# The Connection Between Art, Healing, and Public Health: A Review of Current Literature

Heather L. Stuckey, DEd, and Jeremy Nobel, MD, MPH

This review explores the relationship between engagement with the creative arts and health outcomes, specifically the health effects of music engagement, visual arts therapy, movement-based creative expression, and expressive writing. Although there is evidence that art-based interventions are effective in reducing adverse physiological and psychological outcomes, the extent to which these interventions enhance health status is largely unknown. Our hope is to establish a foundation for continued investigation into this subject and to generate further interest in researching the complexities of engagement with the arts and health. (*Am J Public Health.* 2010;100:254–263. doi:10.2105/AJPH.2008.156497)

> There are many more things, between heaven and earth, than are dreamt of in your philosophy, Horatio.
> —Shakespeare, *Hamlet*

The World Health Organization (WHO) defines holistic health as:

> viewing man in his totality within a wide ecological spectrum, and . . . emphasizing the view that ill health or disease is brought about by an imbalance, or disequilibrium, of man in his total ecological system and not only by the causative agent and pathogenic evolution.[1(p13)]

This important perspective is echoed in the organization's 1946 preamble, wherein health is defined as a state of complete physical, mental, and social well-being rather than merely the absence of disease or infirmity.

Implied in this definition is the tie to health outcomes or changes in health as a result of an action; in the present case, the connection between artistic engagement and the psychosocial and biological manifestations of that connection. More specifically, there is evidence that engagement with artistic activities, either as an observer of the creative efforts of others or as an initiator of one's own creative efforts, can enhance one's moods, emotions, and other psychological states as well as have a salient impact on important physiological parameters.[2]

Chronic diseases are a nationwide burden, with cardiovascular disease being the leading cause of death during the past century and the incidence of diabetes continuing to increase, now affecting more than 20 million Americans.[3,4] These diseases are associated with psychosocial difficulties such as depression[5] and chronic stress, contributing to negative cardiovascular outcomes.[6,7] Engagement with creative activities has the potential to contribute toward reducing stress and depression and can serve as a vehicle for alleviating the burden of chronic disease.

Over the past decade, health psychologists have cautiously begun looking at how the arts might be used in a variety of ways to heal emotional injuries, increase understanding of oneself and others, develop a capacity for self-reflection, reduce symptoms, and alter behaviors and thinking patterns.[8] Given the ubiquity of creative expression, as well as the relative ease of engagement, the extent to which psychological and physiological effects are sustainably health enhancing is an important area for public health investigation.

We reviewed research in the area of art and healing in an effort to determine the creative therapies most often employed. Four primary therapies emerged: music engagement, visual arts therapy, movement-based creative expression, and expressive writing. In these forms of expression, arts modalities and creative processes are used during intentional interventions to foster health.[9] By assessing the use of these processes in clinical and qualitative trials, one can determine how others have found benefit in tying the intricacies of artistic meaning to the complexities of health and wellness. Our hope is to expand effective exploration of these concerns.

We further believe that certain social and environmental factors are converging to thrust the central questions related to better understanding the relationship between art and health into the spotlight of expanded and vigorous attention. Globalization, bringing with it the need to embrace the broad cultural diversity around how personal and societal philosophies interoperate, will put a premium on finding more effective ways to create and share meaning and meaningfulness. This need for meaning and relevance in daily experience has long been recognized as one of the fundamental driving forces in artistic creation and engagement.[10]

Similarly, expansion of individual and community health-enhancing efforts worldwide and an acceptance of the definition of health as being more than the absence of illness are spurring active investigation into the fundamentals of whole-person approaches to creating and sustaining health. Investigating the relationship between art and health offers some interesting ways to bridge these 2 important areas of inquiry and perhaps provide timely and important insights into each.

Art and health have been at the center of human interest from the beginning of recorded history. Despite that fact, and despite the invested effort and growth of knowledge and understanding in each arena, it is interesting that we often still find ourselves struggling with the "fundamentals" of art and health and their meaning in society. We make no attempt to clarify or resolve these fundamental issues. Instead, our intent is to summarize current knowledge about the connection between art and health, identify the most compelling next steps for investigation, and generate further interest in researching the complexities of art and health. Legitimate research questions

include whether certain art-based therapies are more or less effective than others, whether the impact of therapy can be tied to other important variables and preconditions, and whether health benefits are sustained or short term. These issues deserve vigorous continued attention.

We conducted a review of current research to determine what is known about art and healing. The goals of our review, primarily covering the period 1995 through 2007, were to assess the state of peer-reviewed research on arts and healing, to provide a brief summary of both qualitative and quantitative research methods and results, and to describe the principal categories of creative expression that have emerged as effective means of enhancing health and wellness.

## METHODS

We focused on creative arts or expressive activities that were conducted primarily in North American and European countries and primarily with adults. We excluded studies focusing on complementary medicine practices. Although the literature in this review targeted adults (aged 18 years or older), many studies have focused on use of the arts with children in various contexts (e.g., sandplay,[11] dance-movement therapy,[12] dramatherapy,[13,14] music,[15] myth to facilitate storytelling and drawing activities,[16] wheelchair dance experiences,[17] mandalas,[18] art therapy during painful cancer procedures,[19] drama therapy,[20] and drawing.[21]), and other reviews have focused on art therapy and children.[22,23] Also, we excluded articles about art education or art in professional career development. Finally, we did not evaluate the relationship of creative expression with major mental disorders such as schizophrenia or dementia, severe developmental disorders, end-of-life issues, the use of art with incarcerated populations, or the impact of religion on health outcomes.

We assessed how creative expression as a healing process has been used in both clinical and informal practice to promote wellness and healing. We searched the following databases and Internet sites, covering the recent period of 1995 through 2007: Medline (PubMed) for general health care literature; Proquest, specifically PsycINFO for psychology journals and CINAHL for nursing and allied health literature; the Cochrane Library for health care reviews; and the Web of Science database including the Science Citation Index, the Social Sciences Index, and the Arts and Humanities Index. Primary keywords included the arts and medical outcomes, the creative arts and healing or wellness, creative expression and healing or wellness, the arts and health care, creative expression and illness, music therapy, art therapy, and creative expression and humanities.

In the Cochrane Library evidence-based literature, the only studies that included references to art or creative expression were those associated with the treatment of schizophrenia or schizophrenia-like illnesses[24,25]; therefore, we did not include any Cochrane database studies in our review. In addition to the sources just mentioned, specific journals were also targeted because of their connection to art and health: *Health Education Research*, *Health and Quality of Life Outcomes*, *Health Education and Behavior*, *The Arts in Psychotherapy*, and the *Journal of Music Therapy*.

We also searched literature from 1970 to 1995 on PubMed (MeSH art therapy database) to determine whether there were further foundational research articles, but we did not find any abstracts matching our criteria. However, we found 1 randomized controlled trial in PubMed, and we included that study.[26] Because music therapy was observed to be a predominant source of research in the arts and healing, the *Journal of Music Therapy* was also reviewed for foundational articles. As mentioned, 4 major areas of arts and health care emerged from our review: music engagement, visual arts therapy, movement-based creative expression, and expressive writing. Therefore, we focused on the potential of these creative areas to promote healing.

## RESULTS

The idea that creative expression can make a powerful contribution to the healing process has been embraced in many different cultures. Throughout recorded history, people have used pictures, stories, dances, and chants as healing rituals.[27] there has been much philosophical and anecdotal discussion about the benefits of art and healing, but less empirical research exists in the literature. In fact, although arts therapy has been used clinically for more than a century[28] and has been recognized as a profession since 1991,[29] much of the published work is theoretical in nature, with little discussion of specific outcomes.[13,30] Only in recent years have systematic and controlled studies examined the therapeutic effects and benefits of the arts and healing.[31]

Nevertheless, we have seen positive outcomes for the potential of using art to promote healing in our 4 primary areas of focus. This article is not meant to be a comprehensive review of all of the literature available (other authors have provided comprehensive overviews in areas such as music therapy[32] and expressive writing[33]). Instead, it represents a sampling of the many potential benefits of art in enhancing health and wellness.

### Music Engagement

Music is the most accessible and most researched medium of art and healing, and there has been a principal emphasis on the soothing capacity of music and its ability to offset overly technological approaches to care.[34] In particular, music therapy has been shown to decrease anxiety.[35–37] The pleasure shared by participants in the healing process through a music therapy program can help to restore emotional balance as well.[38] There is also evidence of the effectiveness of auditory stimulation, together with a strong suggestion that such stimulation abolishes pain, as a strategy for achieving control over pain.[39]

In addition, it has been shown that music can calm neural activity in the brain,[40] which may lead to reductions in anxiety, and that it may help to restore effective functioning in the immune system partly via the actions of the amygdala and hypothalamus. As the activity levels of neurons in the central nucleus of the amygdala decrease in response to calming effects of music, there may be corresponding reductions in the signals being sent to other parts of the brain. Table 1 outlines the results of key studies we reviewed that focused on music engagement.[26,41,42]

In a lengthy review of the music therapy literature from 1983 to 1990, Aldridge noted that most of the research was concerned with passive music therapy and the playing of prerecorded music to patients to reduce stress and enhance well-being.[32] Overall, he concluded that although there is a broad literature covering applications of music therapy, there is a general

**TABLE 1—Details of the Music Engagement Studies Reviewed**

| Author(s) | Year of Study | Study Design | No. of Participants | Study Population | Variable(s) Measured | Findings |
|---|---|---|---|---|---|---|
| Guzzetta[26] | 1989 | Randomized controlled trial; relaxation, music therapy, and control groups | 80 | Coronary artery disease patients | Stress | More improvements in apical heart rates and peripheral temperatures in the relaxation and music therapy groups than in the control group |
| White[41] | 1999 | Pretest–posttest | 45 | Coronary artery disease patients | Stress and psychological variables | Reductions in heart rate, respiratory rate, myocardial oxygen demand, and anxiety after 20 minutes of relaxing music |
| Burns et al.[42] | 2001 | Pretest–posttest | 29 | Cancer patients | Psychological variables and immune system response | Improvements in well-being and relaxation and reductions in tension and serum cortisol levels during music listening experience |

absence of valid clinical research from which substantive conclusions can be drawn. In a later review, Gregory examined the *Journal of Music Therapy* from 1964 through 1999 to determine whether study methodologies included behavioral research designs (e.g., reversal, multiple baseline).[43] Of the 607 articles published in that journal during the study time period, 96 (15.8%) included a behavioral research design.

A widely researched phenomenon is the use of music in the control of chronic cancer pain.[32] Five benefits of using music therapy with cancer patients have been reported in the literature: increases in hospital patients' sense of control, promotion of wellness and the healthy aspects of patients' lives, reductions in pain[44] and increases in immunity, decreases in anxiety, and reductions in psychological and physical symptoms.[45] In several clinical studies examining the effects of music and music therapy on healing and wellness, music has been found to be a form of relaxation and anxiety reduction.[41,42,46–50]

In a study of patients admitted to a coronary care unit with acute myocardial infarction, Guzzetta found that relaxation and music therapy were effective in reducing stress.[26] In that investigation, 80 patients were randomly assigned to a relaxation, music therapy, or control group. The relaxation and music therapy groups participated in 3 sessions over a 2-day period. Stress was evaluated via apical heart rates, peripheral temperatures, cardiac complications, and qualitative patient evaluative data. Results demonstrated that apical heart rates were lower and peripheral temperatures were higher in the relaxation and music therapy groups than in the control group.

Another area of research is the relationship between coronary heart disease and reductions in anxiety states.[51–53] In 1 study, music was introduced into the private hospital rooms of 45 patients with myocardial infarction.[41] A Holter monitor was attached to each participant, baseline physiological values were obtained, and participants were asked to complete the State Trait Anxiety Inventory. After listening to relaxing music for 20 minutes, participants exhibited significant reductions in heart rate, respiratory rate, myocardial oxygen demand, and, in particular, anxiety, both immediately after and 1 hour after the intervention.

In their study, Burns et al.[42] investigated the relationship of music therapy with positive emotions and immune system responses. They assessed the therapeutic effects on patients of listening to music, both live and recorded, while in a relaxed state, as well as the effects of active involvement in music improvisation. Twenty-nine patients participating in a residential 1-week course completed the University of Wales Institute of Science and Technology (UWIST) Mood Adjective Checklist, and data were collected on cortisol levels. Results showed increases in well-being and relaxation and decreases in tension during the listening experience, increases in well-being and decreases in tension during the improvisation experience, and decreases in serum cortisol levels during both experiences.

An additional anxiety study[54] sought to investigate the effects of group music therapy combined with other creative art methods on self-reported levels of anxiety, depression, and self-esteem among women who had experienced intimate partner violence. The group met for 6 sessions, each 1 to 1.5 hours in duration, over a period of 3 months. Visual analog scales were used to assess anxiety, depression, and self-esteem; the goals of the group were to increase self-esteem and self-expression, decrease anxiety and depression, and increase social support. Significant decreases in depression and marginally significant decreases in anxiety were observed among the study's 7 participants. No significant effects were found for self-esteem. Most participants reported that all of interventions were helpful and rated the group therapy as a positive experience. These findings suggest that active music therapy in a group context may be effective in improving mood among women recovering from intimate partner violence.

## Visual Arts

Art helps people express experiences that are too difficult to put into words, such as a diagnosis of cancer. Some people with cancer explore the meanings of past, present, and future during art therapy, thereby integrating cancer into their life story and giving it meaning.[55] Case studies are a typical methodology focusing on the use of the arts in meaning making. For example, McMurray and Schwartz-Mirman[56] and Reynolds and Prior[57] conducted case studies in an attempt to understand why some people turn to making visual art after a cancer diagnosis and how artistic self-expression might contribute to maintenance or reconstruction of a positive identity. Table 2 summarizes the use of art therapies in the healing process.[57–63]

Guillemin, one of the first to use drawings in an effort to understand experiences of health and illness, examined how 32 middle-aged women with heart disease understood their condition.[64] After an individual interview, each participant was asked to "draw" her heart disease. The drawings were grouped into 3 themes:

**TABLE 2—Details of the Visual Arts Studies Reviewed**

| Author(s) | Year of Study | Study Design | No. of Participants | Study Population | Variable(s) Measured | Findings |
|---|---|---|---|---|---|---|
| Reynolds and Prior[57] | 2003 | Phenomenological | 30 | Chronic illness patients | Health and well-being | Art filled occupational voids, distracted thoughts of illness; improvements in flow and spontaneity, expression of grief, positive identity, social networks |
| Puig et al.[58] | 2006 | Randomized controlled trial (creative arts) | 39 | Breast cancer patients | Psychological variables | Improved well-being by decreasing negative emotions and increasing positive ones |
| Ross et al.[59] | 2006 | Pretest–posttest (arts in medicine program) | 46 | Hemodialysis patients | Medical outcomes, depression, dialysis times, weight gain, laboratory data | Improved medical outcomes, trends toward reduced depression and hemodialysis parameters |
| Walsh et al.[60] | 2004 | Pretest–posttest quasi-experimental | 40 | Cancer patients | Stress, anxiety, emotions | Reductions in stress and anxiety; increases in positive emotions |
| Nainis et al.[61] | 2006 | Pretest–posttest | 50 | Cancer patients | Pain and psychological variables | Reductions in distress and negative emotions |
| Samoray[62] | 2006 | Semistructured interviews | 11 | Trauma patients | Stress and fatigue | Reductions in stress and symptoms of compassion fatigue; increases in healing, well-being, and sense of purpose |
| Reynolds and Lim[63] | 2007 | Interviews and art | 12 | Cancer patients | Well-being | Improved focus on positive life experiences, self-worth, and social identity |

the heart at the center, the heart in the lived body, and heart disease as a social illness. Use of color, spatial organization, and composition were explored. The drawings were considered as both visual products of the women's knowledge about heart disease and processes of embodied knowledge production. It was concluded that having individuals draw how they visualized their condition was an insightful method with which to explore understandings of illness.

Art can be a refuge from the intense emotions associated with illness.[65] There are no limits to the imagination in finding creative ways of expressing grief. In particular, molding clay can be a powerful way to help people express these feelings through tactile involvement at a somatic level, as well as to facilitate verbal communication and cathartic release and reveal unconscious materials and symbols that cannot be expressed through words.[66]

Women taking part in a qualitative study focusing on cancer described ongoing cancer-related difficulties such as fear for the future, pain, sleeplessness, role loss, activity restriction, reduced self-confidence, and altered social relationships.[63] Engaging in different types of visual art (textiles, card making, collage, pottery, watercolor, acrylics) helped these women in 4 major ways. First, it helped them focus on positive life experiences, relieving their ongoing preoccupation with cancer. Second, it enhanced their self-worth and identity by providing them with opportunities to demonstrate continuity, challenge, and achievement. Third, it enabled them to maintain a social identity that resisted being defined by cancer. Finally, it allowed them to express their feelings in a symbolic manner, especially during chemotherapy.

In another study, supportive care providers responding to a survey described the healing benefits of music and art therapy in hospital settings, and these benefits seemed to be clustered around notions of exploration, expression, release, and the healing process.[67] In an additional study conducted at the Chelsea and Westminster Hospital, Staricoff compared the use and nonuse of an art intervention in different units of the hospital.[68] The groups that received the intervention were significantly more likely than were those that did not to have improved clinical outcomes, including better vital signs, diminished cortisol related to stress, and less medication needed to induce sleep.

There is also evidence that use of art and music reduces hospital stays, with studies showing earlier discharges among patients taking part in visual and performing arts interventions than among those not doing so.[69,70] In 1 study, surgery or critical care patients who participated in guided imagery or had a picture of a landscape on their wall had a decreased need of narcotic pain medication relative to their counterparts and left the hospital earlier.[71,72] Evaluations of art projects can link the benefits of creative expression to healing and greater wellness.

Two other visual arts studies have focused on the experience of women with cancer.[58,73] In a quantitative trial of mindfulness art therapy targeted toward women with cancer, Monti et al.[73] found that those who engaged in art making demonstrated statistically significant decreases in symptoms of physical and emotional distress during treatment. In addition to the introduction of self-care through guided imagery, the art-making therapy involved the women drawing complete pictures of themselves and engaging in yoga and meditation. The relaxation and symptom reduction produced by creative expression opened pathways to emotional healing.

The psychological effects of breast cancer, in particular, may include adjustment disorders, depression, and anxiety, and these symptoms in turn may generate feelings of fear, anger, guilt, and emotional repression. In their study, Puig et al.[58] explored the efficacy of a complementary creative arts therapy intervention with respect to enhancing emotional expression, spirituality, and psychological well-being among newly diagnosed breast cancer patients. This pretest–posttest study included 4 individual therapy sessions conducted over a 4-week

period, with each hour-long session comprising guided, semistructured, creative arts therapy exercises involving drawing implements. Thirty-nine women with stage 1 or stage 2 breast cancer were randomly assigned to an experimental group that took part in an individual creative arts therapy intervention or to a delayed treatment control group.

Analyses of covariance were used to analyze the results, which indicated that the creative arts therapy intervention was not effective in enhancing the expression of emotions or the participants' level of spirituality.[58] However, participation in the intervention enhanced experimental group participants' psychological well-being by decreasing their negative emotions and enhancing their positive emotions.

Medical professionals are beginning to recognize the role that creative arts play in the healing process; increasingly, arts in medicine programs are emerging throughout the United States and worldwide.[74] With the success of the University of Florida's general arts in medicine program, a similar set of activities was launched in the long-term dialysis unit with the goal of assessing their effects.[59] Long-term hemodialysis is associated with impaired quality of life and depression, which are thought to worsen compliance with treatment regimens. At baseline and 6 months, the study authors administered the Medical Outcomes Study 36-Item Short Form Health Survey (SF-36) and Beck Anxiety Inventory to 46 patients and assessed dialysis times, interdialytic weight gain, and predialysis laboratory results.[75]

They also examined relationships between these variables and participation in the arts in medicine program. The intervention, led by artists, included artwork, crocheting, crafts, seasonal displays, poetry, and playing of musical instruments. At 6 months, the participating patients, nurses, technicians, and physicians reported that the program had a positive impact on the unit. Paired comparisons with baseline data showed significant improvements in SF-36 symptom scores (e.g., weight gain, serum carbon dioxide content, phosphate levels) and a trend toward reduced levels of depression.

In addition, regression analyses showed that high levels of program participation correlated with improved SF-36 social functioning, bodily pain, and physical role functioning scores, as well as a trend toward greater albumin levels, but also higher phosphate and lower calcium levels. In conclusion, participation in an arts-in-medicine program was related to improved quality-of-life measures, and there were encouraging trends in terms of improvements in depression and certain laboratory and hemodialysis parameters.

Walsh et al. conducted a pretest–posttest quasi-experimental study to test the efficacy of a creative arts intervention with 40 family caregivers of patients with cancer.[60] Participation in the creative arts intervention was the independent variable, and stress, anxiety, and emotions were the dependent variables. The 6-month study was implemented at a regional cancer treatment center. The creative arts intervention consisted of several creative arts activities designed for bedside delivery. Participants completed the Mini-Profile of Mood States (Mini-POMS), the Beck Anxiety Inventory, and the Derogatis Affects Balance Scale (as a measure of negative and positive affect). The creative arts intervention promoted short-term well-being in this sample of family caregivers. Caregivers reported significantly reduced stress, decreased anxiety, and increased positive emotions after taking part in the intervention. They also reported increases in positive communications with cancer patients and health care providers.

In another study,[61] the specific aim was to determine the effects of a 1-hour art therapy session on pain and other symptoms common to adult cancer inpatients. The Edmonton Symptom Assessment Scale and the Spielberger State-Trait Anxiety Index were used to quantify symptoms, and the 50 patients taking part were asked open-ended questions to evaluate their perceptions of the experience. There were statistically significant reductions in 8 of the 9 symptoms measured by the Edmonton scale, including the global distress score, as well as significant improvements in most of the domains measured by the Spielberger State-Trait Anxiety Index. Patients overwhelmingly expressed comfort with the process and a desire to continue with therapy. This study provides initial evidence of the efficacy of art therapy in reducing a broad spectrum of symptoms among cancer inpatients.

## Movement-Based Creative Expression

A growing interest in dance and movement has accompanied recognition of the mind and body benefits of motor activity.[76] Movement-based creative expression focuses on nonverbal, primarily physical, forms of expression as psychotherapeutic or healing tools. Through the movement of mind and body in a creative way, stress and anxiety can be relieved, and other health benefits can be achieved as well. Table 3 highlights some of the research conducted in the area of movement-based creative expression and dance therapy to promote well-being.[77–80]

Picard expanded Newman's theory of expanding consciousness to include creative movement as a mode of expression.[80] She conducted 2 in-depth interviews and a single creative movement group experience with each of 17 midlife women. The results demonstrated expanding consciousness at midlife, with patterns of meaning identified in relationships with others, the self, and spirit as well as challenges associated with loss, illness, and threats to relationships. The consciousness activities identified were choosing, balancing, accepting, and letting go, and creative movement was shown to support self-awareness.

Sandel et al. conducted pilot research at 2 cancer centers in Connecticut to determine the effects of a dance and movement program on quality of life, shoulder function, and body image among breast cancer survivors treated within the preceding 5 years.[79] Thirty-five women completed this randomized controlled trial, which included a 12-week intervention focusing on healing through movement and dance. Results showed significant quality of life improvements in the intervention group. Shoulder range of motion increased, as did body image, at 13 weeks. By addressing posttreatment patients' physical and emotional needs, this program substantially enhanced their quality of life.

A unique study involving the use of theater investigated the benefits of a short-term intervention for adults aged 60 to 86 years (n=124) that targeted cognitive functioning and quality of life issues important for independent living.[78] The theater component consisted of demanding exercises designed to have participants experience the essence of acting (i.e., to become engrossed in the drama). In the visual arts component, participants speculated on the intention of the art or commented on an ambiguous image. Participants were grouped into 1 of 3 study conditions: theater arts (primary

**TABLE 3—Details of the Movement-Based Creative Expression Studies Reviewed**

| Author(s) | Year of Study | Study Design | No. of Participants | Study Population | Variable(s) Measured | Findings |
|---|---|---|---|---|---|---|
| Greenspan et al.[77] | 2007 | Randomized controlled trial (tai chi or wellness intervention) | 269 | Elderly adults | Health status | Improvements in physical symptoms and ambulation from tai chi |
| Noice et al.[78] | 2004 | Randomized controlled trial (theater arts, visual arts, control) | 124 | Elderly adults | Cognitive functioning psychological variables, quality of life | Improvements in cognitive and psychological measures from theater training |
| Sandel et al.[79] | 2005 | Randomized controlled trial (12-week intervention) | 35 | Breast cancer patients | Quality of life, shoulder function, body image | Improvements in quality of life, shoulder range of motion, and body image |
| Picard[80] | 2000 | In-depth interviews and creative movement | 17 | Midlife women | Self-awareness | Expanding consciousness at midlife, with patterns of meaning identified in relationships with others, the self, and spirit as well as challenges of loss, illness, and threats to relationships |

intervention), visual arts (non-content-specific comparison group), or a no-treatment control group.

After 4 weeks of instruction, those given theater training exhibited significantly greater gains than members of the no-treatment control group on both cognitive and psychological well-being measures, specifically word and listening recall, problem solving, self-esteem, and psychological well-being. A comparison of theater and visual arts training showed fewer benefits in fewer areas for visual arts.

In a different type of movement expression, tai chi, a semimeditative exercise derived from martial arts, has been gaining popularity as an intervention for reducing falls in older adults and improving health status. One study,[77] conducted among older adults who were becoming frail, attempted to determine whether intense tai chi exercise could improve perceived health status and self-rated health more than wellness education. The participants were 269 women aged 70 years or older who were recruited from 20 congregate independent senior living facilities.

In this 48-week randomized controlled trial, participants were randomly assigned to receive either tai chi or wellness education. Participants were interviewed regarding their perceived health status and self-rated health before randomization and at 1 year. Perceived health status was measured with the Sickness Impact Profile. Relative to the wellness education group, the tai chi group exhibited significant improvements in physical functioning and ambulation and borderline significant improvements in the Sickness Impact Profile body care and movement category. Self-rated health status did not change in either group. These findings suggest that older women who are becoming frail demonstrate perceived health status benefits, most notably in ambulation, after taking part in intensive tai chi exercises.

## Expressive Writing

Studies have shown that, relative to control group participants, individuals who have written about their own traumatic experiences exhibit statistically significant improvements in various measures of physical health, reductions in visits to physicians,[81] and better immune system functioning.[82] Writing increases health and wellness in varied ways, as shown in the expressive writing studies outlined in Table 4.[83–87]

Pennebaker[88–90] is the leading researcher on the power of writing and journaling for healing purposes.[27] According to Pennebaker, although the expressive writing paradigm has generally produced positive results, no single theory or theoretical perspective adequately explains how or why.[88] This situation can be attributed to the fact that "expressive writing occurs on multiple levels—cognitive, emotional, social and biological—making a single explanatory theory unlikely."[88(p138)] However, there is little doubt that writing has positive consequences, and self-report studies suggest that writing about upsetting experiences produces long-term improvements in mood and health.[89]

In one exercise, Pennebaker[89] had students write about their deepest thoughts and feelings on an important emotional issue, with the only rule being that "once you begin writing, continue to do so until your [15- to 30-minute] time is up."[89(p162)] Dozens of replications of these types of studies have demonstrated that emotional writing can influence frequency of physician visits, immune function, stress hormones, blood pressure, and a number of social, academic, and cognitive variables. These effects have been shown to hold across cultures, age groups, and diverse samples.[91,92]

Expressive writing can improve control over pain, depressed mood, and pain severity, as can be seen in Table 4. For example, in a pair of randomized controlled trials,[83,84] patients were assigned to write about either emotional or nonemotional topics. In their 9-week study, Graham et al.[84] divided 102 chronic pain center outpatients into an anger-expression group (n=51) and a control group (n=51). Results showed greater improvements in control over pain and depressed mood, and marginally greater improvements in pain severity, in the anger-expression group than in the control group. These findings suggest that expressing anger may be helpful for individuals suffering from chronic pain, particularly if it leads to meaning making.

In their study, Petrie et al.[83] had 37 HIV-infected patients write 30 minutes per day for 4 days. CD4+ lymphocyte counts and HIV viral loads were measured at baseline and at 2 weeks, 3 months, and 6 months after the writing

**TABLE 4—Details of the Expressive Writing Studies Reviewed**

| Authors | Study Year | Study Design | No. of Participants | Study Population | Variables Measured | Findings |
|---|---|---|---|---|---|---|
| Petrie et al.[83] | 2004 | Randomized controlled trial (emotional or control topics) | 37 | HIV patients | CD4+ lymphocyte count and viral load | Postintervention improvements CD4+ lymphocyte counts |
| Graham et al.[84] | 2008 | Randomized controlled trial (anger expression or writing about goals nonemotionally) | 102 | Chronic illness patients | Letter writing on 2 occasions, coded for degree of expressed anger and meaning making | Improvements in anger expression group in control over pain, depressed mood, and pain severity |
| Junghaenel et al.[85] | 2008 | Randomized controlled trial (emotional disclosure, neutral, or usual care) | 92 | Fibromyalgia patients | Pain, well-being, fatigue | Improvements in interpersonally distressed group in psychological well-being, pain, and fatigue. |
| Gillis et al.[86] | 2006 | Randomized controlled trial (4 days of writing at home and control) | 72 | Fibromyalgia patients | At-home written emotional disclosure; mood effects and changes in health from baseline to 1 month and 3 months | Immediate improvements in written disclosure group in negative mood; at 1 month, disclosure led to few health benefits; at 3 months, negative mood and social support effects disappeared, and written disclosure decreased poor sleep, health care use, and physical disability |
| Broderick et al.[87] | 2005 | Randomized controlled trial (trauma writing, control writing, usual care) | 92 | Fibromyalgia patients | Quality of life, anxiety, depression, pain, fibromyalgia | Trauma writing decreased pain, fatigue, and psychological well-being at 4 months; benefits were not maintained at 10 months |

exercise. Participants who engaged in emotional writing rated their essays as more personal, valuable, and emotional than did control group participants. HIV viral loads dropped immediately after the intervention in the experimental group and increased slightly in the control group. The CD4+ lymphocyte counts of the emotional writing group gradually and continuously increased during the 6-month follow-up, whereas the CD4+ lymphocyte counts of the control writing group increased slightly from baseline levels and then remained stable. On the basis of the participants' reports of the value of writing and the study's preliminary laboratory findings, the results suggest that emotional writing may be beneficial for patients with HIV. There is evidence, however, that the benefits of writing may not be maintained over time.[86,87]

Another form of expressive writing, poetry, has long played a role in the art of healing.[93] Several authors[94–96] have described the use of poetry to help people find their voice and gain access to the wisdom they already have but cannot experience because they cannot find the words in ordinary language. According to Carroll:

> Our voices are saturated with who we are, embodied in the rhythms, tonal variations, associations, images and other somato-sensory metaphors in addition to the content meaning of the words. Our voices are embodiments of ourselves, whether written or spoken. It is in times of extremity that we long to find words or hear another human voice letting us know we are not alone.[94(p164)]

Finding one's voice via poetic means can be a healing process because it opens up the opportunity for self-expression not otherwise felt through everyday words. One British hospital introduced poetry into the culture of the hospital so that patients could experience other forms of literary work[97] and perhaps experience healing through the short snippets of expressive words and emotions to which they could relate.

Expressive writing through journaling is another way to access the unconscious self. Journal writing has been linked to creativity, spiritual awareness, and expansion of the self.[98,99] In 2 qualitative studies,[100,101] journal writing helped participants identify and work though feelings, improve relationships, and learn new things about themselves.

In an in-depth qualitative study conducted at Boston University, Grossman et al.[101] explored how 16 resilient male survivors of serious childhood sexual abuse, representing a range of racial, ethnic, and socioeconomic backgrounds, made meaning from their abuse experiences. Three main types of meaning-making styles were identified in the narratives: meaning making through action, use of cognitive strategies, and spirituality. Meaning making through action included helping others and using creative expression to describe and process the abuse. Although not all of the men used creativity to find healing, 1 of the participants reflected on how he used writing, which was crucial to his survival. He reported that he would write both fiction and nonfiction to "go inside" and "be characters. Create characters. Fantasize. That was the safe space."[101(p438)]

In a particularly unique study combining several visual, music, movement, and expressive writing modalities, Garland et al.[102] examined the positive outcomes of a pair of psychosocial interventions aimed at cancer patients, mindfulness and healing arts, with respect to posttraumatic growth, spiritual well-being, stress, and mood.[102] Garland et al. focused on 2 groups of cancer patients: those involved in mindfulness-based stress reduction (15 hours of class discussion, meditation, and yoga sessions) and those involved with movement to music, journaling, creative writing, and

drawing (12 hours of self-exploration and healing activities) hours. Participants in both groups improved significantly over time in terms of overall posttraumatic growth, but participants in the mindfulness therapy group, in particular, showed improvement on measures of anxiety, anger, overall stress symptoms, mood disturbance, and spirituality. Benefit finding was the best predictor of long-term adjustment to chronic illness.

## DISCUSSION

In all 4 areas of creative artistic expression reviewed here, there are clear indications that artistic engagement has significantly positive effects on health. There are, however, limitations to many of the studies included in our review, and sweeping generalizations as to what they may mean in aggregate cannot be made. We also recognize that our sample of studies is not exhaustive, and other research has been added to the literature since our review was conducted.

In addition, as a result of the wide range of studies examining the relationship between multiple varieties of art-related interventions and a similarly large group of physiological and behavioral outcomes, comparisons both between intervention types and within certain disease states or conditions are challenging. Moreover, many of the studies were observational in nature and at best were limited to a preintervention and postintervention comparison within the treated groups, with limited or no control groups available for comparison. Also, many of the interventions were both small in size and launched in groups that were "convenience samples" of available participants, introducing a number of potential confounding factors such as responder bias as well as limiting the generalizability of the findings to other populations.

More randomized controlled trials involving consistency in terms of the measurements used would increase the likelihood that patterns of health improvement associated with art can be demonstrated. In the studies reviewed here alone, stress and psychological outcomes were assessed with the Spielberger State-Trait Anxiety Index, the UWIST Mood Adjective Checklist, the Mini-POMS, and the Beck Depression Inventory, among other instruments. Also, many of these studies were short term, and thus longitudinal follow-ups are needed to secure additional data.[58]

With respect to research methodology, the qualitative data focused on the meaning-making process of the arts and healing, and examples were provided of how art-based programs can contribute to wellness. Qualitative studies that report individual and unique results through rich descriptions and data could complement the use of quantitative methods. Both are needed to understand creative engagement and health effects among generalized populations with unique individual differences.

Several issues should be considered in future studies seeking to add to the insights available from the investigations reviewed here. For example, researchers should make better attempts to establish meaningful control groups, should attempt to quantify interventions and outcome variables at higher levels of standardization and precision to allow for more cross-study comparison, should expand study populations to allow exploration of the effects of interventions in groups with diverse cultural and socioeconomic backgrounds, and should plan for longer term follow-ups to assess the sustainability of outcomes over time.

Finally, the majority of the research was conducted within hospital rather than community settings. Given our nation's ideal of individuality, the social support that can be derived from one's community is an important but much ignored area of research. Community leaders can partner with researchers to create a health care agenda that can have an impact on not only those who are ill in hospitals but those in the community who want to experience greater wellness. Traditionally, scientists involved with statistics have not partnered with those in the arts community, but in future studies, teams with solid research methodology experts (i.e., biostatisticians), clinical experts, and those with artistic expertise in the community should be created to form an effective triad of experts.

Despite methodological and other limitations, the studies included in our review appear to indicate that creative engagement can decrease anxiety, stress, and mood disturbances. It is not unreasonable to assume that future studies involving better methodology and more consistent assessment of outcomes will demonstrate the ability of creative engagement to improve psychological and physical well-being and quality of life. As can be seen from our analysis, it is likely that creative engagement contributes to many aspects of physiological and psychological conditions typically associated with improved health status.

Use of the arts in healing does not contradict the medical view in bringing emotional, somatic, artistic, and spiritual dimensions to learning. Rather, it complements the biomedical view by focusing on not only sickness and symptoms themselves but the holistic nature of the person.[103] When people are invited to work with creative and artistic processes that affect more than their identity with illness, they are more able to "create congruence between their affective states and their conceptual sense making."[104(p53)] Through creativity and imagination, we find our identity and our reservoir of healing. The more we understand the relationship between creative expression and healing, the more we will discover the healing power of the arts. ■


### About the Authors

*Heather L. Stuckey is with the Department of Medicine, Pennsylvania State University College of Medicine, Hershey. Jeremy Nobel is with the Department of Health Policy and Management, Harvard School of Public Health, Boston, MA.*

*Correspondence should be sent to Heather L. Stuckey, DEd, Department of Medicine, Pennsylvania State University College of Medicine, C6860 (H034), 500 University Dr, Hershey, PA 17033 (e-mail: hls119@psu.edu). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints/Eprints" link.*



*This article was accepted May 27, 2009.*


### Contributors

H.L. Stuckey conducted the literature search and led the writing of the article. J. Nobel supervised the study and provided input into the introduction and conclusion.


### Acknowledgments

We recognize the Foundation for Art and Healing for its financial support and strong commitment to improving research on the use of creative expression and wellness for the benefit of individuals and communities.


### Human Participant Protection

No protocol approval was needed for this study.

### References


1. *Traditional Medicine: Proposed Programme Budget for the Financial Period 1981*. Geneva, Switzerland: World Health Organization; 1978.

2. Staricoff R, Loppert S. Integrating the arts into health care: Can we affect clinical outcomes? In: Kirklin D, Richardson R eds. *The Healing Environment Without and Within*. London, England: Royal College of Physicians; 2003:63–80.

3. *Heart Disease and Stroke Statistics: 2008 Update*. Dallas, TX: American Heart Association; 2008.

4. *National Diabetes Fact Sheet: General Information and National Estimates on Diabetes in the United States, 2005*. Atlanta, GA: Centers for Disease Control and Prevention; 2005.

5. Zhang X, Norris SL, Gregg EW, Cheng YJ, Beckles G, Kahn HS. Depressive symptoms and mortality among persons with and without diabetes. *Am J Epidemiol*. 2005;161(7):652–660.

6. Lewis TT, Everson SA, Powell LH, et al. Chronic exposure to everyday discrimination and coronary artery calcification in African-American women: the SWAN heart study. *Psychosom Med*. 2006;68(3):362–368.

7. McEwen BS, Stellar E. Stress and the individual: mechanisms leading to disease. *Arch Intern Med*. 1993; 153(18):2093–2101.

8. Camic PM. Playing in the mud: health psychology, the arts and creative approaches to health care. *J Health Psychol*. 2008;13(2):287–298.

9. National Coalition of Creative Arts Therapies Associations. Fact sheet on creative arts therapies. Available at: http://www.nccata.org/fact_sheet.htm. Accessed November 7, 2009.

10. Frankl V. *Man's Search for Meaning: An Introduction to Logotherapy*. New York, NY: Washington Square Press; 1966.

11. Lacroix L, Rousseau C, Gauthier MF, et al. Immigrant and refugee preschoolers' sandplay representation of the tsunami. *Arts Psychother*. 2007;34(2):99–113.

12. Dayanim S, Goodill S, Lewis C. The moving story effort assessment as a means for the movement assessment of preadolescent children. *Am J Dance Ther*. 2006; 28(2):87–106.

13. Frisch MJ, Franko DL, Herzog DB. Arts-based therapies in the treatment of eating disorders. *Eat Disord*. 2006;14(2):131–142.

14. Haen C. Rebuilding security: group therapy with children affected by September 11. *In J Group Psychother*. 2005;55(3):391–414.

15. Lefevre M. Playing with sound: the therapeutic use of music in direct work with children. *Child Fam Soc Work*. 2004;9(4):333–345.

16. Rousseau C, Lacroix L, Bagilishya D, Heusch N. Working with myths: creative expression workshops for immigrant and refugee children in a school setting. *Art Ther*. 1993;20(1):3–10.

17. Goodwin DL, Krohn J, Kuhnle A. Beyond the wheelchair: the experience of dance. *Adapted Phys Activity Q*. 2004;21(3):229–247.

18. Wiener LS, Battles HB. Mandalas as a therapeutic technique for HIV-infected children and adolescents: what do they reveal? *J HIV AIDS Soc Serv*. 2002;1(3): 27–39.

19. Scott JT, Harmsen M, Prictor MJ, Sowden AJ, Watt I. Interventions for improving communication with children and adolescents about their cancer. *Cochrane Database Syst Rev*. 2003;3:CD002969.

20. Novy C. Drama therapy with pre-adolescents: a narrative perspective. *Arts Psychother*. 2003;30(4): 201–207.

21. Rollins JA. Tell me about it: drawing as a communication tool for children with cancer. *J Pediatr Oncol Nurs*. 2005;22(4):203–221.

22. Lassetter JM. The effectiveness of complementary therapies on the pain experience of hospitalized children. *J Holist Nurs*. 2006;24(3):196–207.

23. Moss DL. *Art Therapy for Young Children: A Review of the Research and Literature*. ERIC Document Reproduction Service No. ED367437.

24. Ruddy RA, Dent-Brown K. Drama therapy for schizophrenia or schizophrenia-like illnesses. *Cochrane Database Syst Rev*. 2007;1:CD005378.

25. Ruddy RA, Milnes D. Art therapy for schizophrenia or schizophrenia-like illnesses. *Cochrane Database Syst Rev*. 2005;4:CD003728.

26. Guzzetta CE. Effects of relaxation and music therapy on patients in a coronary care unit with presumptive acute myocardial infarction. *Heart Lung*. 1989;18(6):609–616.

27. Graham-Pole J. *Illness and the Art of Creative Self-Expression*. Oakland, CA: New Harbinger Publications; 2000.

28. Junge MB. *A History of Art Therapy in the United States*. Mundelein, IL: American Art Therapy Association; 1994.

29. Devlin B. The art of healing and knowing in cancer and palliative care. *Int J Palliative Med*. 2006;12(1): 16–19.

30. Reynolds MW, Nabors L, Quinlan A. The effectiveness of arts therapy: does it work? *Art Ther*. 2000;17: 207–213.

31. Staricoff RL. Arts in health: a review of the medical literature. Available at: www.thesah.org/doc/music%20and%20science.pdf. Accessed November 7, 2009.

32. Aldridge D. Music therapy research 1: a review of the medical research literature within a general context of music therapy research. *Arts Psychother*. 1993;20(1): 11–35.

33. Smyth J, Pennebaker J. Exploring the boundary conditions of expressive writing: in search of the right recipe. *Br J Health Psychol*. 2008;13(1):1–7.

34. Rockwood-Lane M. Creativity and spirituality in nursing: implementing art and healing. *Holist Nurs Pract*. 2005;19(3):122–125.

35. Mettner J. Creative medicine: hospitals in the Twin Cities are turning to the arts to help heal the body and spirit. *Minn Med*. 2005;88(7):5–6.

36. Rohner SJ, Miller R. Degrees of familiar and affective music and their effects on state anxiety. *J Music Ther*. 1980;17:2–15.

37. Petterson M. Music for healing: the creative arts program at the Ireland Cancer Center. *Altern Ther Health Med*. 2001;7(1):88–89.

38. Gross J, Swartz R. The effects of music therapy on anxiety in chronically ill patients. *Music Ther*. 1982;2: 43–52.

39. Melzack R, Weisz LZ, Sprague AT. Stratagems for controlling pain: contributions of auditory stimulation and suggestion. *Exp Neurol*. 1963;8(3):237–247.

40. Krout RE. Music listening to facilitate relaxation and promote wellness: integrated aspects of our neurophysiological responses to music. *Arts Psychother*. 2006;34(2): 134–141.

41. White JM. Effects of relaxing music on cardiac autonomic balance and anxiety after acute myocardial infarction. *Am J Crit Care*. 1999;8(4):220–230.

42. Burns SJ, Harbuz MS, Hucklebridge F, Bunt L. A pilot study into the therapeutic effects of music therapy at a cancer help center. *Altern Ther Health Med*. 2001;7(1): 48–57.

43. Gregory D. Four decades of music therapy behavioral research designs: a content analysis of Journal of Music Therapy articles. *J Music Ther*. 2002;39(1): 56–71.

44. Beck SL. The therapeutic use of music for cancer-related pain. *Oncol Nurs Forum*. 1991;18(8):1327–1337.

45. Hirsch S, Meckes D. Treatment of the whole person: incorporating emergent perspectives in collaborative medicine, empowerment, and music therapy. *J Psychosoc Oncol*. 2000;18(2):65–77.

46. Allen K, Golden LH, Izzo JL, et al. Normalization of hypertensive responses during ambulatory surgical stress by perioperative music. *Psychosom Med*. 2001;63(3): 487–492.

47. Browning CA. Using music during childbirth. *Birth*. 2000;27(4):272–276.

48. Haun M, Mainous R, Looney S. Effect of music on anxiety of women awaiting breast biopsy. *Behav Med*. 2001;27(3):127–132.

49. Schneider N, Schedlowski M, Schurmeyer TH, Becker H. Stress reduction through music in patients undergoing cerebral angiography. *Neuroradiology*. 2001;43(6):472–476.

50. Weber S, Nuessler V, Wilmanns W. A pilot study on the influence of receptive music listening on cancer patients receiving chemotherapy. *Int J Crit Care*. 1997; 8(4):220–230.

51. Bolwerk C. Effects of relaxing music on state anxiety in myocardial infarction patients. *Crit Care Nurs Q*. 1990; 13(20):63–72.

52. Davis-Rollans C, Cunningham S. Physiologic responses of coronary care patients to selected music. *Heart Lung*. 1987;16(4):370–378.

53. Updike P. Music therapy results for ICU patients. *Dimens Crit Care Nurs*. 1990;9(1):39–45.

54. Teague AK, Hahna ND, McKinney CH. Group music therapy with women who have experienced intimate partner violence. *Music Ther Perspect*. 2006;24(2): 80–87.

55. Borgmann E. Art therapy with three women diagnosed with cancer. *Arts Psychother*. 2002;29(5): 245–251.

56. McMurray M, Schwartz-Mirman O. Integration and working through in art therapy. *Arts Psychother*. 2001; 28(5):311–318.

57. Reynolds F, Prior S. A lifestyle coat-hanger: a phenomenological study of the meanings of artwork for women coping with chronic illness and disability. *Disabil Rehabil*. 2003;25(14):785–794.

58. Puig A, Lee SM, Goodwin L, Sherrard PAD. The efficacy of creative arts therapies to enhance emotional expression, spirituality, and psychological well-being of

newly diagnosed stage I and stage II breast cancer patients: a preliminary study. *Arts Psychother.* 2006; 33(3):218–228.

59. Ross EA, Hollen TL, Fitzgerald BM. Observational study of an arts-in-medicine program in an outpatient hemodialysis unit. *Am J Kidney Dis.* 2006;47(3):462–468.

60. Walsh SM, Martin SC, Schmidt LA. Testing the efficacy of a creative-arts intervention with family caregivers of patients with cancer. *J Nurs Scholarsh.* 2004; 36(3):214–219.

61. Nainis N, Paice JA, Ratner J, Wirth JH, Lai J, Shott S. Relieving symptoms in cancer: innovative use of art therapy. *J Pain Symptom Manage.* 2006;31(2):162–169.

62. Samoray J. The healing effects of creative expression experienced by people who identify themselves as having compassion fatigue: a phenomenological study. *Diss Abst Int.* 2006;66(9B):5103.

63. Reynolds MW, Lim KH. Contribution of visual art-making to the subjective well-being of women living with cancer: a qualitative study. *Arts Psychother.* 2007;34(1): 1–10.

64. Guillemin M. Embodying heart disease through drawings. *Health (London).* 2004;8(2):223–239.

65. Collie K, Bottorff J, Long BC. A narrative view of art therapy and art making by women with breast cancer. *J Health Psychol.* 2006;11(5):761–775.

66. Sholt M, Tavron G. Therapeutic qualities of clay-work in art therapy and psychotherapy: a review. *Art Ther.* 2006;23(2):66–72.

67. Daykin N, Hunt L, McClean S. Music and healing in cancer care: a survey of supportive care providers. *Arts Psychother.* 2006;33(5):402–413.

68. Staricoff RL. Arts in health: the value of evaluation. *J R Soc Promot Health.* 2006;126(3):116–120.

69. Kreitzer M, Snyder M. Healing the heart: integrating complementary therapies and healing practices into the care of cardiovascular patients. *Prog Cardiovasc Nurs.* 2002;17(2):73–80.

70. Ulrich R, Lunden O, Eltinge J. Effects of exposure to nature and abstract pictures on patients recovering from open heart surgery. *J Soc Psychophysiol Res.* 1993;30:7.

71. Rockwood-Lane M, Graham-Pole J. Development of an art program on a bone marrow transplant unit. *Cancer Nurs.* 1994;17(3):185–192.

72. Tusek DO, Cwynar R, Cosgrove DM. Effect of guided imagery on length of stay, pain and anxiety in cardiac surgery patients. *J Cardiovasc Manag.* 1999; 10(2):22–28.

73. Monti DA, Peterson C, Shakin Kunkel E, et al. A randomized, controlled trial of mindfulness-based art therapy (MBAT) for women with cancer. *Psychooncology.* 2006;15(5):363–373.

74. Ganim B. *Art and Healing: Using Expressive Art to Heal Your Body, Mind and Spirit.* New York, NY: Three Rivers Press; 1999.

75. Beck AT, Steer RA. *Beck Anxiety Inventory.* San Antonio, TX: Harcourt Brace; 1993.

76. Levy F. *Dance Movement Therapy: A Healing Art.* ERIC Document Reproduction Service No. ED352336.

77. Greenspan AI, Wolf SO, Kelley ME, O'Grady M. Tai chi and perceived health status in older adults who are transitionally frail: a randomized controlled trial. *Phys Ther.* 2007;87(5):525–535.

78. Noice H, Noice T, Staines G. A short-term intervention to enhance cognitive and affective functioning in older adults. *J Aging Health.* 2004;16(4):562–585.

79. Sandel SL, Judge JO, Landry N, Faria L, Ouellette R, Majczak M. Dance and movement program improves quality-of-life measures in breast cancer survivors. *Cancer Nurs.* 2005;28(4):301–309.

80. Picard C. Pattern of expanding consciousness in midlife women: creative movement and the narrative as modes of expression. *Nurs Sci Q.* 2000;13(2):150–157.

81. Esterling BA, L'Abate L, Murray EJ, Pennebaker JW. Empirical foundations for writing in prevention and psychotherapy: mental and physical health outcomes. *Clin Psychol Rev.* 1999;19:79–96.

82. McArdle S, Byrt R. Fiction, poetry and mental health: expressive and therapeutic uses of literature. *J Psychiatr Ment Health Nurs.* 2001;8(6):517–524.

83. Petrie KJ, Fontanilla I, Thomas MG, Booth RJ, Pennebaker JW. Effect of written emotional expression on immune function in patients with human immunodeficiency virus infection: a randomized trial. *Psychosom Med.* 2004;66(2):272–275.

84. Graham JE, Lobel M, Glass P, Lokshina I. Effects of written anger expression in chronic pain patients: making meaning from pain. *J Behav Med.* 2008;31(3):201–212.

85. Junghaenel DU, Schwartz JE, Broderick JE. Differential efficacy of written emotional disclosure for subgroups of fibromyalgia patients. *Br J Health Psychol.* 2008;13(1):57–60.

86. Gillis ME, Lumley MA, Mosley-Williams A, Leisen JC, Roehrs T. The health effects of at-home written emotional disclosure in fibromyalgia: a randomized trial. *Ann Behav Med.* 2006;32(2):135–146.

87. Broderick JE, Junghaenel DU, Schwartz JE. Written emotional expression produces health benefits in fibromyalgia patients. *Psychosom Med.* 2005;67(2):326–334.

88. Pennebaker JW. Theories, therapies, and taxpayers: on the complexities of the expressive writing paradigm. *Clin Psychol Sci Pract.* 2004;11(2):138–142.

89. Pennebaker JW. Writing about emotional experiences as a therapeutic process. *Psychol Sci.* 1997;8(3): 162–166.

90. Pennebaker JW. Confession, inhibition, and disease. In: Berkowitz L ed. *Advances in Experimental Social Psychology.* Vol. 22. New York, NY: Academic Press; 1989:211–244.

91. Pennebaker JW, Graybeal A. Patterns of natural language use: disclosure, personality and social integration. *Curr Dir Psychol Sci.* 2001;10(3):90–93.

92. Campbell RS, Pennebaker JW. The secret life of pronouns: flexibility in writing style and physical health. *Psychol Sci.* 2003;14(1):60–65.

93. Coulehan J, Clary P. Healing the healer: poetry in palliative care. *J Palliat Med.* 2005;8(2):382–389.

94. Carroll R. Finding the words to say it: the healing power of poetry. *Evid Based Complement Alternat Med.* 2005;2(2):161–172.

95. Collins K, Furman R, Langer C. Poetry therapy as a tool of cognitively based practice. *Arts Psychother.* 2006;33(3):180–187.

96. Jeffs S, Pepper S. Healing words: a meditation on poetry and recovery from mental illness. *Arts Psychother.* 2005;32(2):87–94.

97. Macduff C, West B. Arts in health care: developing the use of poetry within healthcare culture. *Br J Nurs.* 2002;11(5):335–341.

98. Cameron J. *The Artist's Way: A Spiritual Path to Higher Creativity.* Los Angeles, CA: Tarcher; 1992.

99. Rainer T. *Your Life as a Story.* New York, NY: Tarcher; 1997.

100. Brady E, Sky H. Journal writing among older learners. *Educ Gerontol.* 2003;29(2):151–163.

101. Grossman FK, Sorsoli L, Kia-Keating M. A gale force wind: meaning making by male survivors of childhood sexual abuse. *Am J Orthopsychiatry.* 2006;76(4):434–443.

102. Garland SN, Carlson LE, Cook S, Lansdell L, Speca M. A non-randomized comparison of mindfulness-based stress reduction and healing arts programs for facilitating post-traumatic growth and spirituality in cancer outpatients. *Support Care Cancer.* 2007;15(8):949–961.

103. Furnham A, Forey J. The attitudes, behaviors and beliefs of patients of conventional vs. complementary (alternative) medicine. *J Clin Psychol.* 1994;50(3):458–469.

104. Yorks L, Kasl E. I know more than I can say: a taxonomy for using expressive ways of knowing to foster transformative learning. *J Transformative Educ.* 2006;4(1):43–64.