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The Experience of Imagery as a Post-Treatment Intervention in Patients With Breast Cancer: Program, Process, and Patient Recommendations

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Purpose/Objectives: To better understand the common themes of women participating in an imagery program designed to improve quality of life (QOL).

Research Approach: Qualitative.

Setting: Classroom setting at Alaska Regional Hospital in Anchorage.

Participants: 10 women with a confirmed diagnosis of breast cancer who had completed conventional care participated in a six-class, eight-week-long imagery program titled *Envision the Rhythms of Life*® (ERL).

Methodologic Approach: Focus group audio recordings and notes were interpreted with the Krueger focus group method and confirmed by an outside evaluator.

Main Research Variables: Breast cancer survivors' descriptions of imagery practice and experience as they created passive, active, and targeted imagery.

Findings: Participants reported the importance of engaging passive and active imagery, letting targeted imagery take on a life of its own, performing homework, understanding the science, practicing, hearing imagery stories, engaging all the senses, trusting imagery, and group interaction. Imagery practice improved mood state.

Conclusions: When delivered by expert imagery trainers in collaboration with oncology nurses, ERL can improve breast cancer survivors' QOL. The present study is one of few reports that evaluated survivors' imagery experiences from a clinical trial and produced significant QOL improvements.

Interpretation: The present study provides oncology nurses understanding of the psychological risks faced by breast cancer survivors after completion of primary care and explains the critical need for post-treatment programs for survivors dealing with post-traumatic stress disorder, depression, anxiety, or high levels of stress.

In 2006, a report on the quality of life (QOL) of cancer survivors revealed a population of more than 10 million survivors in the United States. Women with a history of breast cancer were the largest group of survivors, comprising 22% of the population. The survivors remain largely understudied and lost to follow-up (Hewitt, Greenfield, & Stovall, 2006).

Three trends emerged from Hewitt et al.'s (2006) report: Cancer can become a chronic condition that must be managed for a lifetime; although life is preserved, many survivors suffer

Key Points . . .

- ▶ After completing primary care, many cancer survivors suffer late- and long-term effects of their cancer treatments, which negatively affect psychological, social, vocational, and spiritual well-being as well as quality of life (QOL).
- ▶ Psychological dysfunction and low QOL can affect physical health, including immune function.
- ▶ Clinically tested imagery programs can significantly improve QOL and psychological well-being.

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long-term and late-term effects from their cancer treatments; and survivors are demanding patient-centered interventions to address the degradation in QOL caused by long-term and late-term treatment effects. Survivors described the hidden disabilities that follow successful cancer treatment. The report concluded that survivors live with “a legacy of physical, psychological, social, vocational, spiritual, and economic consequences” (Hewitt et al., p. xxiv). In response to Hewitt et al. and other reports, an imagery program titled *Envision the Rhythms of Life*® (ERL) was developed by Mind Matters Research in Anchorage, AK, and clinically tested for its efficacy to improve QOL in breast cancer survivors. In the program, imagery is defined as techniques for engaging the mind to create or reframe mental and emotional representations of objects, places, or situations perceived through and by the senses. Techniques can range from imagery-based suggestion to metaphor and storytelling (Ball, Shapiro, Monheim, & Weydert, 2003; Freeman, 2004; Post-White, 2002). Survivorship is defined as the period of life following completion of primary treatment (Hewitt et al.).

Thirty-four breast cancer survivors six weeks to one year after treatment participated in the ERL stress-reduction program. The survivors took six 2.5-hour classes over an eight-week period. Participants identified stressful images that they were visualizing daily, practiced replacing stressful images with emotionally supportive ones, and created biologically accurate images of optimal health. Participants also engaged in 60-second imagery periods throughout the day and practiced imagery for 20 minutes each night using CDs and DVDs. Measurements taken before and after the program demonstrated that stress was significantly reduced and QOL was statistically and clinically improved. The quantitative findings of that study and a detailed program description are discussed in Freeman et al. (2008).

As a result of the ERL program, the present study sought to detail the experiences of breast cancer survivors practicing imagery intervention. Researchers wondered whether patient descriptions could help derive QOL improvements from a mind-body imagery program.

Literature Review

An estimated 182,460 women will be diagnosed with and 40,480 will die of breast cancer in 2008 (National Cancer Institute, 2008). Some survivors find a renewed sense of purpose after treatment, but many others suffer ongoing loss of health, functionality, and sense of well-being. Women with breast cancer also are at greater risk for depression, elevated stress, and anxiety levels (Farragher, 1998; Longman, Braden & Mishel, 1999; Oktay, 1998; Payne, Hoffman, Theodoulou, Dosik, & Massie, 1999).

Psychosocial stress can lead to immune modulation and degrade medical and psychological outcomes, but stress-reducing interventions can improve medical outcomes (Miller & Cohen, 2001). Several mind-body interventions have reduced stress, improved mood state, and enhanced immune function. Imagery, hypnosis, and meditation in particular have produced beneficial improvements in QOL and immune function (Bakke, Purtzer, & Newton, 2002; Benson et al., 1978; Goleman & Schwartz, 1976; Holden-Lund, 1988; Manyande et al., 1992; Miller, Fletcher, & Kabat-Zinn, 1995; Solberg, Halvorsen, Sundgot-Borgen, Ingjer, & Holen, 1995).

Natural killer cells defend against cancer recurrence by surveillance of the body for new neoplastic growth and lysis of tumor cells (Brittenden, Heys, Ross & Eremin, 1996; Locke et al., 1984). Correlations exist between stress and impaired natural killer cell function in women with breast cancer (Levy, Herberman, Lippman, & D'Angelo, 1987). In addition, increased natural killer activity has been correlated with lower rates of breast cancer recurrence at five-year follow-up (Levy, Herberman, Lippman, D'Angelo, & Lee, 1991).

Imagery is the foundation of most mind-body interventions, including hypnosis, autogenic training, relaxation therapy, biofeedback, and some meditation forms (Crawford, 1982). Patients who are fearful of hypnosis or opposed to meditation for religious reasons often are comfortable with the concept of imagery practice.

Little research has described what produces successful imagery practice from the viewpoint of patients using imagery to improve QOL or health outcomes. Scherwitz, McHenry, and Herrero (2005) identified factors contributing to effective imagery engagement. The ability to engage imagery and practitioner-patient interaction were independently associated with measures of cognitive, emotional, behavioral, and spiritual benefit and contributed to 40% variance in patient outcomes.

A case study by Freeman and Dirks (2006) reported that imagery can reframe the cancer experience during survivorship. Patients described the imagery process as a potent skill-development tool for supporting improved mood state and overall QOL. Vivid imagery of sensations in the body, natural environments, color, sound, taste, and smell were related to optimal imagery practice and a sense of well-being. With the exception of Freeman and Dirks's study, no research was found that evaluated the imagery experiences of breast cancer survivors in clinical trials and produced clinically significant improvements in QOL.

Theoretical Basis for Imagery as a Survivor Intervention

The ability to use imagery to improve QOL and health outcomes is based on the theory that personality and consciousness are made up of images (Ahsen, 1968). In addition, humans can modify the images they produce; as imagery changes, so do emotions and behaviors. Modified emotion and behavior can lead to changes in physiology and biochemistry as well as reduced stress and improved mood state (Freeman, 2004).

The notion of imagery as a health modulator also is based on the theoretical construct of the immune system as a sixth sense. Blalock and Smith (2007) posited that the immune and nervous systems communicate in a bidirectional pathway via a shared set of peptide and nonpeptide neurotransmitters and cytokines. The messenger molecules share common receptors and ligands between the two systems, therefore producing a sixth sense which allows the body to perceive pathogens, tumors, and allergens with greater sensitivity. Blalock and Smith theorized that the sixth sense may reveal the underlying experiences and mechanisms of Eastern and other alternative medicine practices that have defied explanation. Imagery is the basis of many alternative and complementary medicine practices.

Methods

Design

The focus group incorporated systematic procedures for data collection, handling, and analysis (Krueger & Casey, 2000). Focus group questions were reviewed in advance with three breast cancer survivors who were volunteers from the WomenList support group in Anchorage, AK. Input was sought concerning set-up, lead-in comments, and the focus group questions. Suggestions were incorporated into the focus group format using the Krueger method (Krueger, 1998b).

Sample

Women participating in one of two focus groups had a confirmed diagnosis of breast cancer and were at least six weeks post-treatment; they had successfully completed a six-class, eight-week-long ERL imagery program. Ten of 30 breast cancer survivors were selected for inclusion in the focus groups using a random numbers table.

Procedure

In two separate focus groups, five participants and an interviewer trained in the Krueger method sat around a table in a classroom. The interviewer (study principal investigator) explained that the sessions would be tape-recorded but the names of participants would be removed during transcription. All participants had completed the informed consent process as approved by the Alaska Regional Hospital's institutional review board. Participants were asked to assume a teacher role so the interviewer could learn from their imagery experience. The interviewer explained that the shared information would be incorporated into improving the program for future participants.

Notes were taken of key points during the session, and the focus group was moderated with attention to participant experience, background, and sensitivity (Krueger, 1998c). Participants were asked to explain and then clarify their views as they answered questions. After key points were verbalized by the interviewer, the participants were asked to verbally verify, clarify, or correct summary points. Participant clarifications were incorporated into the recorded outcomes. Three questions were posed during the 1.5-hour sessions, and additional questions were raised in each group for clarification in response to the interview prompts (see Figure 1).

Definitions

Passive imagery consists of the preconscious and conscious images and emotions that each individual creates and recreates throughout the day. The background noise and ongoing emotional and imaginal chatter in the mind elicit significant physical and emotional responses. **Active imagery** is the purposeful engagement of emotionally supportive imagery to modulate unpleasant and disturbing passive imagery responses. The practice engages all of the senses, so the imagined event is experienced vividly. **Targeted imagery** is the creation of a biologic, biochemical, or physiologic process image at optimal functionality with the goal of improving a health outcome.

Data Analysis

Key points were compared across the two groups to identify themes. A verifiable trail of evidence was established in the form of patient responses for each theme identified in the

Question 1. Describe how your passive and active imagery evolved.

- Identify passive imagery; engage active imagery.
- Practice improves mood state and relationships.
- Homework, science, and sharing equal success.
- Imagery stories empower transformation.

Question 2. Describe how your targeted imagery evolved.

- Let targeted imagery take on a life of its own.
- Targeted imagery engaged all the senses.

Question 3. Is there something you would like to share about your imagery experience with future participants or with your instructor?

- Let your imagery evolve uncritically.
 - Interactive sharing primes the imagery pump.
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Figure 1. Focus Group Questions and Themes

results (Krueger, 1998a). The data stream began with notes and recordings taken during each focus group, including the oral summary (in-room patient verification) of key points that emerged from each group and was followed up with a debriefing and review by the interviewer and the research professional.

During debriefing, transcripts were reviewed and tapes were replayed to observe voice tone and emotional response to questions. The long-table approach was used to identify group themes. Long-table refers to cutting transcripts into pieces as themes are identified and spread by category on a long table (Krueger, 1998a). In the present study, numbered comments were cut and pasted using Microsoft Word on a Dell computer. Themes and supporting evidence trails were identified, and an outside evaluator trained in the Krueger method reviewed the evidence trail to provide additional input. The principal investigator and outside reviewer agreed on the final themes.

Findings

Demographics

Focus group participants represented diverse religious and spiritual backgrounds. See Table 1 for demographics information and cancer stage, location, and methods of treatment.

Imagery Themes: Evolution of Passive and Active Imagery

Identify passive imagery, then engage active imagery: Participants described how awareness of passive imagery was necessary to create and practice active imagery for stress reduction. Patients were surprised by how much passive imagery affected their mood state. Becoming aware of upsetting passive imagery released some of its emotional effect, and identifying upsetting and supportive passive imagery allowed participants to engage or create active imagery to buffer or rewrite emotional responses.

Patients required time and effort to become skilled in identifying passive imagery. In the beginning of the study, participants identified missed opportunities for using imagery. Eventually, the participants identified passive effects that were upsetting to them in real time. With time and practice, the joint process (identifying negative passive effects and engaging constructive active imagery) became "ingrained" and

“automatic,” and the process became “simple” and “pure.” Two participants described the progression.

It was the first week or so of our doing it; it was always after the fact. I'd look back over my day and go, “Oh yeah! I could have practiced it there.” And so then, you know, I did it retro, and I put myself back in that position and I practiced it and I felt the impact of what it would have been like. . . . I found that, over time, I got closer to real time.

I found that [imagery] really worked, and that surprised me. For some reason, that's kind of hard for me to explain because it's the field I work in [as a therapist]. But anyway, what I was able to see in a pretty quick period of time—two weeks—was what kinds of things really upset me.

Engaging imagery improves mood state: Patients reported that their sense of emotional well-being enhanced noticeably with practice. The participants became more patient and constructive with family members and friends, who, in turn, began to notice and comment on how the patients had changed.

When I get a negative, I immediately think of a positive to counteract it . . . so I'm a lot happier and I'm not hard on people like I had been before. I realized that I don't bark at people, my grandkids, my husband, or anybody like I used to. I can see a big difference.

I mean, I just focused on it, and I was dealing mostly with my kids and their problems a lot of times this last year. I've had a tendency to blow things out of propor-

tion just in reacting to them instead of thinking before I react. And so I was able to decide that it was okay to not just react right that second. I wouldn't have to blow up at them. They would say that I was a much nicer person and it worked.

Homework plus understanding the science equals practice success: Patients identified specific motivating factors that improved the likelihood of success with imagery. Establishing a class in which imagery homework was assigned gave patients permission to invest time and become skilled imagery practitioners. A necessary motivator was having clear information on the effects of stress and how imagery works (e.g., the science behind mind-body effects). In addition, hearing the experiences of others improved patients' ability to practice imagery. The combined factors helped patients progress with practice and skill development.

I mean, until we were given permission through these exercises, you know, it would have been hard . . . but once you've been given permission to do that, you don't have to get all excited. [Other patients nodded and agreed].

I just have to focus on how to use it better, to be more organized and get the science behind it, which is very helpful.

Imagery stories empower transformation: During active imagery training, theme-based imagery stories were read and incorporated into imagery audio recordings that patients used outside of class. The imagery stories, which were written and recorded by the principal investigator, helped patients cope by viewing disturbing events from a larger and more constructive perspective. The story “Enlightened Teachers” emphasized that difficult people encountered in daily life may offer opportunities to learn about oneself. In “The Eye of the Hurricane,” patients envisioned all of the chaos and stressors of the world as a whirling hurricane and imagined stepping into its calm, peaceful eye.

[“Enlightened Teacher”] was really something for me because I have my teachers in the past. . . . But when I started thinking that everyone I meet is being a teacher, I realized that that's true, everyone has something to teach you. I realize that I listen more now than I ever did before. And I try to learn something from everybody and try to get the drift of what it is they are trying to tell me.

“The Eye of the Hurricane”—that really worked for me. There are so many times in the day when I imagine myself stepping out of the fray and into that eye. It is the imagery that really gets me through the day. [Patients enthusiastically agreed.]

Evolution of Targeted Imagery

Targeted imagery takes on a life of its own.

I think the thing that was most surprising to me about the neuropeptide imagery was that [the images] took over and they evolved themselves. I didn't will them to change, I didn't ask them to change, *they* just rolled right down into their next evolved state and that was surprising. It was, it was very pleasant.

Table 1. Sample Characteristics

Characteristic	\bar{X}	SD	Range
Age (years)	53.4	5.3	47–65
Characteristic	n		
Stage of cancer			
0 (in situ)	1		
I	5		
II	4		
III	–		
Location of cancer			
Ductal	1		
Lobular	9		
Method of treatment^a			
Surgery	10		
Radiation	8		
Chemotherapy	7		
Religion			
Buddhist	1		
Catholic	1		
Lutheran	1		
Christian	1		
Moravian	1		
Jehovah's witness	1		
None	1		
Own spirituality	3		

^a Patients could opt for more than one treatment method.

N = 10

So my neuropeptides were all through the systems, flowing with the blood. Mixing with the red and the white cells were little koi and they were all different colors . . . where you can see all, every little scale on them. I just called them my koi international navy, and they were just running everywhere. I felt very protected, and they were beautiful, too.

But a lot of it has to do with melting into the cell and the musical notes like, “Be healthier,” and the little notes [Patient sang four main notes from the film *Close Encounters of the Third Kind*] were continually there for awhile to get the cell’s attention. “Pay attention! We’re here!” [Patient sang notes again.] Well, music was a way of getting [the cell’s] attention and that was the flow, the orchestra—all through music.

Targeted imagery must engage all the senses.

I mean, by the end I could see not just red, blue, green, gold, and white, but I saw lots of shades of each color.

And they had that tinkling crystal noise that went along with them and they felt kind of like sand going through my body, kind of scratchy and it feels good kind of type of thing. . . . They evolved into golden sparks and they make the [sound effect] *pheeeewww pheeeewww pheewww* kind of sound and they actually go inside the cell.

The flavors of like cherry and lime, lemon, and all the rainbow colors.

Advice for Future Participants

Trust your imagery.

Trust your imagery; let it evolve on its own, and don’t judge yourself or assume you aren’t doing it “right.”

Well, [imagery has] got to be pure, and it’s got to come from you and your heart, so you can’t have really rigid directions with this or it wouldn’t be yours, it would be someone else’s.

Interactive sharing primes the imagery pump.

It is critical to bounce your imagery experience off others in the class. Sharing imagery “primes the imagery pump” for everyone and makes the process evolve faster.

I think that’s a very good point, the triad [three-person work groups] interactive part, that’s an imagery builder. When you get to bounce your ideas and thought[s] off of others, it enriches your own and it opens windows for you that [you] really couldn’t get as good if you didn’t have that opportunity.

Discussion

In the present study, breast cancer survivors practicing imagery demonstrated a need for a systematic approach that identifies unhealthy passive imagery and creates healthy active imagery to replace disturbing emotional images. Practicing imagery improved the survivors’ mood states and relationships. Understanding the science behind why imagery works was critical in motivating survivors to practice and helping to create effective targeted imagery. Imagery practice homework also improved success. Participants used

storytelling as an imagery strategy to increase the effectiveness of practice. Once engaged, survivors found that letting imagery take on a life of its own without being judgmental was helpful. Engaging all of the senses during imagery practice produced the most powerful outcomes. The survivors advised future program participants to trust imagery and share experiences with others in the program as much as possible. Hearing other participants describe their imagery increased imagery creation. The participant reports have implications for the delivery of effective programs, suggesting that an experienced trainer with a clinical and scientific understanding of psychodynamics and imagery is needed to deliver an effective intervention. In addition, live group intervention, which allows survivors to bounce imagery experiences off of other participants, improves program outcomes.

Hewitt et al. (2006) revealed that cancer survivors are at psychological and social risk for late-term and long-term effects following cancer treatment, many of which may not manifest until years after completion of primary care. For example, symptoms of post-traumatic stress disorder have been reported in 3%–4% of patients during primary care and in 35% of patients evaluated after completion of primary care (Gurevich, Devins, & Rodin, 2002; National Cancer Institute, 2008). Patients wait, fearful of the effects once constant medical surveillance ceases. In addition, long-term chronic effects produced or exacerbated by cancer treatments also may manifest at any time. Depression, stress, and anxiety levels can combine to impair optimal immune function and exacerbate other existing chronic or acute conditions (Farragher, 1998; Levy et al., 1987; Longman et al., 1999; Miller & Cohen, 2001; Oktay, 1998; Payne et al., 1999).

Limitations

Findings are limited by the lack of a control group from the survivor population. Further verification of benefits or limitations of the imagery forms used will depend on phase 2 testing of outcomes. In addition, findings may not apply to cultural populations not represented in the present study.

Implications for Nursing

Nurses in daily practice can mitigate some of the stress that patients with cancer experience during follow-up care. Nurses can educate themselves on the general concepts of passive and active imagery and refer patients for appropriate psychological care if indications of elevated post-treatment depression, anxiety, or stress are observed. Nurses can evoke potent imagery in patients and should be mindful of the imagery created by their words, voice tone, body language, and facial expressions when working with survivors who may be psychologically vulnerable. Nurses can educate colleagues in hospital and healthcare settings about the potential for late-term and long-term psychological and social effects and the need to identify patients who may be at risk after treatment. Nurses can lobby for the inclusion of intervention programs for survivors with long-term and late-term psychological and social effects of cancer treatment. Nurses also can seek ways to identify patients lost to follow-up who may be at risk. In addition, oncology nurses can team with expert imagery trainers to deliver programs that mitigate late-term and long-term psychological and social effects of cancer treatments.

Conclusions

Research has demonstrated that imagined or recalled events can produce the same physiologic, biochemical, and immunologic effects as if the events were occurring in real time (Gruber et al., 1993; Kiecolt-Glaser & Glaser, 1992), which is the basis for many of the psychological and social late-term and long-term effects experienced by cancer survivors. The ERL imagery program's clinical trial produced statistically and clinically significant improvements in QOL in breast cancer survivors (Freeman et al., 2008), suggesting that the ERL program delivered by expert imagery trainers

in collaboration with oncology nurses could significantly improve survivor QOL in other populations. In addition, participant motivation to practice is necessary for optimal program outcomes. The present study's themes suggest the most effective and motivating ways to support imagery practice. Additional research is needed to assess the efficacy of imagery programs as treatment for psychological late-term and long-term effects of cancer treatment and to further describe patient experience.

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