seeking medical care for cancer (Salander & Hamberg, 2005).

Salander and Hamberg (2005) conducted research to determine whether there were gender differences in the narratives of male and female cancer patients. Their results suggest that the mean number of words in the women’s narratives was more than the mean number of words in the men’s narratives, women’s narratives were more personal than the men’s narratives, and almost all of the women’s narratives contained emotional words whereas only a quarter of the men’s narratives expressed emotion. It is important to note that their sample did not include breast cancer patients because the researchers believe these individuals comprise a distinct group of cancer patients.

Overall, narrative therapy has been used as an approach to treating cancer patients because this type of therapy allows the patient to incorporate his or her illness into his or her life narrative. In narrative therapy, it is believed that, through language, individuals learn to categorize their life experiences, which allows the individual to make sense of the experience as a whole and begin to cope accordingly. Additionally, narrative therapy allows the cancer patient to appraise his or her experiences, incorporate his or her feelings and thoughts into that experience, interpret events, and integrate his or her experience into the personal narrative. Therefore, narrative therapy assists the cancer patient in reappraising life experiences, finding meaning, and finally integrating the experiences so that living a life with a diagnosis of cancer becomes possible (Petersen et al., 2005).

Reappraisals are essential in narrative therapy because they allow the cancer patient to reevaluate his or her thoughts and feelings associated with the experience and identify any problems. They also influence how the cancer patient chooses to cope with problems associated with the cancer experience. When reappraising the cancer experience, the cancer patient begins to assign meaning to the experience, and when the cancer patient chooses to look at the situation from a different perspective, as is done through constructing the narrative, meaning-making occurs as a result. Research indicates that those cancer patients who are able to assign meaning to different aspects of their cancer experience show an increase in immune system functioning and experience long-term health benefits. Finally, integration of the experience becomes important because it allows the cancer patient a sense of coherence in life (Petersen et al., 2005).

Verbal Emotional Disclosure

Traditional psychotherapy is often incorporated into the treatment of cancer patients due to the wide variety of concerns or issues these patients face throughout the course of their illness. The diagnosis and treatment of cancer can be an emotional experience for the cancer patient, and he or she may need to express his or her emotions and thoughts surrounding the cancer experience. Because cancer patients often do not discuss their distress with their physicians, therapeutic interventions are an important component in the treatment (Petersen et al., 2005). Supportive and expressive therapies, such as cognitive and behavioral approaches, are often the treatment choice for working with cancer patients. For example, Moorey and Greer (1989; 2002) have modified cognitive therapy specifically for cancer patients to allow for more attention to be paid to the patient’s emotional expression. Their approach incorporates traditional cognitive techniques such as cognitive restructuring into the therapy but, at the same time, encourages emotional expression. Each component of the treatment helps the cancer patient to evaluate and understand his or her own thoughts and feelings regarding the cancer experience. Other interventions for cancer patients include psychoeducational groups that teach problem solving and coping skills and support groups for patients who do not have adequate social support (Petersen et al., 2005).

A study by Giese-Davis and colleagues (Giese-Davis et al., 2002) examined the impact of supportive-expressive group therapy in a sample of breast cancer patients. More specifically, the authors examined suppression, restraint, repression, and emotional self-efficacy. They had three hypotheses. First, they hypothesized that supportive-expressive therapy would allow for the expression of several negative emotions such as anger and fear about the cancer experience, thus, those participants in the treatment condition would show a decrease in suppression of these feelings. Second, the researchers hypothesized that the participants in the supportive-expressive therapy group would show an increase in restraint of hostile and aggressive behaviors. Finally, they hypothesized that those participants who received supportive-expressive therapy would show an increase in emotional self-efficacy. Results indicate that, in women with metastatic breast cancer, supportive-expressive group therapy decreases suppression of negative emotions and increases restraint of hostile and aggressive behaviors. Their results suggest that emotion-focused therapy may be beneficial during breast cancer treatment because it allows the patient to express painful emotions surrounding the experience.

Meyer and Mark (1995) conducted a meta-analysis of 45 studies to determine the efficacy of psychological interventions with adult cancer patients. These studies looked at emotional adjustment, treatment-related and disease-related symptoms, medical status, and functional adjustment. The types of intervention included in the meta-analysis were cognitive, behavioral, cognitive-behavioral, psychodynamic, existential, supportive, educational/informational, and crisis intervention. Results from the analysis suggest that psychosocial interventions have a positive effect on treatment-related and disease-related symptoms, functional adjustment, and emotional adjustment. Thus, Meyer and Mark (1995) concluded that psychosocial interventions have a beneficial effect on cancer patients.

Compas, Haaga, Keefe, Leitenberg, and Williams (2005) reviewed studies of empirically supported interventions for cancer patients. Their review of the research suggests that psychological treatments for cancer patients can prolong disease-free intervals and even increase the length of survival. For example, an investigation by Spiegel, Bloom, Kraemer, and Gottheil (as cited in Compas et al.) revealed that in metastatic breast cancer patients, those women receiving supportive-expressive group therapy had an average increase of 18 months survival compared to those women who did not receive the intervention.

Another study by Fawzy and colleagues (as cited in Compas et al.) examined a cognitive-behavioral coping skills intervention in malignant melanoma patients. Their results suggest that at the 6-month follow-up, the group receiving the intervention showed a reduction in psychological distress as well as improvements in coping with their illness. At the 5- to 6-year follow-up, those patients receiving the intervention experienced a lower rate of recurrence and lower death rate compared to the control group (Fawzy, Canada, & Fawzy, 2003). Fawzy and colleagues also completed a 10-year follow-up with the same group of patients, and their results suggested that there were no significant differences between those patients receiving the intervention and the control group at that time. They concluded that survival benefits related to participating in psychosocial intervention appear to diminish over time. However, there were significant limitations to their study that must be considered. First, the intent of the Fawzy et study was not to assess the impact of intervention on recurrence and survival rates, but rather to assess health and psychological outcome in general. Their sample sizes were also relatively small and limit the generalizability of their findings. However, Fawzy and colleagues also reported on other studies which have shown favorable results of psychological intervention on survival rates whereas other studies did not find favorable results, and these contradictory findings have contributed to a debate within the field (Fawzy, 2003).

Cognitive behavioral therapy and supportive expressive group therapy were evaluated by Compas et al. (2005) in order to determine their efficacy in reducing distress and improving quality of life. The cognitive behavioral treatments have focused on relaxation training, problem-solving training, health education, and management of emotions. Results from their review suggest that cognitive behavioral therapy was effective in reducing negative affect in cancer patients, and these effects were maintained at the 6-month follow-up. The supportive-expressive group therapy focused on developing supportive relationships among the group members so that they could express their emotions to each other regarding their cancer experience. Additionally, some of these groups incorporated self-hypnosis and other techniques for pain management. Results from relevant studies suggest that supportive-expressive group therapy was effective in reducing pain sensation and suffering, and there were improvements in mood (Compas et al., 2005).

Hypotheses

There appears to be a consensus in the literature that James Pennebaker’s written emotional disclosure procedure is effective in reducing not only distress, but also physical health symptoms in cancer patients. However, a review of the literature reveals no studies that have combined the traditional psychological interventions with Pennebaker’s written emotional disclosure procedure. Given the effectiveness of both treatments, it is important to determine whether combining the two would provide cancer patients with an even more effective treatment than either one alone. Therefore, the purpose of this study was to combine both types of treatment to determine whether the combination of the two is more effective at reducing psychological distress and physical health symptoms than each individually.

It was hypothesized that participants in the combination written and verbal emotional disclosure group would report less psychological distress on the Profile of Mood States (POMS) and Impact of Events Scale-Revised (IES-R), fewer physical symptoms on the Pennebaker Inventory of Limbic Languidness (PILL), and they would have fewer physician visits than the written emotional disclosure group, the verbal emotional disclosure group, and the control group at the 3-month follow-up. In addition, participants in both the written emotional disclosure group and verbal emotional disclosure group would report less psychological distress on the POMS and IES-R, fewer physical symptoms on the PILL, and would have fewer physician visits than the control group at 3-months follow-up. Furthermore, in accord with the results from Pennebaker et al.’s (1990) study on social constraints, it was hypothesized that participants who do not share significant events with others, as measured by the Self-Concealment Scale (SCS), would benefit more from written and verbal emotional disclosure than those who already shared this information with others. These benefits would be seen as lower scores on the POMS, PILL, and IES-R, and they would also report fewer physician visits at the 3-month follow-up.

CHAPTER II

METHODS

Participants

Participants were recruited from the Center for Oncology Care at the Indiana Regional Medical Center. All women over the age of 18, diagnosed with breast cancer in the last two years were eligible for participation in this study. Recruitment occurred in three forms. First, all women receiving care from Dr. Ali Tunio, the radiation oncologist sponsoring the study, were screened by staff at the Center for Oncology care to determine their eligibility for participation in the study. Those women who were eligible were given information regarding the study from either Dr. Tunio or a member of the staff at the Center for Oncology Care (see Appendix A). If the woman was interested in participating in the study, she was asked to complete the recruitment form, providing her name and contact information, including her phone number and the best time to reach her (see Appendix A). She was then instructed to place the form in an unmarked, locked box located in the lobby at the Center for Oncology Care. If the woman did not want to participate in the study, she was asked to place the blank recruitment form in the same unmarked, locked box. Only the principal investigator had access to the forms inside this box to ensure that all eligible participants received the same treatment regardless of their decision to participate in this study.

The second form of recruitment was through the Center for Oncology Care’s tumor registry, and a list of names and addresses was generated based on type of cancer and date of diagnosis. Women who had already consented to participate in the study were excluded from this list. A recruitment letter was then mailed to each eligible woman by the receptionist at the Center for Oncology Care. Women interested in participating in the study were instructed to contact the Center for Oncology Care to leave their name and phone number for the principal investigator to contact them to schedule an appointment.

Finally, a copy of the recruitment letter was included in the Women's Imaging Center's monthly newsletter. Women interested in participating in the study were asked to contact the Center for Oncology Care to leave their name and telephone number for the principal investigator to contact them to schedule an appointment.

Each woman who indicated an interest in participating in the study was contacted by telephone by the principal investigator. During this telephone conversation, a brief screening questionnaire was used to determine eligibility for inclusion. Those women diagnosed with another current life-threatening medical illness or concurrent severe psychiatric problems were ineligible for participation in the study due to the belief that the presence of another current life-threatening medical illness or psychiatric problems may cause those participants to have different and/or additional concerns than patients diagnosed only with breast cancer. Additionally, any women who could not read and write in English were ineligible for inclusion in the study because the study required the women to read questionnaires, measures, and instructions in English, and the instructions for the groups asked participants to either write or talk about their experiences. Women who chose to participate in the study completed an informed consent form before completing any paperwork at their first appointment (see Appendix B).

Measures

Demographic questionnaire. This questionnaire was designed for use in this study. The questionnaire consists of five questions that asked the women to provide the following demographic information: age, ethnicity, marital status, living situation, and education level (see Appendix C).

Medical questionnaire. The medical questionnaire is a two-part questionnaire that was designed for use in this study (see Appendix D). The first part of the questionnaire was completed by the participant, and asked for information regarding the date of cancer diagnosis, type of cancer, treatment received, and other medical conditions. The second part of the questionnaire was completed by a staff member at the Center for Oncology Care and was obtained from the patient's medical records. Information requested in this part included the date of cancer diagnosis, type of cancer, stage of disease at diagnosis, treatment received, and number of medical visits since completion of the treatment phase of the study.

Self-concealment scale (SCS). This measure was used to assess the degree to which individuals did not share significant events with others (see Appendix E). There are 10 statements on the measure such as "I have an important secret that I haven't shared with anyone," and "When something bad happens to me, I tend to keep it to myself." Each statement is scored on a 5-point, Likert-type scale ranging from 1, "strongly disagree," to 5, "strongly agree."

Larson and Chastain (1990) reported the internal consistency of the SCS in a normal population to be α = .83. They reported a mean of 25.92 for the Total SCS with a standard deviation of 7.30. In a separate sample of 43 students, Larson and Chastain (1990) reported a test-retest reliability of *r* = .81. These authors conducted an exploratory factor analysis on the SCS and concluded that, although two factors emerged, the SCS should be considered a unidimensional measure because the first factor accounted for over 65% of the variance and the second factor was not interpretable.

Profile of mood states (POMS). This measure is a paper-and-pencil checklist of moods used to assess the individual’s mood during one of three time frames (during the past week, including today; right now; other; see Appendix F). For this study, individuals were asked to provide a rating with regard to how they felt at the time of completion of the measure. The measure consists of 65 feeling words such as “Angry,” “Sad,” “Full of pep,” and “Carefree.” Each feeling word is scored on a 5-point, Likert-type scale ranging from 1, “not at all,” to 5, “extremely.” The measure takes approximately 5 to 8 minutes to complete.

The POMS includes normative data for psychiatric outpatients, college students, adults, and geriatric populations. Factor analyses of the POMS revealed six mood factors: Tension-Anxiety, Depression-Dejection, Anger-Hostility, Vigor-Activity, Fatigue-Inertia, Confusion-Bewilderment (Lorr, McNair, Heuchert, & Droppleman, 2003). All of the adjectives are scored according to the individual’s response except for “relaxed” and “efficient,” which are reverse scored. Each item contributes to only one mood factor. A Total Mood

Disturbance score can be calculated by subtracting the Vigor-Activity subscale score from the sum of the remaining subscale scores. Scores can range from -24 to 177, with lower scores indicating more stable mood profiles (McNair, Lorr, & Droppleman, 1971). Shacham (1983) reported the following internal consistencies: Tension-Anxiety (*r* = .74), Depression-Dejection (*r* = .91), Anger-Hostility(*r* = .90), Vigor-Activity (*r* = .90), Fatigue-Inertia (*r* = .90), Confusion-Bewilderment (*r* = .74).

Pennebaker inventory of limbic languidness (PILL). This measure is used to assess the frequency of common physical symptoms (see Appendix G). The measure consists of 54 items, and individuals are asked to rate each symptom on a 5-point, Likert-type scale where A is “have never or almost never experienced the symptom”, and E is “more than once every week.” Examples of symptoms included on this measure are “coughing,” “upset stomach,” “face flushes,” and “sore muscles.” Additionally, at the post-treatment and 3-month follow-up, the individual is asked to report the number of visits to a physician due to illness, number of sick days, and number of days activities have been restricted due to illness (Lok & Bishop, 1999). The measure takes approximately 5 to 7 minutes to complete. Each item is scored ranging from 0 to 4, and total scores range from 0 to 216. There are four scoring ranges: Below Normal Range (0-21), Well Within Normal Range (22-66), Slightly Above Average, Within Normal Range (67-84), and Top 25 Percent (85 or Above). The PILL has a mean of 59 and a standard deviation of 25. According to a study conducted by Lok and

Bishop, coefficient alpha for the PILL was α = .96, and Pennebaker (1992) reported the internal reliability to be α = .88.

Ways of coping-cancer version (WOC-CA). This measure is used to assess how the individual attempted to cope with her cancer and cancer-related stressors (see Appendix H). Before completing the items, the individual is asked to select one of five cancer-specific stressors which include: fear and uncertainty about the future due to cancer; limitations in physical abilities, appearance, or lifestyle due to cancer; pain, symptoms, or discomfort from illness or treatment; problems with family or friends related to cancer; other. Once the individual selected a stressor, she was asked to rate how stressful the problem had been in the past 6 months, ranging from “extremely stressful” to “not stressful.” With the identified stressor in mind, the individual was asked to complete the 52-item measure by rating each item on a 5-point, Likert-type scale ranging from 0, “does not apply/never use”, to 4, “very often,” and one open-ended question. Examples of items include “concentrated on the next step,” “slept more than usual,” and “asked a friend or relative for advice.” The measure takes approximately 8 to 10 minutes to complete.

The WOC-CA was adapted by Dunkel-Schetter, Feinstein, Taylor, and Falke (1992) from the original Ways of Coping Inventory, developed by Folkman and Lazarus in 1980, to measure coping strategies in the general population. It was adapted in several ways in order to be applicable to cancer patients. Some items from the original WOC were eliminated, whereas, additional items were added to the inventory because they were behaviors commonly used in cancer patients to cope with their illness. A factor analysis of the measure revealed five factors, and interfactor correlation coefficients ranged from .07 to .47. The WOC-CA is comprised of five subscales: Seeking and Using Social Support, Focusing on the Positive, Distancing, Cognitive Escape-Avoidance, and Behavioral Escape-Avoidance (Dunkel-Schetter et al., 1992). In a sample of 668 cancer patients with heterogeneous type and severity of cancer, Dunkel-Schetter and colleagues reported the coefficient alpha for the total WOC-CA to be α = .92. Further, their data indicated a mean stressfulness rating of 3.04 (*SD* = 1.49), and this corresponds with a qualitative label of “somewhat stressful.” In an Icelandic study by Hjorleifsdottir, Hallberg, Bolmsjo, and Gunnarsdottir (2006), the following Cronbach’s alpha was reported for each factor: Seeking and Using Social Support (0.81), Focusing on the Positive (0.76), Behavioral Escape-Avoidance (0.46), Cognitive Escape-Avoidance (0.79), Distancing (0.75).

Impact of events scale—revised (IES-R). This measure was used to determine the amount of intrusive thoughts and avoidance behaviors the individual experienced over a 1-week period (see Appendix I). The measure consists of 22 items, and the individual is asked to rate each statement on a 5-point, Likert-type scale ranging from “not at all” to “extremely.” Examples of items on this measure include “I felt irritable and angry” and “I tried not to think about it.” The IES-R consists of two factors: Intrusion and Avoidance. According to a review of several studies, the mean correlation between the two factors was .63. A meta-analytical review of the IES-R reported a mean α = .86 for Intrusion and a mean α = .82 for Avoidance. Additionally, test-retest reliabilities were conducted for several time frames. Test-retest reliability after 1 week was estimated to be $\alpha = .87$ for Intrusion and $\alpha = .79$ for Avoidance. At 1 year, reliabilities were estimated to be $\alpha = .56$ and $\alpha = .74$, respectively (Sundin & Horowitz, 2002).

Last day of writing questionnaire. This measure was used to assess the participant's perception of the experiment (see Appendix J). The questions were taken from a measure developed by Pennebaker, Colder, and Sharp (1990). There are eight questions that ask the individual to rate specific items on a 5-point, Likert-type scale ranging from 1, "not at all" to 5, "a great deal." Examples of questions include "How personal were the essays that you wrote?" and "In general, how much have you been bothered by what you wrote during the writing sessions?" The last question is an open-ended question asking for any comments about participating in the experiment. No psychometric data is available for this questionnaire.

Procedure

Eligible participants who indicated an interest in participating in the study were telephoned by the principal investigator and asked to participate in the study. During this conversation, the principal investigator assessed for concurrent life-threatening medical illnesses or severe psychiatric problems. If either was present, the woman was thanked for volunteering, but not chosen to participate in the study. The women were also asked if they could read and write in English.

Participants who met the inclusion criteria and elected to participate in the study were asked to complete the following measures: informed consent form in which the participant were asked to consent to participate in the study as well as give consent to access to their medical records, demographic questionnaire, medical questionnaire, the Self-Concealment Scale, the Profile of Mood States (POMS), The Pennebaker Inventory of Limbic Languidness (PILL), the Ways of Coping With Cancer (WOC-CA), and the Impact of Events Scale—Revised (IES-R).

Before participants completed these questionnaires, they were randomly assigned to one of four groups: Written Emotional Disclosure, Verbal Emotional Disclosure, Combination Written and Verbal Emotional Disclosure, or Control. All participants were asked to complete six 30-minute sessions. The Written Emotional Disclosure group was asked to write about their deepest thoughts and feeling about their experience with breast cancer (see Appendix K for instructions). The Verbal Emotional Disclosure group was asked to talk about their deepest thoughts and feelings about their experience with breast cancer (see Appendix L for instructions). The Combination Written and Verbal Emotional Disclosure group was asked to write about their deepest thoughts and feelings for three sessions and then talk about their deepest thoughts and feelings associated with breast cancer for three sessions (see Appendix M for instructions). The Control group was asked to write about the facts regarding their breast cancer and its diagnosis, without discussing their emotions (see appendix N for instructions). Writing group instructions were taken from a written disclosure study with breast cancer patients by Stanton et al. (2002), and these instructions were modified slightly for use in this study. The participants assigned to the writing conditions either met in a small group format or individually based on scheduling needs and availability, and the participants assigned to the verbal conditions met individually with the principal investigator. Women who met in the group format followed the same procedure as women who met individually with the principal investigator, and there was no interaction among participants during the writing session. All participants were provided with typed instructions before each session.

At the end of their sixth session, all participants were asked to complete the POMS, the PILL, and the IES-R again. Additionally, those assigned to the writing conditions were asked to complete a brief questionnaire about their participation in the study. These questions were used to assess how personal each participant perceived her disclosure to be and the amount of intrusive thoughts associated with participation in the study. The women were given a debriefing form after completing the treatment phase of the study, which indicated that they would be contacted again in three months for a final follow-up session (see Appendix O). A 3-month follow-up was conducted, at which time the participants were asked to complete the POMS, the PILL, and the IES-R again. Following completion of the 3-month follow-up, each woman was given a gift card, compliments of the Center for Oncology Care, in appreciation for their participation in the study. A list of community resources was given to each participant after their initial session, and the resources were also made available to the women at any point during the study (see Appendix P).

CHAPTER III

DATA AND ANALYSIS

Demographic Analysis

A total of 51 women were given the recruitment letter during an appointment at the Center for Oncology Care, and 31 of these women indicated an interest in the study. A total of 110 letters were mailed to women identified as eligible for participation in the study through the tumor registry. The recruitment letter was also included with the Women's Imaging Center's newsletter. Of the women who received the recruitment letter by mail, 19 women contacted the Center for Oncology Care to indicate an interest in the study. After contacting all of the women who expressed an interest in the study, 16 women decided not to participate and 34 women agreed to participate in the study. The total sample size was *N*=34. Seven women dropped out of the study after completing the pre-treatment questionnaires or part of the treatment phase of the study; all of the women who completed the treatment phase also completed the questionnaires at the 3-month follow-up. A total of 27 out of 34 women (79.4%) completed all phases of the study.

The mean age of the women who participated in the study was 57.15 years (*SD* = 11.37). All of the women who participated in the study identified themselves as Caucasian. The majority of the women were married (n=23, 67.6%), 5.9% were single (n=2), 2.9% were separated (n=1), 5.9% were divorced (n=2), and 17.6% were widowed (n=6). Twenty-eight women reported that they were living with others (82.4%). The majority of the women had earned at least a high school diploma or GED (91.2%, n=31), 35.3% had earned a bachelor’s degree (n=12), and 23.5% had completed postgraduate degrees (i.e., Master’s, doctorate; n=8). Eleven women (32.35%) received only one type of treatment (surgery, radiation, or chemotherapy), 16 women (47.05%) received two types of treatment, and 7 women (20.59%) received all three types of treatment for their breast cancer (see Table Q1 for data on demographic variables).

In order to determine the success of randomization, one-way ANOVAs were computed for the following factors: age, marital status, living situation, education, and type of treatment received. The ANOVA results indicate that there were no significant difference between groups, and thus, randomization was successful (Table Q2).

Manipulation Check

Before conducting any further analyses on the data, a manipulation check was performed to determine whether the participants in the writing conditions followed the instructions they were given. To ensure that participants followed the instructions, the principal investigator read the writing samples of all participants on all writing days. Consistent with previous research utilizing a manipulation check of writing, essays were searched for feeling- and emotion-related words (e.g., scared, hopeful, overwhelmed) or facts regarding breast cancer treatment (e.g., discussing the biopsy, surgery, radiation, without relaying the emotions associated with the treatment). Results from the manipulation check indicate that the women followed their instructions about the nature of their writing, with women in the Written Emotional Disclosure and Combination groups writing about their deepest thoughts and feelings whereas the Control group wrote about the facts of their cancer treatment without discussing their emotions.

Analysis of Physical and Psychological Health Symptoms

The first hypothesis of this study was that those women assigned to the Combination Written and Verbal Emotional Disclosure group would report fewer physical symptoms and psychological symptoms and have fewer physician visits than the other treatment groups. The independent variables used in this analysis were group (Written Emotional Disclosure, Verbal Emotional Disclosure, Combination Written and Verbal Emotional Disclosure, Control) and time (pre, post, 3-month follow-up) and the dependent variables were the POMS total score, the PILL total score, IES-R Intrusion and Avoidance scales, and number of physician visits attended after completing the treatment phase of this study. A series of MANOVAs were used to analyze the data (see Table Q3).

The analysis revealed that there were no significant differences between groups on the POMS Total Score, F (3, 23) = .28, p = .84 (partial η^2 = .04, power=.10). At post-treatment, the Written Emotional Disclosure and Combination groups' scores increased on the POMS, which is consistent with previous written disclosure research (Pennebaker et al., 1988; Smyth, 1998). It is likely that this increase in psychological distress is due to the resurfacing of negative emotions and thoughts associated with their treatment. However, all four groups' POMS total scores were lower at the 3-month follow-up than they were at the pre-treatment phase. This indicates that there were no specific group differences on the mood states of the POMS, but it also indicates that those women who initially experienced an increase in symptoms reported lower distress at the 3-month follow-up.

Similarly, there were no significant difference between groups on the PILL total score, *F* (3, 23) = .48, *p* =.70 (partial η^2 = .06, power = .13). However, the trend in scores indicates that only the scores of the women in the Verbal Emotional Disclosure group were lower at both post-treatment and 3-month follow-up. This indicates that these women reported fewer physical health symptoms following the treatment and at the follow-up. The other three groups' scores increased from pre- to post-treatment; however, from post-treatment to the 3-month follow-up, the Written Emotional Disclosure group score decreased, whereas, the Combination and Control groups' scores increased from post-treatment to the 3-month follow-up. Overall, these scores indicate that the women in the Verbal Emotional Disclosure group appear to have benefited the most from the treatment, though not to a statistically significant degree.

The analysis for the IES-Intrusion scale revealed no significant differences between groups, *F* (3, 23) = 1.79, *p* =.18 (partial η^2 = .19, power = .40). A qualitative analysis of the trend in scores indicates that women in the Written Emotional Disclosure and Verbal Emotional Disclosure groups had fewer intrusive thoughts at both post-treatment and the 3-month follow-up. The Combination group, however, reported an increase in intrusive thoughts at post-treatment, but then there was a decrease in scores at the 3-month follow-up. The Control group scores decreased at post-treatment, but their scores at the 3-month follow-up were higher than at post-treatment. This trend in scores indicates that the Written Emotional Disclosure and Verbal Emotional Disclosure groups experienced fewer intrusive thoughts, although not to a statistically significant degree. However, because there was not a significant effect, this may also be the result of a natural regression to the mean, which can occur over time.

There were no significant differences between groups on the IES-Avoidance scale, F (3, 23) = .64, $p = .60$ (partial $\eta^2 = .08$, power = .16). Initially following treatment, the Verbal Emotional Disclosure and Control group participants reported a decrease in avoidance behaviors, whereas the Written Emotional Disclosure and Combination groups reported an increase in avoidance behaviors. However, at the 3-month follow-up, the Written Emotional Disclosure and Control group participants reported a decrease in avoidance behaviors compared to their pre- and post-treatment scores. The Verbal Emotional Disclosure and Combination group participants reported an increase in avoidance behaviors at the 3-month follow-up compared to their pre-treatment scores.

The final analysis in this series indicates that there were no significant differences between groups on the number of physician visits they attended following the treatment phase of the study, F (3, 22) = .15, $p = .93$ (partial $\eta^2 = .02$, power = .07). A qualitative analysis of the trend in the scores indicates there was an increase in the number of physician visits in all groups at the 3-month follow-up compared to post-treatment. Overall, this series of MANOVAs does not support the first hypothesis of the study.

An additional, post hoc MANOVA was conducted in an attempt to increase the reliability and power of the analysis (see Table Q5). First, for each dependent variable measure, the groups' scores on all three time points (i.e., pre, post, 3-month follow-up) were collapsed to form one score per group for each of the dependent variables (i.e., POMS total score, PILL total score, IES-R Intrusion scale, IES-R Avoidance scale). The independent variable was the treatment group (i.e., Written Emotional Expression, Verbal Emotional Expression, Combination, Control).

The analysis revealed significant differences between groups on the PILL total score, F (3, 8) = 5.08, p = .03. Additional post hoc analyses were conducted using Tukey's HSD, and the analyses indicate that there were differences between the Written Emotional Expression and Verbal Emotional Expression groups (p = .04). This indicates that the women in the Verbal Emotional Expression group reported significantly fewer physical symptoms overall compared to the women in the Written Emotional Expression group. There were also significant differences between groups on the IES-R Intrusion scale, F (3, 8) = 13.52, p = .002. Post hoc analyses using Tukey's HSD indicate that the Verbal Emotional Expression group differed significantly from all three other treatment groups (Written Emotional Expression p = .002, Combination p = .035, Control p = .005). This result indicates that the women in the Verbal Emotional Expression group reported fewer intrusive thoughts overall compared to the women in the other groups. No significant differences were found on the POMS total score (F

(3, 8) = 2.10, *p* = .18) or the IES-R Avoidance scale (*F* (3, 8) = 3.44, *p* = .07). Overall, the first hypothesis in this study was not supported by the analyses.

Analysis of Self-Concealment

The second hypothesis of this study was that those women who do not disclose or share information with others would benefit more from participating in the study, and they would report fewer physical and psychological symptoms and have fewer physician visits than those women who already disclose or share personal information with others. The independent variables in these analyses were classification on the SCS (high, low) and time (pre, post, 3-month follow-up). The dependent variables in the analyses were the POMS total score, the PILL total score, IES-R Intrusion and Avoidance scales, and number of physician visits attended after completing the treatment phase of this study. A MANOVA was used to analyze the data for this hypothesis (see Table Q4).

The analysis for the POMS reveals that there was not a significant difference between the two groups with respect to their mood state, *F* (1, 25) = .91, *p* = .35 (partial η^2 = .04, power = .15). A qualitative analysis of the trend in scores indicates that both groups reported a decrease on the POMS at the 3-month follow-up compared to their pre-treatment scores.

On the IES-Avoidance scale, there was a significant difference between the two groups, *F* (1, 25) = 4.3 *p* = .04 (partial η^2 = .16, power = .55). This indicates that those women classified in the high self-concealment group reported more avoidance behaviors on the IES-R than the women classified in the low self-concealment group. In the high self-concealment group, the mean score was lower at post-treatment compared to pre-treatment scores, and the mean score at the 3-month follow-up was lower than the mean pre-treatment score, but higher than the post-treatment score. On the IES-Intrusion scale, however, there was not a significant difference between the two groups, *F* (1, 25) = .79, *p* = .38 (partial η^2 = .03, power = .14). Interestingly, the high self-concealment group reported fewer intrusive thoughts at the post-treatment and 3-month follow-up whereas the low self-concealment group scores remained relatively stable throughout the study. Therefore, it appears that, although not a significant improvement, those women classified in the high self-concealment group did show slight improvements on the IES-R.

There was not a significant difference between the groups on the PILL total score, *F* (1, 25) = 1.43, *p* = .24 (partial η^2 = .05, power = .21). Similarly, there was not a significant difference between the groups on the number of physician visits since completion of the treatment phase of the study, *F* (1, 25) = 1.19, *p* =.29 (partial η^2 = .05, power = .18). In general, the second hypothesis of this study was not supported.

Similar to the analyses for the first hypothesis, an additional MANOVA was computed on the data in an attempt to increase reliability and power (see Table Q5). First, for each dependent variable measure, the groups' scores on all three time points (i.e., pre, post, 3-month follow-up) were collapsed to form one score per group for each of the dependent variables (i.e., POMS total score, PILL total score, IES-R Intrusion scale, IES-R Avoidance scale). The independent variable was classification on the SCS (i.e., high, low).

The analyses revealed significant differences between the groups on the PILL total score (*F* (1, 4) = 21.55, *p* = .01) and the IES-R Avoidance scale (*F* (1, 4) = 18.70, *p* = .01). These results suggest that the women classified in the Low SCS group reported fewer physical symptoms overall compared to the women in the High SCS group, and these women also reported fewer avoidance behaviors than the women in the High SCS group. There were no significant differences between the groups on the POMS total (*F* (1, 4) = 2.30, *p* = .16) or the IES-R Intrusion scale (*F* (1, 4) = 3.49, *p* = .14). Overall, the second hypothesis was not supported by the analyses.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The current study had two main purposes related to examining the effect of emotional disclosure on physical health and psychological well-being in breast cancer patients. First, this study aimed to determine whether a combination of written and verbal emotional disclosure would result in fewer physical symptoms and physician appointments due to illness and a reduction of psychological distress compared to women utilizing only one of the two types of disclosure or no emotional disclosure. The second aim was to determine whether those women who scored high on the Self-Concealment Scale would show greater reductions in psychological distress and report fewer physical symptoms and physician visits than those women low on the Self-Concealment Scale.

To address the first aim of the study, it was hypothesized that the women in the Combination Written and Verbal Disclosure group would report fewer physical health symptoms and less psychological distress than the other treatment groups at the post-treatment and 3-month follow-up. This hypothesis was not supported. There were no differences between the four treatment groups with regard to physical symptoms and number of physician visits due to illness as measured by the PILL, and no differences emerged on the POMS or IES-R. This finding is contradictory to several studies examining the benefits of written disclosure on physical and psychological health (Frisina et al., 2004; Low et al., 2006; Pennebaker et al., 1988; Pennebaker et al., 1990; Stanton & Danoff-Burg, 2002; Stanton et al., 2000; Zakowski et al., 2004) as well as studies demonstrating the benefit of verbal disclosure (i.e., narrative therapy) on health symptoms (Carlick & Biley, 2004; Petersen et al., 2005). However, the lack of significance in the current study is not surprising given the small sample size available for the analyses.

With such a small total sample size, each treatment group had only a handful of participants, which creates limitations on the power to detect smaller effects between groups. Because the lack of significant differences between groups was thought to be due to sample size, the data were examined to determine whether there were any trends post-treatment and at the 3-month follow-up. These qualitative analyses yielded mixed findings. On the PILL, only the Verbal Emotional Disclosure group reported fewer physical symptoms at post-treatment and 3-month follow-up. Similar to previous research (e.g., Frisina et al., 2004; Low et al., 2006; Pennebaker et al., 1988; Pennebaker et al., 1990; Stanton & Danoff-Burg, 2002; Stanton et al., 2000; Zakowski et al., 2004), the Written Emotional Disclosure group reported fewer physical symptoms at the 3-month follow-up compared to pre- and post-treatment scores. However, contrary to this study’s hypothesis, the Combination group and Control group actually reported an increase in physical symptoms at both post-treatment and 3-month follow-up. Although these results are not conclusive, they do show favorable support for written and verbal disclosure separately, but do not support them as being effective when combined.

When looking at psychological symptoms of intrusive thoughts (IES-R Intrusion scale) and avoidance behaviors (IES-R Avoidance scale), two different trends emerged. On the Intrusion scale, the Written Emotional Disclosure and Verbal Emotional Disclosure groups reported fewer intrusive thoughts at post-treatment and the 3-month follow-up. The Combination group's score increased at post-treatment, but then decreased at the 3-month follow-up. Initially, the Control group showed a decrease in intrusive thoughts at post-treatment, but then at the 3-month follow-up there was an increase in intrusive thoughts. Similar to previous research, the trend in scores shows support for the Written and Verbal Emotional Disclosure groups separately, and the combination of the two also shows a slight decrease in intrusive thoughts.

This was not the case on the Avoidance scale, where the Combination group showed an increase in avoidance behaviors. The Written Emotional Disclosure and Control groups experienced a decrease in avoidance behaviors at the 3-month follow-up, and the Written Emotional Disclosure group finding is consistent with results of several studies that utilized written disclosure (Pennebaker, 2003). Interestingly, the Verbal Emotional Disclosure group experienced an increase in avoidance behaviors at the 3-month follow-up. This finding is contradictory to previous research examining the benefits of verbal communication in individuals who experienced a traumatic event (Clark, 1993). In his study, Clark reported that verbalizing about traumatic events through conversation allows the individual to cognitively reorganize the event and put it behind him or her. In the current study, the scores suggest that the women in the Verbal Emotional Disclosure group were more avoidant after verbalizing their thoughts and feelings about the event. Pennebaker noted, however, that health benefits from talking about a traumatic experience is contingent on the individual's need to talk about it, and it is possible that the women included in this study did not feel they needed to talk about their experiences with breast cancer.

The second aim of this study was to examine self-concealment in order to determine whether those women with high levels of self-concealment would benefit more from their participation in the study compared to the women with low self-concealment. It was hypothesized that those women classified in the high self-concealment group would report fewer physical symptoms and less psychological distress following completion of the study. Overall, this hypothesis was not supported, and there were no significant differences between groups with respect to physical health symptoms as measured by the PILL, psychological distress as measured by the POMS, or intrusive thoughts as measured by the IES-R Intrusion scale. This is inconsistent with reported findings from other studies examining written disclosure in populations who do not talk about their traumatic events (Pennebaker et al., 1990; Pennebaker et al., 1988).

However, there was a significant difference between groups on the Avoidance scale of the IES-R, with women high on self-concealment reporting more avoidance behaviors than women low on self-concealment. This finding is consistent with a study by Zakowski et al. (2004) that reported an increase in avoidance behaviors associated with higher levels of social constraints. However, contrary to the Zakowski et al. study, the current study failed to find significant improvements in psychological distress due to participation in the study. Failing to find significant effects with respect to self-concealment may be due, again, to the small sample size in this study. Overall, the analyses indicate that there is no support for the second hypothesis of this study.

To increase reliability of the measures and power of the analyses, the variable of time was collapsed to form one total score for each dependent variable measure, and another MANOVA was conducted for each hypothesis. Results of the first MANOVA indicate that there were significant differences between groups on the PILL total score and the IES-R Intrusion scale. Post hoc analyses indicated that the Verbal Emotional Expression group differed from the Written Emotional Expression group on the PILL total score and on the IES-R Intrusion scale; the Verbal Emotional Expression group differed from all other groups. Overall, this did not support the first hypothesis of the study. Results of the second MANOVA indicate that there were significant difference between groups on the PILL total score and the IES-R Avoidance scale, with the women classified as Low SCS reporting fewer physical symptoms and fewer avoidance behaviors compared to the women classified as High SCS. Therefore, the second hypothesis of the study was not supported by the analysis.

Clinical Implications

The purpose of this study was to determine whether combining two pre-existing psychological treatments (i.e., written disclosure and verbal disclosure) would provide more benefits to women diagnosed with breast cancer. Previous clinical research indicates that the written disclosure paradigm has been effective in reducing physical symptoms in individuals who experience trauma (Pennebaker et al., 1988; Smyth et al., 2001), and studies specifically examining the effect of written disclosure in cancer patients also report similar findings (Stanton & Danoff-Burg, 2002; Stanton et al., 2000; Zakowski et al., 2004). These and other studies report mixed findings in regards to the effect of written disclosure on psychological distress, with some studies reporting a decrease in psychological distress (e.g., Stanton & Danoff-Burg, 2002; Stanton et al., 2000) and others reporting mixed results (e.g., Pennebaker et al., 1988; Zakowski et al., 2004). Verbal disclosure, such as through traditional psychotherapy sessions, has also been shown to have a positive effect on physical health and emotional well-being, and it is believed that through conversation individuals are able to reorganize their thoughts, place labels on their feelings, and gain insight into the situation, allowing for emotional processing and eventually the ability to put the event behind them (Clark, 1993).

It is important to be able to provide cancer patients with psychological interventions that are effective at reducing their symptoms. However, no two cancer patients are alike, with regard to their medical care or their psychological needs, and it becomes necessary to offer a variety of treatment options. Whereas some patients may feel quite comfortable with openly discussing their illness, its treatment, and their feelings about the experience, there are others who are less inclined to share this information with others. In the instance that an individual does not feel comfortable engaging in conversation with others about the cancer experience, the written disclosure paradigm would be an alternative treatment choice that would allow for the same emotional release. At the same time, others may need to have the conversational aspect of verbal disclosure that allows for the listener to reflect and provide emotional support. Although both of these types of intervention have been successful with cancer patients, neither works for everyone. Therefore, it becomes important to experiment with alternative types of treatment to determine whether there are additional options that would provide relief of psychological distress.

Limitations

This study had several limitations. First, the small sample size utilized in the study limited the power of the analyses performed. When there is low power, it is more difficult to detect significant effects between groups (Howell, 2002). Therefore, in this study, if there were small effects between groups, they would not be detected.

A second limitation of the study was in the participant recruitment process. First, not all women who were potentially eligible for participation were approached by the study sponsor, Dr. Tunio, or a staff member at the Center for Oncology Care; some women only received the recruitment information through the mail. Being approached by their doctor, or a staff member, and asked to participate in the study allowed for a more personal approach where women were able to ask questions about the study in person. Also, it is unclear how many of those women who received the letter in the mail read through the recruitment letter for the study. Similarly, some of the women who received the letter may not have completed their cancer treatment at the study site, and therefore, these women may have had less interest in participating because they were not familiar with the setting. Another concern was the number of women who agreed to participate in the study. Previous research examining written disclosure with cancer patients have reported higher overall participation rates than observed in this study (de Moor et al, 2002; Salander & Hamberg, 2005; Stanton et al, 2000). There is also the possibility that those women who experienced a significant amount of psychological distress due to their illness may have opted not to participate in the study, whereas women with less distress may have been more likely to participate in the study. This will directly impact the results of the study because those women who would potentially benefit most would not be participating in the study. It is unclear whether there were differences between the women recruited through the different methods because demographic information of the women who decided not to participate was not available to the principal investigator.

Within the study measures, only the writing groups completed a questionnaire about their participation in the study, with a focus on how personal they believed their disclosure to be. However, the Verbal Emotional Disclosure group did not receive a questionnaire regarding how personal they felt their disclosure to be during their sessions. Therefore, it is uncertain as to how personal these women viewed their disclosure to be and how much they were bothered by their participation in the study. Similarly, the women were not asked if they had ever participated or were currently participating in therapy, including individual counseling or group therapy, due to concerns regarding their cancer. This information may have been useful as those women who have participated in therapy may have differed significantly from those women who have not participated in therapy. Also, all of the questionnaires utilized were all self-report measures including the number of sick days, number of days activity was restricted due to illness, and number of visits to a physician due to illness. In retrospect, it would have been more reliable of a measure if the women consented to have their primary care physician report on the number of appointments scheduled during the duration of the study.

A final limitation of this study is the generalizability of the results. Because only female breast cancer patients were recruited for participation in the study, findings and trends in scores cannot be applied to other cancer populations. Previous research also suggests that women diagnosed with breast cancer experience different concerns than other cancer patients, and therefore, it is not recommended that the findings be generalized to these other populations (Salander & Hamberg, 2005).

Recommendations for Future Research

Before concluding that a combination of written and verbal disclosure is not an effective treatment for breast cancer patients, it will be important for this study to be replicated with a larger sample of breast cancer patients. With such a small sample size as was utilized in this study, it was difficult to make inferences about the effectiveness of treatment but, with a larger sample size, more powerful analyses would be able to predict smaller differences between treatment groups. Similarly, studying this type of treatment in other cancer populations besides breast cancer patients will be important. Otherwise, the results will not be generalizable to these other populations as their needs and experiences with cancer are likely to be different from the needs and experiences of female breast cancer patients. Finally, this study only examined benefits of treatment at post-treatment and 3 months after completion of treatment. A longitudinal design that allows for more long-term follow-up to determine whether participants continue to benefit from the treatment will be important in determining the extent of the benefits of treatment.

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Appendix A

Hello. You have been identified as an eligible candidate for participation in a research study sponsored by Dr. Ali Tunio of the Center for Oncology Care at the Indiana Regional Medical Center. This study is being conducted by Kristine Woods, M.A. and Lynda Federoff, Ph.D. through the Psychology Department at Indiana University of Pennsylvania (IUP).

The purpose of this study is to track the impact of attitudes and behaviors on mental and physical health in breast cancer patients. The results from this study may be used in developing more effective psychological treatments for breast cancer patients. If you choose to participate in this study, you will be asked to attend six 30-minute sessions over the course of two weeks where you will be asked to either write or talk about your experience with breast cancer. Prior to these six sessions, you will be asked to complete a packet of questionnaires which take approximately 30 minutes to complete.

If you would like more information about this study or if you are interested in participating in this study, please complete the information listed below and place this paper in the box located in the waiting room. If you are not interested in participating in this study, do not complete the next section, but place this paper in the box located in the waiting room. Your choice to participate in this study will not affect the treatment you receive at the Center for Oncology Care at the Indiana Regional Medical Center.

Please complete this section ONLY *if you are interested in participating in this study.*

Name: ______________________________

Phone Number: _________________________

Best Time to Call: ________________________

PLEASE PLACE THIS PAPER IN THE BOX LOCATED IN THE WAITING ROOM.
THANK YOU!

August 7, 2008

Dear Mrs. ______________:

You are an eligible candidate for participation in a research study sponsored by Dr. Ali Tunio of the Hanna Center for Oncology Care at the Indiana Regional Medical Center. This study is being conducted by Kristine Woods, M.A. and Lynda Federoff, Ph.D. through the Psychology Department at the Indiana University of Pennsylvania (IUP).

The purpose of this study is to identify the impact of attitudes and behaviors on mental and physical health in breast cancer patients. The results from this study may be used in developing more effective psychological treatments for breast cancer patients. If you choose to participate in this study, you will be asked to attend six 30-minute sessions over the course of two weeks where you will be asked to either write about or talk about your experience with breast cancer. Prior to these six sessions, you will be asked to complete a packet of questionnaires which take approximately 30 minutes to complete.

If you would like more information about this study or you are interested in participating in this study, please contact the Hanna Center for Oncology Care at the Indiana Regional Medical Center (724-465-8900) and leave your name and phone number for Kristine Woods in order to schedule your participation in this study. Your choice to participate in this study will not effect the follow-up you receive at the Hanna Center for Oncology Care at the Indiana Regional Medical Center.

To help you offset the travel cost for participation in the study the Hanna Oncology Center will give you a twenty five dollar Sheetz gift card upon enrollment.

Ali Tunio, M.D. Ph.D.
Medical Director
Herbert L. Hanna Center for Oncology Care
Indiana Regional Medical Center

Appendix B

Informed Consent Form

You are invited to take part in a research study examining the effects of psychological treatment for cancer patients. The following information is provided to help you make an informed decision regarding your participation in this study. If you have any questions, please do not hesitate to ask. This study, sponsored by Dr. Ali Tunio of the Center for Oncology Care at Indiana Regional Medical Center, is being conducted by Kristine Woods, M.A. and Lynda Federoff, Ph.D. through the Psychology Department at Indiana University of Pennsylvania (IUP).

The purpose of this study is to investigate the benefits of psychological treatment for cancer patients. If you agree to participate in this study, you will be randomly assigned to one of four treatment groups in this study. On six separate days, you will be asked to attend either individual or group sessions in order to discuss your experience with cancer. All sessions will be conducted by the Principal Investigator, Kristine Woods, M.A. or the Co-Investigator, Lynda Federoff, Ph.D. All sessions will be 30 minutes in length. Prior to the start of the study, you will be asked to complete a packet of questionnaires that will take approximately 30 minutes to complete. After you have completed the six sessions, you will be given a second packet of questionnaires to complete, which will take approximately 15 minutes to complete.

If you agree to participate in this study, information will be collected from your medical records. Therefore, we ask your permission to access your medical records at the Center for Oncology Care to gain the following information: date of initial diagnosis, type of cancer, stage of disease at diagnosis, treatment received, current status, and number of medical appointments attended. No other information from your medical records will be accessed or used for this study. All information will be collected from your records by a staff member at the Center for Oncology Care. You may participate in this study even if you do not give permission to access your medical records to obtain the aforementioned information.

The records of this study will be kept confidential. Your name will never be connected to your responses on the questionnaires. In the event that information from this study is presented at scientific meetings or published in scientific journals, no information will be included that would make it possible to identify you or any other participant. Only researchers working on this project will have access to the research records collected over the course of this study. In accordance with Federal regulations, records will be kept for a minimum of three years.

Information gathered through your participation in this study may help us to provide more effective psychological treatment for cancer patients. If you agree to participate in this study, you may experience some distress. Conversely, you may experience some benefits such as fewer physical health problems. Should you experience distress at any time due to your participation in this study, appropriate services will be made available to you by contacting one of the following:

Project Director:

Kristine Woods, M.A. Doctoral Candidate Psychology Department 1020 Oakland Ave. Uhler Hall Indiana, PA 15705 724-357-4525 k.n.woods@iup.edu	Lynda Federoff, Ph.D. Associate Professor, Licensed Psychologist Psychology Department 1020 Oakland Ave. Uhler Hall Indiana, PA 15705 724-357-4525 lmfed@iup.edu

Your participation in this study is voluntary. You may refuse to participate or withdraw at any time without adversely affecting your relationship with the investigators, IUP, or the Center for Oncology Care. Your decision will not result in any loss of benefits to which you are otherwise entitled. If you would like to withdrawal from participating in this study, you may contact Kristine Woods, M.A. or Lynda Federoff, Ph.D. Should you choose to withdrawal from the study after completing the six treatment sessions, we would like your permission to use your data in our analyses. As a reminder, all information will be kept confidential.

I have read the information on this form, and I consent to participate in this study. I understand that my responses are completely confidential and that I may withdraw from this study at any time. I have received an unsigned copy of this informed consent form to keep for my records.

_______________________________ _______________

Signature Date

By signing below, I, ______________________________, give my consent to a staff
(Print Name)
Member at the Center for Oncology Care to access my medical records to obtain only the information listed above. I understand that this information will only be given to Kristine Woods, M.A. and/or Lynda Federoff, Ph.D.

_______________________________ _______________

Signature Date

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724-357-7730).

Appendix C

Demographics Questionnaire

1. Age: ______

2. Ethnicity (please check one):

____ African American

____ Asian/Asian-American

____ Hispanic/Latino

____ Native American

____ White/Caucasian

____ Mixed Ethnicity
(*please specify*): __________________

____ Other
(*please specify*): __________________

3. Marital Status (please check one):

____ Single

____ Separated

____ Widowed

____ Married

____ Divorced

____ Other: ________________

4. Do you live alone? ____ yes, live alone _____ no, live with other(s)

5. Education (please check highest level completed)

____ some high school

____ some college

____ Bachelor's Degree

____ Doctorate

____ high school diploma or GED

____ Associate's Degree

____ Master's Degree

____ Other: ________________

Appendix D

Medical Questionnaire

Part 1: To be Completed by the Patient

Date of Cancer Diagnosis: ______________

Type(s) of Cancer: ____________________

Treatment(s) Received: ____

Other Medical Conditions: ____

Part B: Obtained from Patient's Medical Record and Completed by a Staff Member at the Center for Oncology Care at 3-month follow-up

Date of Cancer Diagnosis: ______________

Type(s) of Cancer: ____________________

Stage of Disease at Diagnosis: ___________

Treatment(s) Received: ____

Number of Medical Visits Since Completion of Treatment on (__________________):
Date treatment was completed

Number of Visits: _____________________

Appendix E

SELF-CONCEALMENT SCALE

Directions: Rate the degree to which you agree or disagree with each statement below by checking one space after each of the statements.

	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
I have an important secret that I haven't shared with anyone.					
If I shared all my secrets with my friends, they'd like me less.					
There are lots of things about me that I keep to myself.					
Some of my secrets have really tormented me.					
When something bad happens to me, I tend to keep it to myself.					
I'm often afraid I'll reveal something I don't want to.					
Telling secrets often backfires and I wish I hadn't told it.					
I have a secret that is so private I would lie if anybody asked me about it.					
My secrets are too embarrassing to share with others.					
I have negative thoughts about myself that I never share with anyone.					

Appendix F

POMS

Directions: Describe HOW YOU FEEL RIGHT NOW by checking one space after each of the words listed below:

FEELING	Not at All	A Little	Moderate	Quite a Bit	Extremely
Friendly					
Tense					
Angry					
Worn-out					
Unhappy					
Clear-headed					
Lively					
Confused					
Sorry for things done					
Shaky					
Listless					
Peeved					
Considerate					
Sad					
Active					
On edge					
Grouchy					
Blue					
Energetic					
Panicky					
Hopeless					

FEELING	Not at All	A Little	Moderate	Quite a Bit	Extremely
Relaxed					
Unworthy					
Spiteful					
Sympathetic					
Uneasy					
Restless					
Unable to concentrate					
Fatigued					
Helpful					
Annoyed					
Discouraged					
Resentful					
Nervous					
Lonely					
Miserable					
Muddled					
Cheerful					
Bitter					
Exhausted					
Anxious					
Ready to fight					
Good-natured					
Gloomy					
Desperate					

FEELING	Not at All	A Little	Moderate	Quite a Bit	Extremely
Sluggish					
Rebellious					
Helpless					
Weary					
Bewildered					
Alert					
Deceived					
Furious					
Efficacious					
Trusting					
Full of pep					
Bad-tempered					
Worthless					
Forgetful					
Carefree					
Terrified					
Guilty					
Vigorous					
Uncertain about things					
Bushed					

Appendix G

The PILL

Several common symptoms or bodily sensations are listed below. Most people have experienced most of them at one time or another. We are currently interested in finding out how prevalent each symptom is among various groups of people. On the page below, write how frequently you experience each symptom. For all items, use the following scale:

A	B	C	D	E
Have never or almost never experienced the symptom	Less than 3 or 4 time per year	Every month or so	Every week or so	More than once every week

For example, if your eyes tend to water once every week or two, you would answer "D" Next to question #1.

___1. Eyes water
___2. Itchy eyes or skin
___3. Ringing in ears
___4. Temporary deafness or hard of hearing
___5. Lump in throat
___6. Choking sensations
___7. Sneezing spells
___8. Running nose
___9. Congested nose
___10. Bleeding nose
___11. Asthma or wheezing
___12. Coughing
___13. Out of breath
___14. Swollen ankles
___15. Chest pains
___16. Racing heart
___17. Cold hands or feet even in hot weather
___18. Leg cramps
___19. Insomnia or difficulty sleeping
___20. Toothaches
___21. Upset stomach
___22. Indigestion
___23. Heartburn or gas
___24. Abdominal pain
___25. Diarrhea
___26. Constipation
___27. Hemorrhoids
___28. Swollen joints
___29. Stiff or sore muscles
___30. Back pains
___31. Sensitive or tender skin
___32. Face flushes
___33. Tightness in chest
___34. Skin breaks out in rash
___35. Acne or pimples on face
___36. Acne/pimples other than face
___37. Boils
___38. Sweat even in cold weather
___39. Strong reactions to insect bites
___40. Headaches
___41. Feeling pressure in head
___42. Hot flashes
___43. Chills
___44. Dizziness
___45. Feel faint
___46. Numbness or tingling in any part of body
___47. Twitching of eyelid
___48. Twitching other than eyelid
___49. Hands tremble or shake
___50. Stiff joints
___51. Sore muscles
___52. Sore throat
___53. Sunburn
___54. Nausea

Since the beginning of this study, how many:

___________ Visits have you made to a physician for illness

___________ Days have you been sick

___________ Days your activity has been restricted due to illness

Appendix H

WAYS OF COPING WITH CANCER

Cancer is generally a difficult or troubling experience for those who have it. The following are some possible problems associated with cancer. Please indicate which one has been the most difficult or troubling for you in the past six months by circling the appropriate number.

1. Fear and uncertainty about the future due to cancer
2. Limitations in physical abilities, appearance, or lifestyle due to cancer
3. Pain, symptoms, or discomfort from illness or treatment
4. Problems with family or friends related to cancer
5. Other (please specify____________________________________)

How stressful has this problem been for you in the past six months?

1. Extremely stressful
2. Stressful
3. Somewhat stressful
4. Slightly stressful
5. Not stressful

When we experience stress in our lives, we usually try to manage it by trying out different ways of thinking or behaving. These can be called ways of "coping." Sometimes our attempts are successful in helping us solve a problem or feel better and other times they are not. The next set of items is on the ways of coping you may have used in trying to manage the most stressful part of your cancer. Please read each item below and indicate how often you have tried this in the past six months in attempting to cope with the specific problems circled above. It is important that you answer every item as best you can.

How often have you tried this in the past six months to manage the problems circled above? In responding to each item, please indicate a number from 0 to 4 using the options below:

0	1	2	3	4
Does Not Apply/ Never Use	Rarely	Sometimes	Often	Very Often

___ 1. Concentrated on what I had to do next—the next step

___ 2. Felt that time would make a difference—the only thing to do was to wait

___ 3. Did something which I didn't think would work, but at least I was doing something

___ 4. Talked to someone to find out more about the situation

___ 5. Criticized or lectured myself

___ 6. Tried not to close off my options, but leave things open somewhat

___ 7. Hoped a miracle would happen

___ 8. Went along with fate; sometimes I just have bad luck

___ 9. Went on as if it nothing were happening

0	1	2	3	4
Does Not Apply/ Never Use	Rarely	Sometimes	Often	Very Often

___ 10. Tried to keep my feelings to myself

___ 11. Looked for silver lining, so to speak; tried to look on the bright side of things

___ 12. Slept more than usual

___ 13. Looked for sympathy and understanding from someone

___ 14. Was inspired to do something creative

___ 15. Tried to forget the whole thing

___ 16. Tried to get professional help

___ 17. Changed or grew as a person in a good way

___ 18. Waited to see what would happen before doing anything

___ 19. Made a plan of action and followed it

___ 20. Let my feelings out somehow

___ 21. Came out of the experience better than when I went in

___ 22. Talked to someone who could do something concrete about the problem

___ 23. Tried to make myself feel better by eating, drinking, smoking, or using drugs

___ 24. Took a big chance or did something risky

___ 25. Tried not to act too hastily or follow my first hunch

___ 26. Found new faith

___ 27. Rediscovered what is important in life

___ 28. Changed something so things would turn out all right

___ 29. Avoided being with people in general

___ 30. Didn’t let it get to me; refused to think about it too much

___ 31. Asked a friend or relative I respect for advice

___32. Kept others from knowing how bad things were

___33. Made light of the situation; refused to get too serious about it

0	1	2	3	4
Does Not Apply/ Never Use	Rarely	Sometimes	Often	Very Often

___34. Talked to someone about how I feel

___ 35. Took it out on other people

___ 36. Drew on my past experience; I was in a similar experience before

___ 37. Knew what had to be done, so redoubled my efforts to make things work

___ 38. Refused to believe it would happen

___ 39. Came up with a couple of different solutions to the problem

___ 40. Tried to keep my feelings from interfering with other things too much

___ 41. Changed something about myself

___ 42. Wished that the situation would go away or somehow be over

___ 43. Had fantasies or wished about how things might turn out

___ 44. Prayed

___ 45. Prepared myself for the worst

___ 46. Went over in my mind what I would say or do

___ 47. Thought of how a person I admire would handle this situation and used that as a model

___ 48. Reminded myself how much worse things could be

___ 49. Tried to find out as much as I could about cancer and my own case

___ 50. Treated the illness as a challenge or battle to be won

___ 51. Depended mostly on others to handle things or tell me what to do

___ 52. Lived one day at a time or took one step at a time

___ 53. Tried something entirely different from any of the above. Please describe _________________

Appendix I

THE IMPACT OF EVENTS SCALE—REVISED

Below is a list of difficulties people sometimes have after stressful life events. Please read each item, and then indicate how distressing each difficulty has been for you DURING THE PAST SEVEN DAYS with respect to your experience with breast cancer, how much were you distressed or bothered by these difficulties?

	Not At All	A Little Bit	Moderately	Quite a Bit	Extremely
Any reminder brought back feelings about it					
I had trouble staying asleep					
Other things kept making me think about it					
I felt irritable and angry					
I avoided letting myself get upset when I thought about it or was reminded of if					
I thought about it when I didn't mean to					
I felt as if it hadn't happened or wasn't real					
I stayed away from reminders about it					
Pictures about it popped into my mind					
I was jumpy and easily startled					
I tried not to think about it					
I was aware that I still had a lot of feelings about it, but I didn't deal with them					
My feelings about it were kind of numb					
I found myself acting or feeling as though I was back at that time					

	Not At All	A Little Bit	Moderately	Quite a Bit	Extremely
I had trouble falling asleep					
I had waves of strong feelings about it					
I tried to remove it from my memory					
I had trouble concentrating					
Reminders of it caused me to have physical reactions such as sweating, trouble breathing, nausea, or a pounding heart					
I had dreams about it					
I felt watchful or guarded					
I tried not to talk about it					

Appendix J

Last Day of Writing Questionnaire

In answering the following questions, consider all of your writing days combined.

1. Overall, how personal were the essays that you wrote:

1	2	3	4	5
not personal		somewhat personal		very personal

2. Prior to the experiment, how much had you told other people about what you wrote:

1	2	3	4	5
not at all		somewhat		a great deal

3. Prior to the experiment, how much had you wanted to talk with someone about what you wrote:

1	2	3	4	5
not at all		somewhat		a great deal

4. Over the course of all writing sessions, how difficult has it been for you to write during the experiment:

1	2	3	4	5
not at all		somewhat		extremely

5. During your normal day, to what degree have you thought about this experiment since it began:

1	2	3	4	5
not at all		somewhat		a great deal

6. In general, how much have you been bothered by what you wrote during the writing sessions:

1	2	3	4	5
not at all		somewhat		a great deal

7. Looking back on the experiment, to what degree do you feel that the experiment has had a positive long-lasting effect on you:

1	2	3	4	5
not at all		somewhat		a great deal

8. Looking back on the experiment, to what degree do you feel that the experiment has had a negative long-lasting effect on you:

1	2	3	4	5
not at all		somewhat		a great deal

9. Any comments that you have about your participation in this experiment would be greatly appreciated (Use the back of the page if necessary).

Appendix K

Written Emotional Expression Group – Writing Instructions

What I would like you to write about for these six sessions are your deepest thoughts and feelings about your experience with breast cancer. I realize that women with breast cancer experience a full range of emotions, and I want you to focus on any and all of them. In your writing, I want you to really let go and explore your very deepest emotions and thoughts. You might think about all the various feelings and changes that you experienced before being diagnosed, after diagnosis, during treatment, and now. Whatever you choose to write, it is critical that you really focus on your deepest thoughts and feelings. Ideally, I would like you to focus on feelings, thoughts, or changes that you have not discussed in great detail with others. You might also tie your 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. Again, the most important part of your writing is that you really focus on your deepest emotions and thoughts. The only rule we have is that you write continuously for the entire time. If you run out of things to say, just repeat what you have already written. Don't worry about grammar, spelling, or sentence structure. Don't worry about erasing or crossing things out. Just write.

Appendix L

Verbal Emotional Expression Group – Instructions

What I would like you to talk about for these six sessions are your deepest thoughts and feelings about your experience with breast cancer. I realize that women with breast cancer experience a full range of emotions, and I want you to focus on any and all of them. I want you to really let go and explore your very deepest emotions and thoughts. You might think about all the various feelings and changes that you experienced before being diagnosed, after diagnosis, during treatment, and now. Whatever you choose to talk about, it is critical that you really focus on your deepest thoughts and feelings. Ideally, I would like you to focus on feelings, thoughts, or changes that you have not discussed in great detail with others. You might also tie your 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. Again, the most important thing is that you really focus on your deepest emotions and thoughts.

Appendix M

Combination Written and Verbal Emotional Expression Group – Writing Instructions

What I would like you to write about for these three sessions are your deepest thoughts and feelings about your experience with breast cancer. I realize that women with breast cancer experience a full range of emotions, and I want you to focus on any and all of them. In your writing, I want you to really let go and explore your very deepest emotions and thoughts. You might think about all the various feelings and changes that you experienced before being diagnosed, after diagnosis, during treatment, and now. Whatever you choose to write, it is critical that you really focus on your deepest thoughts and feelings. Ideally, I would like you to focus on feelings, thoughts, or changes that you have not discussed in great detail with others. You might also tie your 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. Again, the most important part of your writing is that you really focus on your deepest emotions and thoughts. The only rule we have is that you write continuously for the entire time. If you run out of things to say, just repeat what you have already written. Don't worry about grammar, spelling, or sentence structure. Don't worry about erasing or crossing things out. Just write.

Combination Written and Verbal Emotional Expression Group – Verbal Instructions

What I would like you to talk about for these three sessions are your deepest thoughts and feelings about your experience with breast cancer. I realize that women with breast cancer experience a full range of emotions, and I want you to focus on any and all of them. I want you to really let go and explore your very deepest emotions and thoughts. You might think about all the various feelings and changes that you experienced before being diagnosed, after diagnosis, during treatment, and now. Whatever you choose to talk about, it is critical that you really focus on your deepest thoughts and feelings. Ideally, I would like you to focus on feelings, thoughts, or changes that you have not discussed in great detail with others. You might also tie your 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. Again, the most important thing is that you really focus on your deepest emotions and thoughts.

Appendix N

Control Group – Writing Instructions

What I would like you to write about for these six sessions is a detailed account of facts regarding your breast cancer and its treatment. I am interested in how the specifics of detection, diagnosis, and treatment differ among women with breast cancer; therefore, it is critical that you provide an extremely detailed account of all that happened to you with regard to having breast cancer. I realize that women with breast cancer experience many emotions, but in your writing I want you to focus only on the facts, not on your emotions. No fact is too big or too small. You might write about when your cancer was discovered and who discovered it, appointments that you had with doctors or other people about your cancer, information you were given, and what treatment was chosen. You might recount your experience from beginning to present day, including all the factual details you can think of. Again, the most important part of your writing is that you focus on the facts and try to reconstruct what happened in as great factual detail as possible. The only other rule we have is that you write continuously for the entire time. If you run out of things to say, just repeat what you have already written. Don’t worry about grammar, spelling, or sentence structure. Don’t worry about erasing or crossing things out. Just write.

Appendix O

Debriefing Form

Congratulations. You have completed the first and most time-consuming phase of the experiment. We would like to take this opportunity to thank you for your participation in this research study. Your cooperation so far is appreciated more than you know.

The purpose of this study is to track the impact of attitudes and behaviors on mental and physical health. If you would like more information regarding the nature of this study, it is available from the following sources:

Stanton, A. L., Danoff-Burg, S., Cameron, C. L., Bishop, M., Collins, C. A., Kirk, S. B., et al. (2000). Emotionally expressive coping predicts psychological and physical adjustment to breast cancer. *Journal of Consulting and Clinical Psychology, 68(5),* 875-882.

Zakowski, S. G., Ramati, A., Morton, C., Johnson, P., & Flanigan, R. (2004). Written emotional disclosure buffers the effects of social constraints on distress among cancer patients. *Health Psychology, 23(6),* 555-563.

We will be contacting you again to complete a short packet of questionnaires. The next time we will contact you will be in approximately 3 months.

Should you feel the need for additional psychological services, please feel free to contact one of the following mental health providers. There may be a fee associated with obtaining services from some of these providers.

IUP Center for Applied Psychology
Adult Treatment Clinic
210 Uhler Hall
1020 Oakland Ave.
Indiana, PA 15705
724-357-6228

Community Guidance Center
793 Old Route 119 Hwy. North
Indiana, PA 15701
724-465-5576

Neuropsychiatric Associates
850 Hospital Dr.
Medical Arts Building, Suite 2200
Indiana, PA 15701
724-464-0270

Indiana Psychology Associates
164 Philadelphia St.
Indiana, PA 15701
724-349-8021

If you would like to learn more about the results of this study, please feel free to contact Kristine Woods, MA (k.n.woods@iup.edu) and/or Lynda Federoff, PhD (724-357-4525).

Again, thank you for your participation in this study.

Appendix P

Community Resources

Should you feel the need for additional psychological services, please feel free to contact one of the following mental health providers. There may be a fee associated with obtaining services from some of these providers.

IUP Center for Applied Psychology
Adult Treatment Clinic
210 Uhler Hall
1020 Oakland Ave.
Indiana, PA 15705
724-357-6228

Community Guidance Center
793 Old Route 119 Hwy. North
Indiana, PA 15701
724-465-5576

Neuropsychiatric Associates
850 Hospital Dr.
Medical Arts Building, Suite 2200
Indiana, PA 15701
724-464-0270

Indiana Psychology Associates
164 Philadelphia St.
Indiana, PA 15701
724-349-8021

Appendix Q

Table Q1: *Descriptive Statistics for Demographic Variables (N=34)*

Variable	Response	Frequency	Percent
Age	Under 40	2	5.8%
	40-49	5	14.6%
	50-59	12	35.2%
	60-69	11	31.3%
	70-79	3	8.7%
	80+	1	2.9%
Marital Status	Single	2	5.9%
	Married	23	67.6%
	Separated	1	2.9%
	Divorced	2	5.9%
	Widowed	6	17.6%
Living Situation	Alone	6	17.6%
	With others	28	82.4%
Education	Some high school	3	8.8%
	High school diploma/GED	9	26.5%
	Some college	7	20.6%
	Associate's degree	2	5.9%
	Bachelor's degree	4	11.8%
	Master's degree	6	17.6%
	Doctorate	2	5.9%
	Other	1	2.9%
Number of Treatment Received*	One type	11	32.35
	Two types	16	47.05
	Three types	7	20.59

*Note: Types of treatment included surgery (lumpectomy or mastectomy), radiation, and chemotherapy.

Table Q2: *Analysis of Variance for Demographic Variables*

		Sum of Squares	df	Mean Square	F	Sig.
Age						
	Between Groups	430.309	3	143.436	1.122	.356
	Within Groups	3835.956	30	127.865		
	Total	4266.265	33			
Marital Status						
	Between Groups	6.641	3	2.214	1.463	.244
	Within Groups	45.389	30	1.513		
	Total	52.029	33			
Live Alone						
	Between Groups	.319	3	.106	.690	.565
	Within Groups	4.622	30	.154		
	Total	4.941	33			
Education						
	Between Groups	8.684	3	2.895	.715	.551
	Within Groups	121.433	30	4.048		
	Total	130.118	33			
Treatment Received						
	Between Groups	4.413	3	1.471	.128	.943
	Within Groups	343.822	30	11.461		
	Total	348.235	33			

Table Q3: *Means and Standard Deviations of Study Variables for First Analysis*

	Written (n=5)	Verbal (n=7)	Combination (n=9)	Control (n=6)
POMS Total				
Time 1	40.20 (21.65)	47.29 (23.96)	50.78 (36.51)	56.83 (17.93)
Time 2	50.80 (20.77)	41.14 (32.76)	52.33 (39.49)	53.33 (22.36)
Time 3	31.20 (7.79)	38.57 (20.98)	40.89 (31.07)	48.17 (11.72)
PILL Total				
Time 1	115.00 (27.54)	105.43 (36.31)	103.89 (37.83)	104.50 (18.92)
Time 2	133.60 (29.74)	103.14 (35.18)	104.00 (41.88)	119.83 (15.55)
Time 3	120.00 (25.47)	101.71 (35.52)	108.67 (42.30)	121.67 (9.27)
IES-Intrusion				
Time 1	32.30 (4.76)	23.00 (6.27)	26.78 (10.76)	30.67 (6.95)
Time 2	30.80 (9.07)	22.57 (6.88)	28.67 (12.36)	27.33 (4.93)
Time 3	28.40 (3.36)	19.71 (1.80)	25.11 (10.20)	29.33 (7.17)
IES-Avoidance				
Time 1	10.80 (3.03)	9.29 (3.09)	10.11 (4.34)	14.00 (3.29)
Time 2	11.00 (2.12)	8.86 (3.29)	11.22 (4.82)	10.50 (1.76)
Time 3	10.40 (1.82)	10.00 (4.58)	10.56 (5.15)	11.50 (4.37)

Table Q4: *Means and Standard Deviations of Study Variables for Second Analysis*

	Low Self-Concealment (n=15)	High Self-Concealment (n=12)
POMS Total		
Time 1	43.93 (26.34)	55.92 (26.50)
Time 2	43.60 (30.05)	56.58 (30.02)
Time 3	39.20 (20.88)	41.25 (23.30)
PILL Total		
Time 1	101.27 (28.43)	113.00 (33.59)
Time 2	105.33 (31.34)	122.08 (36.17)
Time 3	105.60 (32.31)	119.67 (31.18)
IES-Intrusion		
Time 1	25.67 (7.21)	30.17 (9.28)
Time 2	26.00 (8.41)	28.67 (10.24)
Time 3	25.00 (7.13)	25.58 (7.53)
IES-Avoidance		
Time 1*	9.47 (2.80)	12.67 (4.29)
Time 2*	9.93 (3.77)	11.00 (3.05)
Time 3*	9.00 (3.23)	12.58 (4.50)

*Significant at $p < .05$

Table Q5: *Means and Standard Deviations of Study Variables Collapsed Across Time*

	POMS Total	PILL Total*	IES-Intrusion*	IES-Avoidance
Written	40.73 (9.81)	122.87 (9.63)	30.50 (1.97)	10.73 (.31)
Verbal	42.33 (4.48)	103.43 (1.88)	21.76 (1.79)	9.38 (.58)
Combination	48.00 (6.21)	105.52 (2.73)	26.85 (1.78)	10.63 (.56)
Control	52.78 (4.36)	115.33 (9.43)	29.11 (1.68)	12.00 (1.80)
	POMS Total	PILL Total*	IES-Intrusion	IES-Avoidance*
Low SCS	42.24 (2.64)	104.07 (2.43)	25.56 (.51)	9.47 (.47)
High SCS	51.25 (8.87)	118.25 (4.70)	28.14 (2.34)	12.08 (.94)

*Significant at $p < .05$