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Thought Suppression Change in Cancer
Patients and Survivors After Writing

by

Erin O'Carroll Bantum


A thesis submitted in partial satisfaction of
the requirements for the degree of
Master of Arts in Experimental Psychology


June 2005

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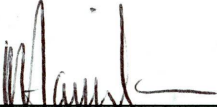
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Each person whose signature appears below certifies that thesis in his/her opinion is adequate, in scope and quality, as a thesis for the degree Masters of Experimental Psychology.


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TABLE OF CONTENTS

Approval Page.....	iii
Acknowledgements.....	iv
Table of Contents.....	v
List of Tables	vi
Abstract.....	viii
Chapter	
1. Introduction.....	1
Breast Cancer	1
Illness Perception Theory.....	9
Expressive Writing.....	14
Writing Intervention With Breast Cancer Patients and Survivors.	17
2. Materials and Methods.....	19
Participants.....	19
Measures	21
White Bear Suppression Inventory	21
Linguistic Inquiry and Word Count	21
Procedures.....	22
3. Results.....	25
Overarching Themes	29
Case Examples	30
4. Discussion.....	35
References.....	40
Appendix A. White Bear Suppression Inventory.....	46
Appendix B. Informed Consent	48
Appendix C. Demographics.....	51
Appendix D. Instructions for Writing Assignment.....	53
Appendix E. Debriefing Form.	54

LIST OF TABLES

Table	Page
1. Demographic Characteristics	20
2. Descriptive Statistics of Thought Suppression for Experimental Condition	25
3. Descriptive Statistics of Thought Suppression for Control Condition	25
4. Thought Suppression Scores on Characteristic Measure and Day 1 Measure	26
5. Differences in Thought Suppression Scores from Day 1 to Day 5	27
6. Changes in the Number of Causal Words Used in Writing Narratives	28
7. Changes in the Number of Insight Words Used in Writing Narratives	28

ABSTRACT OF THE THESIS

Thought Suppression Change in Cancer Patients and Survivors After Writing

by

Erin O'Carroll Bantum

Master of Experimental Psychology, Graduate Program in Psychology
Loma Linda University, June 2005
Dr. Michael Galbraith, Chairperson

Breast cancer is a debilitating and many times fatal disease that will affect approximately 215,990 women in the United States alone this year. Treatment for breast cancer can involve many physically and psychologically straining features. The illness perception theory states that individuals form illness representations to make sense of health threats and illness. These representations contain a number of individual, specific attributes about the illness identity, and cause, time-line, consequences of, and cure/control of the illness. Many women who have experienced breast cancer have also been found to be keeping their thoughts inside. Thought suppression has been linked to many negative consequences, such as anxiety and depression. To investigate, a writing paradigm was introduced to breast cancer patients as survivors. An expected link between expressive writing and a decrease in thought suppression was examined, yet not found to exist. Themes and case examples are provided.

Introduction

Breast Cancer

Breast cancer is a disease that 215,990 women will be diagnosed with in the United States in 2004 (American Cancer Society [ACS], 2004a). Breast cancer patients have been seen as having an active role in how they interpret and manage their illness (Weinman & Petrie, 1997). Psychological factors have been implicated as playing important role for breast cancer patients and survivors. More specifically, people with breast cancer are a population of people that is suppressing thoughts (Greer & Morris, 1975; Morris, Greer, Pettingale, & Watson, 1981; Wirshing, Stierling, Hoffman, Weber, & Wirsching, 1982; Wirsching, Hoffmann, Stierling, Weber, & Wirsching, 1985). Interventions have been created to help people express their thoughts and feelings (Pennebaker, 1993).

Breast cancer is a disease that can destroy the body by abnormal and uncontrolled division of cells (Kushner, 2002). The parts of the breast that can be affected include the lobules, ducts, and fatty, connective, and lymphatic tissue. The process of breast cancer occurs when there is a breakdown at the DNA, RNA, or protein level. For example, when DNA is being coded, there can be a problem that might lead to breast cancer when the wrong nucleotide gets inserted into the new strand that is being produced which leads to mutation. DNA is constantly being coded, thus giving many opportunities for mutations to occur. While mutations can occur without developing into breast cancer, they are one of the ways in which cancer can begin to develop (Love, 2000).

Another way breast cancer can be triggered is at the RNA level. RNA is a partner to DNA, in that it makes a copy of the DNA. A copy is made so that genetic

characteristics can be transferred (Love, 2000). If there is a mutation at this level, the outcome could also be the development of breast cancer cells. Proteins are needed throughout one's life and are the output from DNA and RNA. Additionally, if DNA and RNA are mutated, the proteins they produce are also flawed.

A cancer gene is a gene that normally functions in cell growth, unless it is altered by changes in DNA, RNA, or protein. At that point, it can lead to development of cancer cells. Forces outside of the body have been hypothesized to trigger alterations in DNA, RNA, or protein. Some of the outside forces that are thought to be attributed to breast cancer are radiation, toxins in food, and environmental pollutants. The proposition that breast cancer can be triggered by environmental forces, such as radiation, environmental pollutants, and toxins in food, has contributed to deducing what components in the environment could be linked with breast cancer. However, the search has still not produced any definitive conclusions (Love, 2000).

There are a multitude of types of breast cancer, although most breast cancers are thought to arise in the ducts (King, 2002). Infiltrating ductal carcinoma (IDC) accounts for 70% to 80% of diagnosed breast cancer cases each year (ACS, 2004b; Love, 2000). In this case, the cancer starts in a duct or milk gland, breaks through the wall of the duct, invades the fatty tissue, and then can metastasize to other parts of the body (ACS, 2004). This type of cancer forms a hard lump because it has infiltrated outside cells (Love, 2000). Another fairly common type of breast cancer is infiltrating lobular carcinoma (ILC). Between 10% and 15% of invasive breast cancers are of this type (ACS, 2004; Love, 2000).

The next task after labeling what form of breast cancer an individual has is identifying what stage the cancer is in. Stages range from 0 to IV, with a higher number equaling a more serious cancer (ACS, 2004b). A stage is an indicator of how aggressive the cancer is. When an individual is diagnosed with a stage 0 breast cancer, this means that cancer cells are only within a duct and not in the surrounding fatty breast tissue. Many times this is not thought of as true breast cancer, although it does set the stage to be on heightened awareness in terms of assessing for new masses of breast cancer (ACS, 2004b). A stage III or IV cancer suggests that microscopic cells have spread (Love, 2000).

After the type and stage of the breast cancer has been diagnosed, the next step involves treatment options. Most women who are diagnosed with breast cancer will undergo surgery to remove as much of the primary breast tumor as possible (ACS, 2004c). Many times surgery is combined with other treatments like radiation, chemotherapy, and hormone therapy (ACS, 2004c; Love, 2000).

Much of the impact of surgery depends on what surgical procedure is used to treat the breast cancer. There are several options that range from minimal intrusion to more extensive. The least invasive procedure is a lumpectomy, which is the removal of a lump in the breast. At the other end of the spectrum is the most invasive surgical procedures, or, radical mastectomy. This involves extensive removal of breast tissue, lymph nodes, and chest wall muscles under the breast (ACS, 2004; Love, 2000).

Generally after surgery, a doctor will start the patient on chemotherapy, radiation, or hormone therapy (ACS, 2004; Love, 2000). Chemotherapy treatment is the use of anticancer drugs that enter the bloodstream and reach areas of the body that surgery does

not reach to kill the cells (ACS, 2004; Buick, 1997). This treatment is very useful for patients whose cancer has metastasized (stage 4). Many different side effects have been reported, although in general, it seems that patients undergoing chemotherapy treatment will endure side effects, such as, skin rashes, hair loss, weight loss, changes in menstrual cycle, and even psychiatric conditions such as depression and anxiety (ACS, 2004; Devita, 1985; Love, 2000). It has also been noted that many patients develop conditioned negative responses, such as anticipatory vomiting to chemotherapy. Anywhere from 20% to 65% of patients experience these conditioned negative responses (Burish & Carey, 1984).

Radiation therapy is a treatment in which high energy gamma or photon rays are used to kill or shrink cancer cells (ACS, 2004). The treatment is usually given 5 days a week for about 6 weeks and begins about one month after surgery. Although the side effects are generally not as debilitating, many patients still suffer from fatigue, nausea, and vomiting (ACS, 2002; Welch, 1980). It seems important to acknowledge that although the side-effects to treatment are generally not as devastating or life threatening as chemotherapy, each individual reacts differently to treatment.

Another interesting and newer treatment given to many women before and after surgery is hormone therapy. It has been shown that the female hormone estrogen can increase the growth of cancer cells in some women (ACS, 2002; Love, 2000). To combat that growth, hormone therapy, such as Tamoxifen has been given to many women. Drugs such as Tamoxifen block the estrogen in the breast (Love, 2000). It does seem to have a beneficial effect in many cases, although it needs to be considered on a case by case basis. Many decisions, such as surgery and treatment type need to be made once someone is

diagnosed with breast cancer. Each individual will be affected by breast cancer in different ways. All of these things impact the person psychologically as well as physiologically too.

Illness Perception Theory

In the area of chronic physical illness, such as cancer, there has been an emphasis placed on the importance of psychological factors. Some of the emphasis has been placed on assessing psychological variables for the role that they play in the prevention of disease in healthy populations and some of the emphasis has also been placed on using psychological factors to help manage responses to chronic illness. Over the past few years, patients have been seen as moving from passive to active participants in diagnosis and treatment of chronic illness (Weinman & Petrie, 1997). The illness perceptions approach suggests that individuals construct their own unique mental representations of the illness or health threats that are relevant to them (Leventhal, Benyamini, Brownlee, Diefenbach, Leventhal, Patrick-Miller, & Robitalle, 1997). These representations are thought of as being an important predictor of behavior. For this reason, many researchers have looked at how individuals interpret their illness (Weinman & Petrie, 1997).

Early work by Leventhal and colleagues laid the foundation for the Illness Perception Approach (Leventhal & Niles, 1965). This work was conducted in the area of responses to threat stimuli. The researchers found that when individuals are presented with threat stimuli, the stimuli arouses a drive that intensifies attitudes and behaviors towards preventative measures. It was further found that by adding an action plan to a fearful message, procedures for protecting oneself were taken (Leventhal, Singer, & Jones, 1965). These researchers did find that within a day or two the fear that would

cause the action would dissipate. Lasting effects to protect oneself would only appear when the cognitive representation of the fear had changed (Leventhal *et al.*, 1997).

After establishing what was producing lasting effects to protect oneself, Leventhal and colleagues began working to find the content and processes of these cognitive representations. They began demonstrating that when assessing health threats, an individual's illness representation was made up of many discrete attributes (Leventhal *et al.*, 1997). Five attributes have been found to be represented in an individual's illness perception. These include illness 1) identity; 2) causal; 3) time-line; 4) consequences; and 5) controllability. These 5 attributes can be applied to breast cancer. These attributes may help to create the patient's "story" of their breast cancer. The Illness Perception Theory suggests that how an individual interprets these five components is the basis for how that individual will deal with the illness or health threat. When working through this theory, it is important to keep in mind that the theory was designed to account for the importance of social, cultural, personal, and institutional factors that affect an individual's response (Leventhal *et al.*, 1997).

Illness perception theory applied to breast cancer. When dealing with illness, it has been demonstrated that people respond and cope differently. In looking specifically at cancer, patients hold extremely different perceptions about such things as consequences and controllability of their disease (Buick, 1997). In an attempt to successfully adjust to having cancer and put the illness into perspective, Taylor (1983) found that it is critical for patients to consider their current ideas surrounding different components of the illness and how it fits into the concept of the self and the self's world. It seems that by looking more closely at the personal attributes one makes about one's disease, many positive

outcomes could occur. One such positive outcome is a greater understanding of what the individual is going through. It could also give them the opportunity to examine some of the attributes they have internally about breast cancer. Examining these personal attributes, such as what they believe caused their breast cancer could give them an opportunity to change the attributes they have if they are untrue.

When looking at patients with breast cancer, illness representations are extremely varied. Notably different representations have been found in patients who are being treated for breast cancer by radiation versus chemotherapy (Buick, 1996). Buick (1996), studied 52 radiation and 26 chemotherapy patients participated in a longitudinal study. Patients were followed from pre-treatment to three months after treatment. In looking at the causal factors patients attributed to their illness, chemotherapy patients' were much more likely to report internal/self blame than patients receiving radiation treatment. It has been suggested that patients who are recommended for chemotherapy treatment might feel as if their cancer is at a more severe stage. This could be accounting for some of the shift in the cognitive framework of the patient (Buick, 1996). It was also found that prior to treatment, the patients going through chemotherapy felt that breast cancer would last much longer and have a greater effect on their lives than the radiation patients. There are a few reasons that this occurs. Chemotherapy is thought to be much more physically straining on the body than radiation. Also, due to the fact that many times chemotherapy is recommended when the cancer is at a more advanced stage, researchers have suggested that more self-blame occurs in chemotherapy patients (Buick, 1997).

The literature seems to suggest that breast cancer fits well within the illness perceptions approach for a number of different reasons. Not only are the perceptions of

illness varied, but treatment and survivorship will affect individuals in greatly different ways. For example, pain tolerance and the differing nature of side effects, treatment can be something that affects people in many different ways. The ways in which the patient represents features of their illness, such as cause of the cancer, time-line, illness identity, consequences and controllability will be varied. Often, patients and survivors might not know many other women who have experienced breast cancer. This, in turn could lend itself to breast cancer patients and survivors keeping inside the feelings and thoughts about how they represent the illness in their mind. Researchers have found that many individuals keep their feelings in or suppressed as a means to regulate mood and reduce distress (Petrie, Booth & Pennebaker, 1998).

In summary, current literature is showing that when individuals are presented with an illness they create different mental representations of that illness (Buick, 1996; Leventhal *et al.*, 1997). While illness representations are unique in content, they generally contain the 5 attributes mentioned earlier (Leventhal, 1997). These attributes seem to be useful due to the fact that they contribute to how an individual will respond to the illness (Leventhal *et al.*, 1997; Leventhal, Singer, & Jones, 1965). This information is useful in guiding investigations into how cognitive processes take place when a person is confronted with illness. While there has been some work done with illness representations of breast cancer patients, it has been suggested that research is needed that looks at the illness representations of people within many domains of breast cancer. (Buick, 1997). It is known that many times when confronted with and dealing with breast cancer or the aftermath, people may feel isolated and alone. This in turn may promote a suppression or keeping in of emotions (Buick, 1997).

Thought Suppression

Early studies have shown that patients with breast cancer are a population of people that is suppressing thoughts (Greer & Morris, 1975; Morris, Greer, Pettingale, & Watson, 1981; Wirshing, Stierling, Hoffman, Weber, & Wirsching, 1982; Wirsching, Hoffmann, Stierling, Weber, & Wirsching, 1985). Many researchers have studied patients who have recently been diagnosed as having a breast lump, although they have not yet undergone a biopsy. It has frequently been found that women who either have a tendency to suppress thoughts or emotions, or women who are currently suppressing thoughts or emotions are more likely to be the patients that are later identified as having breast cancer (Greer & Morris, 1975; Morris, Greer, Pettingale, & Watson, 1981). In one study, researchers assessed women who were admitted for a breast biopsy by measuring eight characteristics that had been commonly found in women with cancer. One of these characteristics was the suppression of emotions and feelings. It was found that all of the patients that were later diagnosed as having cancer were identified as suppressing their emotions (Wirshing, Stierling, Hoffman, Weber, & Wirsching, 1982; Wirsching, Hoffmann, Stierling, Weber, & Wirsching, 1985).

Similar results have been found when assessing women who have already been diagnosed as having breast cancer. Women who cope with breast cancer by expressing instead of suppressing their emotions have been found to have a better perceived health status and vigor, lower psychological distress, and fewer medical appointments for cancer-related morbidities (Stanton, Danoff-Burg, Cameron, Bishop, Collins, Sworowski, & Twillmen, 2000). In one study, researchers found that people with many different types of cancer have the desire to conceal emotional distress (Byrne, Ellershaw,

Holcombe, & Salmon, 2002). The literature suggests that not only are breast cancer patients found to be a population of individuals that suppress thoughts, but it further demonstrates that when breast cancer patients express their emotions many positive things may happen.

Suppression of thoughts and emotions has many negative consequences in women with breast cancer. While it may be used as a form of coping, chronic suppression has been associated with obsession, depression and anxiety (Wegner & Zanakos, 1994). There have been many different speculations as to the relationship between thought suppression and psychological difficulties such as depression and anxiety. One hypothesis that has been suggested is the notion that chronic thought suppression is involved in a cyclic relationship with symptoms such as anxiety and depression (Wegner & Zanakos, 1994). There has been some suggestion that chronic thought suppression may be an outcome of choice for people when they are presented with a difficult situation (Wegner & Zanakos, 1994).

When examining women who have survived breast cancer, coping that is associated with active engagement is also associated with more positive adjustment (Stanton, A., Danoff-Burg, S., & Huggins, M., 2002). These researchers found that avoidance-oriented coping predicted a greater fear in breast cancer survivors of recurrence (Stanton et al., 2002). Perhaps expression of thoughts and emotions is important both for patients and survivors.

In looking at women who have been diagnosed as having either metastatic or recurrent breast cancer, it has been found that emotional control is negatively associated with psychological adjustment (Classen, Koopman, Angel, & Spiegel, 1996). In one

study, researchers measured coping in breast cancer patients who were in remission from an early stage of breast cancer, and it was found that over 90% of these women used cognitive avoidance (Jarrett, Ramirez, Richards, & Weinman, 1992). It makes sense that this population would be suppressing thoughts. This is a group of individuals who are experiencing something that is life threatening. Research has demonstrated that it is difficult to talk to family and friends about the debilitating disease, such as breast cancer, if they have not experienced it themselves (Buick, 1997). A study looking at individuals who had survived for one to five years post diagnosis and treatment suggested that during the initial adjustment to breast cancer, patients may be too busy trying to cope with the diagnosis to take time to focus on what the experience means to them (Tomich, P., & Helgeson, V., 2002).

Thought suppression, or the conscious attempt to avoid thinking about a situation, object, or event, can be seen in many different situations. An ironic thing happens when people suppress thoughts. The thoughts increase in their cognitive accessibility (Wegner & Zanakos, 1994). This in turn can create extreme sensitivity to the thought. When thoughts are suppressed, a two step process occurs. The first step entails searching for distracters and the second step is a monitoring process that searches for the unwanted thought. Basically, a cyclical process occurs (Wegner & Zanakos, 1994). Subjects have the thought even more when they try and suppress it than when they are not asked to suppress the thought.

When people were asked to think aloud while suppressing thoughts, it was found that although they were searching their minds for "anything but" the thought that they were asked to suppress, the unwanted thought seemed to keep coming back to their

minds. The White Bear Suppression Inventory (WBSI) was used to measure thought suppression in these studies (Wegner, Schneider, Carter III, & White, 1987; Wegner, Shortt, Black, & Page, 1990; Wegner & Zanakos, 1994). In other studies in which subjects were asked to suppress certain thoughts, it was found that the thoughts became more and more accessible (Wegner, Shortt, Blake & Page, 1990). Electrodermal reactivity demonstrated that the thoughts that the individuals were asked to suppress had similar effects on the body as thoughts that subjects were instructed to think about (Wegner *et al.*, 1990). It seems that although suppression has been thought of as a coping style, the goal of suppressing thoughts does not actually occur (Wegner, Schneider, Carter III, & White, 1987; Wegner & Zanakos, 1994).

There have been many different hypotheses suggested to account for the relationship between thought suppression and health problems. There has been the suggestion that health problems, such as breast cancer comes first and then thought suppression follows (Wegner & Pennebaker, 1993). As previously mentioned, another suggestion is that thought suppression plays the role of both a cause and effect. It could be a cyclic relationship. There have been many associations found between thought suppression and health problems as well as psychological problems such as anxiety, depression and obsession (Wegner & Zanakos, 1994).

Thought suppression can have both an acute and chronic course (Giese-Davis, & Spiegel, 2001). As previously noted, when dealing with distress, an acute course of distress could be due to many different things; such as the stress that accompanies diagnosis and treatment of breast cancer (Giese-Davis, & Spiegel, 2001). A chronic course of distress has been hypothesized to have longer lasting effects, and in fact may

not entirely remit (DSM-IV, 1994, p. 325). It makes sense that if there are differences within this construct, it would be helpful to look at how these different types of thought suppression are effected by intervention.

Unfortunately, conclusive results on this topic have not been found. While these types of suppression may be quite different, there is also the possibility that the magnitude of difference is not as great as previously thought. Some researchers propose that acute distress is not truly separable from an underlying trait distress (Watson & Clark, 1995). It has been suggested that one way to combat this difference is to make distinctions with regard to state versus trait thought suppression when instructing participants on how to respond to a measure (Giese-Davis & Spiegel, 2001). Although no mandated conclusions are warranted in regards to acute versus chronic thought suppression, (Giese-Davis & Spiegel, 2001) by including more specific instructions perhaps it will help to examine on a more complex level the possible distinctions that exist between acute and chronic thought suppression.

We know that when confronted with an illness individuals try to make sense out of the illness. The Illness Perception Theory suggests that attributes involve the illness 1)identity, 2)cause, 3)time-line, 4)consequences, and 5)controllability. Many times, attributes such as these are not expressed. When thoughts are not expressed and instead suppressed, negative outcomes, such anxiety and depression can coincide. It seems possible that thoughts surrounding an individuals illness could be the same thoughts that are being suppressed. The Illness Perception Theory provides a foundation for looking at some components of illness that individuals can suppress.

Expressive Writing

The concept of a narrative has been thought of by therapists and researchers to play an important role in helping individuals express themselves, which in turn, helps in many other areas (Petrie, Booth & Pennebaker, 1998). In a review conducted by Wisner and Arnow (1999), they suggest that when individuals selectively or habitually avoid experiencing emotion in therapy, they create a burden for themselves in trying to make sense of the events. Leading researchers in this area suggest that the act of constructing stories is a natural human process helps individuals organize events, while they integrate the relevant thoughts and feelings that they have about a certain topic (Pennebaker & Segal, 1999). Once an experience has structure and meaning, the experience might become more manageable and predictable. Mahoney (1995) suggests that one of the most important reasons people begin therapy is due to the suffering of emotional distress (1995). It seems that a commonly found goal in many types of therapy is to guide an individual into a "place" where she or he can make sense of different pieces of their experiences. There are verbal, as well as non-verbal ways of helping achieve this goal.

When assessing outcomes related to health, researchers have typically included in their studies either an interview format or an instructed writing period (Pennebaker, 1992; Seufield & Pennebaker, 1997; Pennebaker, 1997; Pennebaker & Seagel, 1999). In the writing experiments, participants are either assigned to write about an "emotional issue" that has affected their lives, or they are assigned to write about a non-threatening topic such as the weather (Pennebaker, 1997). The writing assignment is generally conducted from 3 to 5 days for 15 to 30 minutes on each day. Usually, writing is done in the laboratory without any feedback. At times, the participants are told that their narratives

might not even be read. Health measures are taken before the writing assignment and then again after the writing assignment. This intervention has been associated with many significant health benefits such as fewer visits to the physician for up to 1.4 years (Pennebaker, Barger, & Tiebout, 1989; Greenberg, Wortman, & Stone, 1996; Smyth, Stone, Hurewitz, & Kaell, 1999; King & Miner, 2000). Additional positive outcomes that have been found include physiological markers, such as liver enzyme levels (Francis & Pennebaker, 1992), and others include behavioral markers, such as increased grade point average (Cameron & Nicholls, 1996). The literature demonstrates that the intervention of expressive writing has been beneficial to many individuals. Perhaps the driving force for the benefits in therapy and social support sessions is a similar driving force for the positive benefits that are found in that both facilitate expression.

There have been a few published studies assessing the effects of a writing intervention on breast cancer patients (Moor et al., 2002, Stanton et al., 1999, Walker, B. Nail L., & Croyle R., 1999). While in one study expressive writing was not associated with differences in positive affect, negative affect, intrusive thoughts, or avoidance (Walker et al., 1999), in the other two studies, better sleep and fewer physical symptoms were found when breast cancer patients engaged in expressive writing (Moor et al, 2002, Stanton et al., 1999). While many expressive writing studies indicate that by having individuals expressively write they are reducing thought or emotional suppression, these constructs have not been measured as outcome variables.

Assessment of expressive writing. In assessing the written narratives of clients, there are a few factors that stand out as having the most emotional and health benefits. Pennebaker and Francis (1992) devised a tool called the Linguistic Inquiry and Word

Count (LIWC). This computer program analyzes the content of a writing sample to pick out words that fall into different categories. There are now over 70 word categories, although the examples that are used in this literature review were found to be assessed on only four dimensions. Two of the four categories were emotion dimensions and the other two were cognitive dimensions. Pennebaker has found that four factors have been correlated with the highest amount of health benefits (1997). These include more positive emotion words used in the narratives, a moderate number of negative emotion words used and a high level of both causal and insight words used. It is crucial to consider what underlying mechanism is taking place with the use of these words.

In much of the literature, the use of causal and insight words has been found to be strongly associated with benefits in health outcomes (Pennebaker, 1997). Examples of causal words are reason and because. Examples of insight words are understand and realize. These words are labeled as causal and insight words because they depict an understanding of what caused something to occur. It makes sense that personal attributes or our “stories” are made up of causal and insight words. In one study, individuals who benefited from writing began with poorly organized descriptions of a traumatic event and ended up with more organized, coherent stories (Pennebaker, 1997). This finding has repeatedly come up in the literature, and some suggestions have been made to account for its effects. It has been suggested that when we write about something it helps make sense out of the event (Pennebaker & Seagal, 1999).

Another finding is also quite interesting, suggesting that only those individuals whose writing evolved to encompass the above qualities of an increase in positive words used, a moderate number of negative words used, and a high level of both causal and

insight words displayed an improvement of health outcomes (Suefield & Pennebaker, 1997). When individuals were found to use more causal and insight words over the course of the writing assignment, it was apparent that they were constructing their own, unique story (Pennebaker & Seagal, 1999). Perhaps, in creating their own story they are also adding meaning to their experience.

Writing Intervention with Breast Cancer Patients and Survivors

Breast cancer is a debilitating disease that has many negative consequences. These consequences are seen in health as well as psychological arenas. These consequences can occur both while being treated and during survivorship. When trying to understand what is taking place cognitively within these women, it might be helpful to look at the ideas or attributes that they make regarding their illness. The Illness Perception Theory suggests that individuals create varying internal ideas that help guide their actions regarding their illness. It also states that these attributes help form meaningful story about their experience with cancer.

When individuals are confronted with a disease, such as breast cancer, they create attributes about their disease. For many reasons these attributes are suppressed. The suppression is associated with many negative outcomes, such as depression and anxiety. A writing paradigm has been implemented to help individuals express thoughts and feelings regarding a traumatic event. The concept of an individual, personal narrative compliments the illness perception approach. The five attributes of illness 1)identity, 2)cause, 3)time-line, 4)consequences, and 5)controllability contained in an illness representation can help an individual make sense out of an event by producing an individual, personal story of breast cancer. Not only could the patients personal story

help researchers in understanding the reality of breast cancer for a particular individual, but it could also help that individual make meaning of this traumatic event. This could be the exact vehicle that would help the process of emotional expression, instead of suppression take place within these individuals.

It is appropriate to study breast cancer patients because they are a population of people who have been found to suppress their thoughts (Greer & Morris, 1975; Morris, Greer, Pettingale, & Watson, 1981; Wirshing, Stierling, Hoffman, Weber, & Wirsching, 1982; Wirsching, Hoffmann, Stierling, Weber, & Wirsching, 1985). If they do suppress thoughts and there are negative effects of thought suppression, then it is important to study thought suppression and breast cancer patients. The goal of this study is to explore how the writing paradigm will affect thought suppression in individuals who either currently have breast cancer or are survivors of breast cancer. This study has two hypotheses. The first hypothesis is that individuals who are instructed to write about breast cancer will decrease their level of state thought suppression. The second hypothesis is that over the course of the writing assignment there will be an increase in causal and insight words used in the narratives of the participants in the treatment condition.

Materials and Methods

Participants

Female breast cancer patients and survivors were recruited from Loma Linda University Medical Center. Loma Linda Medical Center sees about 200 people with breast cancer and treats about 60 to 70 people per year (personal communication, director of Cancer Institute, Judy Chatigny). Eighteen individuals were interested in participating and given the materials. Thirteen of those individuals returned the study materials. Two participants were recruited from the medical center, three from a Loma Linda Medical Center cancer support group, three from an annual tea for breast cancer patients and survivors and patients, six from a mailing of about 500 that was sent out to breast cancer survivors from a database housed in the Loma Linda Medical Center Cancer Institute, and one from an annual Day of Caring event that Loma Linda Medical Center was affiliated with. The Day of Caring consists of educational sessions and booths of information regarding breast cancer. Patients, as well as survivors of breast cancer attend this event.

Participants were randomly assigned to either the treatment or control group once they agreed to participate. The first subject was assigned to the treatment group, the second to the control group, and so on. Recruitment was difficult and the initial goal of 26 participants per group was not met.

The experimental condition was made up of 7 participants with a mean age of 67.14 years. The control condition was made up of 6 participants with a mean age of 53.50 years. Four of the participants in the experimental condition were married, 2 were divorced, and 1 was widowed. In the control condition, 4 participants were married and 2 had never been married. People of all ethnic groups were invited to participate in the

study, although one of the inclusion criteria was that a participant had to have English as a first or dominant language. In the experimental condition, all 7 of the participants were Caucasian. In the control condition, 4 of the participants were Caucasian, 1 was African American, and 1 was Creole. See table 1 for a summary of these demographic characteristics.

Table 1

Demographic Characteristics

	Age <i>N, M, SD, range</i>	Marital Status	Ethnic Background
Experimental	7, 67, 9.5, 57-81	4=married 2=divorced 1=widowed	7=Caucasian
Control	6, 54, 9.2, 43-65	4=married 2=never been married	4=Caucasian 1=African American 1=Creole

In the experimental condition, one participant went to trade school, one went through some college, 1 finished college, and 3 went to graduate school. In the control condition, 1 participant went to school through high school, 2 went to trade school, 2 finished college, and 2 went to graduate school.

When looking at what types of surgery participants in the two conditions underwent, in the experimental condition, 4 had a lumpectomy, and 2 had a mastectomy. In this condition, three had radiation, 2 had radiation and chemotherapy, 1 had radiation and Arimidex, and 1 participant had no treatment. In the control condition, 3 participants had a lumpectomy, 2 had a mastectomy, and 1 had a biopsy only. In terms of treatment, 2 had radiation, 2 had radiation and chemotherapy, 1 had chemotherapy only, and 1 did not have treatment.

Materials

Thought suppression. The measure that was given was the White Bear Suppression Inventory (Wegner & Zanakos, 1994). The developers of the WBSI designed a measure that identifies individuals who chronically suppress thoughts. This inventory contains 15 questions that are rated on a 5-point Likert type scale (see appendix A). The scale ranges from strongly disagree (1) to strongly agree (5). The WBSI has been found to have good internal consistency, Cronbach's $\alpha = .88$ and test-retest reliability, $r = .88$ (Wegner & Zanakos, 1994). This means that the items fit well together (internal consistency) and individuals who took the measure were found to have similar scores when they took it for a second time (test-retest reliability). The WBSI has been found to be psychometrically sound in terms of how it correlates with other measures designed to assess similar constructs (convergent validity) and there was a correlation between a current score and later score (predictive validity).

Narrative analysis. The Linguistic Inquiry and Word Count is a computer program that analyzes a written text on a word by word basis. The LIWC was developed by a process in which many groups of judges reviewed 2,000 words or word stems and

decided how they were related to dozens of categories (Pennebaker & Francis, 1996). A piece of writing is put into the form of a text file and the program analyzes the writing. It calculates the percentage of words that are found in the “dictionaries” of 82 dimensions. The dimensions included: a) standard linguistic dimensions; such as words per sentence, b) psychological constructs; such as positive emotions, c) dimensions related to “relativity”; such as past tense verbs, and d) personal concern categories; such as the use of job or work related words. A word might fit in more than one dimension and will be accounted for in each of the dimensions that it fits in appropriately. Inter-rater reliability in regards to discrimination of category word elements has been found to range from 86% to 100%, depending on the dimension being assessed (Pennebaker, Francis, & Booth, 2001). The LIWC has been found to be psychometrically sound in terms of external validity or being appropriate for different types of people in different settings (Pennebaker, Francis, & Booth, 2001). The narratives were typed on a computer and analyzed by Dr. Pennebaker using the LIWC.

Procedure

Different procedures were used depending on where the participants were recruited. The patients were recruited when a nurse practitioner from the radiation medicine department at Loma Linda Medical Center asked people receiving radiation treatment for breast cancer if they would be interested in hearing more about the study. If they were, they gave their permission to be contacted by the investigator and were notified about the details of the study. At the tea, the investigator sat at a booth and told people that walked up to the booth about the study. The third way in which participants were recruited was from a mailing from the Loma Linda University Medical Center

Cancer Institute. The letter was mailed out to breast cancer survivors and they were asked if they would be interested in hearing more about the study. If they called the Cancer Institute and gave permission to be contacted, the investigator phoned them and described the study. If they agreed to participate, participants in all three of the above types of recruitment were mailed a packet containing two copies of the informed consent (see appendix B), demographic questions see appendix C), instructions and paper for five days of writing (see appendix D), and three copies of the WBSI (see appendix E). They were asked to spend 5 consecutive days, for 50 minutes on the first day, 40 minutes on the fifth day and for 20 minutes on the second, third, and fourth days participating. Within the packet there was a section of information labeled day 1, day 2, day 3, day 4, and day 5. Two copies of the WBSI will were enclosed in the day 1 section, and one copy of the WBSI will be enclosed in the day 5 section. The participants were instructed to take the WBSI twice on the first day of the study. They were asked to respond to the first one as they are characteristically and to the second one as they were currently feeling. On the fifth day of the study, participants were asked to take a final copy of the WBSI after they completed the expressive writing assignment. On this day, they were asked to respond to the questions according to how they were currently feeling.

All of the participants were also asked to complete an expressive writing assignment. After the individual took the suppression inventory, she was asked to begin the writing assignment on the same day. She was asked to time herself for 20 minutes. Half of the participants were be asked to write about breast cancer and the other half were asked to write about what they had done during the past twenty-four hours.

On the fifth day of the writing assignment, the subjects were instructed to first time themselves for 20 minutes of writing and then take the suppression inventory. The participants were then asked to send all three of their response sheets of the suppression inventory, their 5 days of writing assignments, and a copy of the informed consent back to the principal investigator. Envelopes were labeled days 1 through 5, and participants were asked to open a new envelope each day of the writing assignment. Self-addressed stamped envelopes were provided for the return of study materials. A letter debriefing them more specifically about the focus of the study as well as indicating a clinic where they could chose to see a therapist after the writing exercise was included in the day 5 envelope (see appendix E).

Results

The first hypothesis stated that individuals instructed to write about breast cancer will decrease state thought suppression levels from time 1 measurement of state thought suppression to time 2 measurement of state thought suppression. Although there were not the appropriate number of subjects to run the planned analysis, descriptive statistics were analyzed on this variable. See tables 2 and 3 for a summary.

Table 2
Descriptive Statistics of Thought Suppression for Experimental Condition

	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
Characteristic	7	25	59	44.71	11.44
Day 1	5	21	59	41.20	14.15
Day 5	7	22	59	45.57	13.61

Table 3
Descriptive Statistics of Thought Suppression for Control Condition

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
Characteristic	6	27	59	43.33	11.40
Day 1	6	27	53	42.50	12.00
Day 5	6	28	50	40.50	7.97

Although the differences between characteristic levels of thought suppression and current levels of thought suppression were not tested, in looking at the scores, it does not appear that there is a large difference between the way most of the participants rate the way they characteristically suppress thoughts and the way they currently were suppressing

thoughts on the first day of the study. There were more differences noted in the control group than in the experimental group. See table 4 for results.

Table 4
Thought Suppression Scores on Characteristic Measure and Day 1 Measure

Experimental Condition	Characteristic	Day 1	Control Condition	Characteristic	Day 1
1	25	21	1	27	28
2	55	missing	2	34	27
3	37	38	3	59	45
4	59	59	4	50	53
5	46	39	5	40	53
6	49	49	6	44	49
7	42	47			

Thought suppression did not decrease more for the experimental than the control condition from the first to the last day of the study. In both conditions six people returned all three WBSI measures. One person in the experimental condition did not return the WBSI asking her to rate how she was currently feeling on day 1 of the study. In both conditions, one person did not indicate a change in thought suppression from the first day of writing to the fifth day of writing. Three people in the experimental had an increase in thought suppression scores from the first day of writing to the fifth day of writing, and in the control condition, one person had an increase in their thought suppression score from the first to the fifth day of writing. See table 5 for changes in thought suppression scores on the WBSI from the first to the fifth day of the study.

Table 5
Differences in Thought Suppression Scores from Day 1 to Day 5

Experimental Condition	Day 1-Day 5	Control Condition	Day 1-Day 5
Subject		Subject	
1	+	1	Same
2	Missing	2	+
3	-	3	-
4	Same	4	-
5	+	5	-
6	+	6	-
7	-		

+ = increase in score, - = decrease in score, same = same score, missing = missing data

The second hypothesis stated that over the course of the writing assignment the use of causal and insight words will increase in the group asked to write about breast cancer. The narratives were run through the LIWC. Looking at the frequency, five out of seven people had a decrease in the use of causal words in their narratives. Only two of seven had an increase in the use of causal words. In the control condition, one person did not have a change in the frequency of causal words used, three of six people had a decrease in causal words, and two of six had an increase. Both conditions had similar changes in the use of causal words. See table 6 for the changes in the use of causal words for both conditions from the first day of writing to the fifth day of writing.

Table 6

Changes in the number of causal words used in the writing narratives

Experimental Condition	Change in Causal Words	Control Condition	Change in Causal Words
1	-	1	no change
2	-	2	-
3*	+	3	+
4	+	4	+
5	-	5	-
6	-	6	-
7	-		

* = this individual only completed two days of writing

+ = increase, - = decrease, no change = same score from day 1 to day 5

When looking at the use of insight words, similar changes were found. In the experimental condition, four participants had a decrease in the use of insight words from the first to the fifth day of the writing assignment, and three participants had an increase in insight words. In the control condition, three participants had an increase in insight words and three participants had a decrease in insight words. See table 7 for results.

Overall, there was not an indication that either group used more causal and insight words above and beyond the other group.

Table 7
Changes in the number of insight words used in the writing narratives

Experimental	Change in Insight	Control	Change in Insight
Condition	Words	Condition	Words
1	-	1	-
2	-	2	+
3*	-	3	+
4	+	4	-
5	+	5	-
6	+	6	+
7	-		

* = this individual only completed two days of writing
 + = increase, - = decrease

Overarching themes. In looking at the narratives, there were some notable findings. A good majority of participants focused on God as being a source of strength. Due to the fact that the data was collected at a medical center, which has an affiliation with a religious organization, there might have been a larger number of religious participants in the study. This may account for the high rate at which participants referred to God in their writings.

In reading the narratives, it appears that there were very different styles in the writing. While some of the participants wrote lengthy sentences with great detail, others did not write in full sentences. A higher number of individuals in the experimental condition used more feeling words and provided more detailed sentences. Some of the

participants repeatedly wrote in first person, whereas other participants did not make a direct reference to themselves.

Another trend related to positive attitudes towards the future. There were a few participants who seemed to display optimism for their future. This was evidenced by many participants stating that breast cancer was a negative experience but not one that was going to keep them from enjoying life. Another related theme seemed to touch on the concept of a fighting spirit. Sometimes this took the form of indicating that their life was not going to be effected by cancer. For some of these participants, besides the mention of cancer not effecting their lives, the topic was not written about. This included participants that were asked to write about their experience with breast cancer.

Although statistics were not analyzed with the LIWC, it is interesting to note that the data does not seem to be showing a trend of increased causal and insight words. The data also did not seem to be demonstrating many changes in terms of scores on the thought suppression measure.

Case Examples

In order to further illustrate the findings, three case examples will be given. The first case was shown as a demonstration of how isolated one can feel when they are going through the process of breast cancer. Research has demonstrated this to be a central piece in the experience of breast cancer (Buick, 1997). This case was similar to other experimental cases in the way that her thought suppression scores changed from the first to the fifth day of the writing assignment. The changes in the level of causal and insight words from the first to the fifth day of the writing assignment were also similar to many

other participants. This case was unique in the sense that she provided more detail in terms of how difficult her experience with breast cancer was.

The second case depicts the difficulty one can have when trying to write. Although the degree of difficulty was unique to this case, other participants displayed a more mild level of difficulty. An example of the difficulty was demonstrated when a few participants discontinued writing about breast cancer and began writing about a different topic. The change in thought suppression scores from the first to the last day of the writing assignment and the changes in the use of causal and insight words was similar to other participants.

The third case example that will be given was in the control group. In this condition, participants were asked to write about what they had done over the past 24 hours. This participant was detailed in her description of her previous 24 hours on all five days of the writing. She was similar to many other participants in that she did comply with the process of writing. She turned in all of her materials on time. Her results on both the thought suppression measure and the use of causal and insight words were not markedly different than the scores other people had. She was unique in the combination of these findings. This participant had a slight decrease in her thought suppression scores from the first to the last day of the writing assignment. She also had an increase in both causal and insight words used from the first to the last day of the writing assignment. She was the only participant whose scores coincided with the hypotheses. All three case examples highlight critical pieces in this process.

Case example 1. An 81 year-old widow who participated in the experimental condition began by writing about the symptoms of her breast cancer. She talked about

how she did not have many symptoms and how her breast cancer was found in an area on her breast that had been badly bruised in a car accident. She went on to talk about how embarrassed she was to talk about breast cancer. She did not want anyone to know. The research conducted by Buick (1997) stated that many times breast cancer patients have a difficult time talking about breast cancer with their family and friends because they are not able to relate to the experience of having breast cancer.

By the third day, she did not write much about breast cancer, and by the fifth day, her writing sample was only a few sentences. Her thought suppression scores were higher after writing on Day 5. There are a few possibilities for why this occurred. Perhaps writing forced this participant to again think about this challenging topic, leading to thought suppression. Another hypothesis could be related to the suggestion by Pennebaker that the participants have positive outcomes due to the meaning making component of writing (Pennebaker & Siegal, 1999). Perhaps it is difficult to make meaning out of writing if one is not fully engaged in the task.

In looking at how this participant's writing changed, there was not an increase in her use of causal words from day one to day five of her writing. There was an increase in her use of insight words from day one to day five of her writing. Research has demonstrated that individuals who have an increase in causal and insight words over the course of writing have better outcomes (Pennebaker, 1997). While this individual did initially express her thoughts and feelings regarding her experience with breast cancer, she was writing very little about breast cancer by the third day and by the fifth day had only written a few sentences.

Case example 2. Another participant, a 68 year-old divorced participant in the experimental condition completed the first two days of writing and then said it was too difficult to continue. She mailed back in her materials and left a message regarding her inability to continue writing. In talking with her later over the phone, she said that she was not experiencing the same distress she was when she was writing. She talked about how writing down what she had experienced with breast cancer forced her to reexamine emotionally difficult times. These difficult times coincided with her breast cancer diagnosis. Research that has been done by Leventhal and colleagues (Leventhal & Niles, 1965) suggests that when presented with a health threat, such as breast cancer, each individual reacts differently and takes action based off of that reaction. This is an example of how some people react by keeping their thoughts and feelings internal. While some of the participants decided to write about another topic, this participant could not continue writing at all.

For the participant above, the first two days of writing were filled with a great deal of anger. One of the ways in which this was evidenced was by her writing about the lack of support she received from her family. Her scores were almost identical on all three thought suppression measures. Perhaps thought suppression is one of the defense mechanisms that is helping to protect this participant from an emotional distress. This case might also suggest that the participant was not engaged in the meaning making that has been suggested as a facilitator in positive health and psychological outcomes (Pennebaker, 1997). This participant displayed an increase in the use of causal words from day one to day two of her writing and a decrease in insight words from day one to

day two. Due to the fact that she only wrote for two days, it would not be appropriate to draw conclusions as to how her writing had evolved.

Case example 3. A 50 year-old married participant was detailed in the description of her last 24 hours. She began by writing about a busy work day. She talked about the details of the people that she interacted with during the day. These were people from both her work and family circle. The majority of the rest of her writing focused on a holiday that was celebrated during the time that she participated in the study. This participant described events in terms of what lead up to them, the details of the events, how the events made her feel, and the outcomes. It did not appear as though she left many of the details of her days out of the writing assignment. Throughout her writing, there was some mention her father-in-law recently moving into her house. She wrote about how things in her household were slightly different since her father-in-law moved in.

This participant was one of two participants who had an increase in both causal and insight words. Research has suggested that individuals who display these types of changes in their writing are generally the same individuals who have better outcomes correlated with their writing (Suefield & Pennebaker, 1997). This is the only participant who had a slight decrease in thought suppression, an increase in causal and insight words used, and a type of detail in which all aspects of her day were throughoughly explained. Although her thought suppression scores only slightly decreased on the last day of the study, her findings are more suggestive of what was hypothesized to happen in the study.

Discussion

This exploratory analysis has raised many interesting questions. In general, there were not many differences in characteristic and current reports of thought suppression between the experimental and control condition. It is difficult to identify whether the measure being self-report factored into this finding. How much does the way a person would like to be, in terms of suppressing thoughts come forward when they answer the questions?

It also appears that thought suppression did not decrease in the experimental condition on the fifth day of the writing exercise. Thought suppression has not been measured before and after a writing paradigm, so there is not other literature to compare this with. Some of the literature that has introduced a writing paradigm presupposes that thought suppression is automatically being decreased as an effect of expressive writing (Petrie et al., 1998). There is a theme throughout the literature that suggests when expressive writing takes place, thought and/or emotional suppression is being combated.

The control condition scores decreased more than the experimental scores in the use of causal and/or insight words, although there does not seem to be a strong effect in either condition. There could be a few reasons to account for this finding. It could be that when writing about traumatic memories, intrusive thoughts are initially increased, due to the fact that you are forcing yourself to think about the topic. This phenomena could be occurring here, as supported by the increase of thought suppression scores in some of the participants from the first to the fifth day of the writing. Perhaps if thought suppression was measured after the participant had an opportunity to assimilate what they

had written, thought suppression scores would decrease. Few subjects and a self-report instrument make it difficult to determine the accuracy of these findings.

These findings are somewhat different than what was expected. As previously stated, thought suppression scores did not decrease for participants in the experimental condition and the increased use of causal and insight words from the first to the last day of the study did not occur. This may suggest that the writing assignment is more tiring for people who are or have been experiencing an illness. It is important to further investigate whether this is a group that the writing assignment is appropriate for. Another suggestion for the findings is that the participants did not fully engage in the process of the writing assignment. This might be driving the small changes in what was measured before and after the writing assignment. Further exploration in this area will help better determine how expressive writing is effecting breast cancer patients and survivors.

One person in the experimental group did not complete the WBSI regarding how they were currently feeling on the first day of the study. One suggestion to account for this finding is the hypothesis that the participants in the experimental condition were too emotionally overwhelmed to remember to send all of the information back. At the same time, the small number of subjects might not be giving an accurate representation of what is happening here. In relation to this, there was one participant in the experimental condition who did not complete the writing assignment because of the thoughts and emotions that writing about breast cancer resurfaced. Participants were given information about a local clinic that they could go to process any thoughts or feelings that the writing assignment brought up. In order to ensure adequate protection for the participant, it is

suggested that in the future participants are followed up by an investigator once they have completed the writing assignment.

It was interesting to note that each case was unique. The writing styles were unique, the content of the writing was unique, and the feelings that were talked about were unique. The three cases that were referred to highlighted interesting processes. In the first case, the participant was embarrassed and did not want to talk about having cancer. Other research has demonstrated that this process occurs when people are confronted with breast cancer (Buick, 1997). The second case highlighted how difficult it can be to write about breast cancer. While this person was the only individual that stopped writing after two days, as previously mentioned, some people did not write about breast cancer much at all. In the third case example, the participant described with great detail the events of the previous 24 hours. She was one of two participants who had an increase in both causal and insight words used in her writing from the first to the last day of the writing assignment. Research has suggested that people who have the most benefits after writing are also people who have an increase in the use of causal and insight words over the course of their participation (Suefield & Pennebaker, 1997).

While some of the participants seemed to be telling their story by using description and talking in first person, others seemed to be very distant in their writing. This was evidenced by a lack of emotion words and a lack of description. When looking more specifically at the findings from the word analysis (LIWC), the writing did not evidence an overall tendency towards a higher number of causal and insight words in the experimental condition. Previous research has suggested that when individuals write it helps them to form a story and create meaning regarding the topic they are writing about

(Pennebaker, 1997). When they are making a story or meaning making, there is generally more causal and insight words that are used. Although it was initially thought that by asking individuals to write about certain attributes of their illness it would help them create meaning, the limited findings suggest that this may not be the case. Perhaps they were being asked to be too structured in their writing. It might be difficult for the writing to be personal and help create meaning if it is as structured as they were asked to write. It could also be that participants were not creating meaning out of their experience with breast cancer through writing and, as a result, did not have a decrease in scores on the thought suppression measure.

This exploratory analysis raised some interesting questions. In future research, it will be important to assess whether the writing paradigm is not as effective if individuals are asked to include certain information in their writing, as they were in this study. It would be beneficial to assess how thought suppression is effected if an individual is not asked to write about specific pieces of information.

In much of the previous literature, health outcomes have been measured after a writing paradigm was introduced (Pennebaker, 1992; Seufield & Pennebaker, 1997; Pennebaker, 1997; Pennebaker & Seagel, 1999). Thought suppression has not been measured before and after a writing paradigm. Looking at both psychological and health outcomes could help identify how the same writing paradigm is effecting different areas of functioning.

In the future, it might also be helpful to assess thought suppression again, at a later time. Thought suppression might not decrease immediately following the writing exercise. Thoughts might be more accessible once an individual is asked to write about

them. Measuring thought suppression at a later date might help demonstrate how thought suppression is being effected after the writing paradigm. Overall, the various styles of writing and ways thought suppression and use of words change with the introduced writing paradigm suggest that this is an area that could use more exploration. Continued efforts in this area would help understand these themes better.

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Appendix A

White Bear Suppression Inventory Items

This survey is about thoughts. There are no right or wrong answers, so please respond honestly. Please answer the questions according to how you characteristically or generally are. Be sure to answer every item by circling the appropriate letter beside each.

A	B	C	D	E
Strongly Disagree	Disagree	Neutral or Don't Know	Agree	Strongly Agree

- A B C D E 1. There are things that I prefer not to think about.
- A B C D E 2. Sometimes I wonder why I have the thoughts I do.
- A B C D E 3. I have thoughts that I cannot stop.
- A B C D E 4. There are images that come to mind that I cannot erase.
- A B C D E 5. My thoughts frequently return to one idea.
- A B C D E 6. I wish I could stop thinking of certain things.
- A B C D E 7. Sometimes my mind races so fast I wish I could stop it.
- A B C D E 8. I always try to put problems out of mind.
- A B C D E 9. There are thoughts that keep jumping into my head.
- A B C D E 10. There are things that I try not to think about.
- A B C D E 11. Sometimes I really wish I could stop thinking.
- A B C D E 12. I often do things to distract myself from my thoughts.
- A B C D E 13. I have thoughts that I try to avoid.
- A B C D E 14. There are many thoughts that I have that I don't tell anyone.
- A B C D E 15. Sometimes I stay busy just to keep thoughts from intruding on my mind.

Appendix A - cont.

White Bear Suppression Inventory Items

This survey is about thoughts. There are no right or wrong answers, so please respond honestly. Please answer the questions according to how you feel currently or now. Be sure to answer every item by circling the appropriate letter beside each.

A	B	C	D	E
Strongly Disagree	Disagree	Neutral or Don't Know	Agree	Strongly Agree

A B C D E 1. There are things that I prefer not to think about.

A B C D E 2. Sometimes I wonder why I have the thoughts I do.

A B C D E 3. I have thoughts that I cannot stop.

A B C D E 4. There are images that come to mind that I cannot erase.

A B C D E 5. My thoughts frequently return to one idea.

A B C D E 6. I wish I could stop thinking of certain things.

A B C D E 7. Sometimes my mind races so fast I wish I could stop it.

A B C D E 8. I always try to put problems out of mind.

A B C D E 9. There are thoughts that keep jumping into my head.

A B C D E 10. There are things that I try not to think about.

A B C D E 11. Sometimes I really wish I could stop thinking.

A B C D E 12. I often do things to distract myself from my thoughts.

A B C D E 13. I have thoughts that I try to avoid.

A B C D E 14. There are many thoughts that I have that I don't tell anyone.

A B C D E 15. Sometimes I stay busy just to keep thoughts from intruding on my mind.

SCORING: Total items with A=1, B=2, C=3, D=4, E=5

Appendix B

Informed Consent

WRITING EXERCISES WITH BREAST CANCER PATIENTS AND SURVIVORS

You are invited to participate in this research study because you are either a breast cancer survivor or you are being treated for breast cancer. Before you give your consent, please read the following and ask whatever questions you may have. The following information will explain the details of the study.

PURPOSE OF THE STUDY

The purpose of this study is to see how different kinds of writing exercises might help people express difficult feelings. In order to see what type of writing exercise is the most beneficial, we would like to conduct a study comparing different kinds of writing exercises. This information will assist us in understanding better what kind of writing exercises might be the most helpful in encouraging breast cancer survivors or patients to express their feelings about their experience.

PROCEDURE

If you choose to participate in this study, you will be asked to answer some questions and do a writing exercise. Participating in the study will require about 2 hours of your time. This time will be spread out over 5 days. You will be asked to write about one of two different things: (1) about your experiences with breast cancer, or (2) about what you did in the last day. You will be assigned into one of the two groups described above. A table with the different daily activities is listed below. All of the activities can be done in your own home.

Activities asked to complete each day

Day 1	Day 2	Day 3	Day 4	Day 5
1. Take survey A 2. Take survey B 3. Do writing exercise for 20 minutes.	1. Do writing exercise for 20 minutes.	1. Do writing exercise for 20 minutes.	1. Do writing exercise for 20 minutes.	1. Do writing exercise for 20 minutes. 2. Take survey C

_____ Initials

_____ Date

page 1 of 3

WRITING EXERCISES WITH BREAST CANCER PATIENTS AND SURVIVORS

On the first day, you will be asked to complete a survey two separate times. Each survey will include questions about the different kinds of thoughts you have. It should take about 10-15 minutes each time you complete the survey. You will then be asked to write for 20 minutes.

On days 2, 3, and 4, you will be asked to write for 20 minutes each day.

On day 5, you will be asked to write for 20 minutes and then complete the survey one last time.

RISK/DISCOMFORTS

While answering the survey questions or during the writing activity, you may feel minimal discomfort as a result of thoughts and feelings you may experience. If this happens, you may stop at any time you wish. However, please return all of the research materials to the investigator in the envelope provided whether you have used them or not.

BENEFITS OF THE RESEARCH

There may not be any direct benefit to you from participating in this study. Yet, it is possible that you may benefit from the opportunity to write about your feelings and thoughts. It is hoped that the information we obtain from the study may benefit others in the future who have had breast cancer.

PARTICIPANTS RIGHTS

Participation in this study is completely voluntary. You are free to stop participating in the study at any time. Your decision whether or not to participate will not affect your present or future medical care.

CONFIDENTIALITY

All of your responses to the survey questions and what you write about in the writing exercises will be kept confidential. You will be given a study identification number. You will also be asked not to write your name on any of the materials. The information that you provide will not be linked to your name for any reason. All of the information you return will be kept locked in the principal investigators research office. Any published document resulting from this study will not disclose your identity.

_____ Initials

_____ Date

WRITING EXERCISES WITH BREAST CANCER PATIENTS AND SURVIVORS

ADDITIONAL COST/REIMBURSEMENT

There will be no additional cost to you for participating in this study and you will not be paid for your participation.

REFERRAL

In the event that participating in this study brings up thoughts or feelings that you would like to talk about, you can contact the Loma Linda Psychological Services Clinic. The telephone number at the clinic is (909)558-8576. This would be at your own cost and you may wish to seek other psychological services based on your insurance coverage.

IMPARTIAL THIRD PARTY CONTACT

If you wish to contact an impartial third party not associated with the study regarding any concerns you may have, you may contact the Office of Patient Relations at Loma Linda University Medical Center. Their number is (909)558-4647.

INFORMED CONSENT

I have read the contents of the consent form and have listened to the verbal explanation given by the investigator. My questions concerning this study have been answered to my satisfaction. I hereby give voluntary consent to participate in this study. Signing this consent document does not waive my rights, nor does it release the investigators, institution or sponsors from their responsibilities. I may call Dr. Michael Galbraith, at (909)558-8717 if I have additional questions or concerns.

I have been given a copy of this consent form.

Signature of subject

Date

Witness

Date

I have reviewed the consent form with the person signing above. I have explained potential risks and benefits of the study.

Signature of Investigator

Phone number

Date

Initials

Date

Appendix C

Demographics

1. What is your age? _____
 2. What is your marital status? Please make a check mark next to the one that applies.
 married
 divorced
 widowed
 never been married
 3. What procedure did you have done before you began treatment for breast cancer?
 lumpectomy
 mastectomy
 other-please list _____
 4. What type of treatment did you have?
 radiation
 chemotherapy
 radiation and chemotherapy
 other-please list _____
 5. How many treatment sessions did you have? _____ (ex. 30 treatment sessions)
 6. Please list any other current health problems you may have.
-

7. What is your ethnic background? Please make a check mark next to the one that applies.

African American

Asian

Hispanic

Caucasian

American Indian/Alaska Native

Other-please list _____

8. What is your dominant or first reading and speaking language? _____

9. What level of education do you currently have?

middle school

high school

some college

finished college

trade school

graduate school

Appendix D

Instructions for Writing Assignment

Instructions for treatment group:

For the next 5 days, I would like you to write about your deepest thoughts and feelings concerning your illness. There are five categories that I would like you to try and include in your writing. Please describe the:

- 1) nature of your symptoms
- 2) the cause of your illness
- 3) the amount of time this will affect your life
- 4) the consequences of your illness
- 5) how much control you have over your disease.

Do not worry about spelling or grammar in your writing sample. Feel free to be as open as possible in your writing. Your writing will be held in confidence. Please either look at the time on your watch before you begin writing or set a timer for 20 minutes. Try and continue writing until 20 minutes have passed either on your watch or until the buzzer on your timer goes off.

Instructions for control group:

Today I would like you to write about what you did over the past 24 hours. In a very descriptive way please describe the details of your day. Do not worry about spelling or grammar in your writing. Your writing will be held in confidence. Please either look at the time on your watch before you begin writing or set a timer for 20 minutes. Try and continue writing until 20 minutes have passed either on your watch or until the buzzer on your timer goes off.

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Appendix E

Debriefing Form

April 16th, 2004

Dear Survey Participant:

I want to thank you for participating in this experiment. Your time and effort is extremely valuable to me and I hope that this experiment has been worthwhile for you. I would like to tell you a little bit more about what I am studying.

I asked you to participate in the study so that I could try and understand more about thought suppression. Thought suppression is the act of keeping one's thoughts and/or feelings inside. Although thought suppression is generally engaged in as a form of protecting one's self, it can have many negative consequences. The writing assignment that you have just participated in has been suggested as a means of helping people express themselves. The goal of this study was to see how writing effects thought suppression.

If you have any questions now or in the future, please feel free to contact my supervisor, or myself:

Erin O'Carroll Bantum
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Michael Galbraith, Ph.D.
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(909)558-8717

I would also like to leave you with a referral to speak with someone at a local clinic. If you would like to seek therapy after participating in this study, please feel free to contact the Loma Linda Psychological Services Clinic. Their telephone number is (909)558-8576. Thank you again for your willingness to participate. I greatly appreciate your support.

Sincerely,

Erin O'Carroll Bantum