

# The Effectiveness of Expressive Group Art Therapy on Decreasing Anxiety of Orphaned Children

Shiva Zarezadeh Kheibari<sup>1</sup>, Ali Mohebi Anabat<sup>1</sup>, Seyedeh Fatemeh Hosseini Largany<sup>\*2</sup>, Shima Shakiba<sup>3</sup>, Mohammad Ebrahim Hokm Abadi<sup>1</sup>

1. MA, Department of Clinical Psychology, Semnan University, Semnan, Iran

2. PhD, Department of Clinical Psychology, Semnan University, Semnan, Iran.

3. Assistant Professor, University of Social Welfare and Rehabilitation Science, Tehran, Iran

## Article info:

Received: 12 Nov 2013

Accepted: 21 Mar 2014

## Key Words:

Expressive Art Group Therapy, Anxiety, Orphaned Children.

## ABSTRACT

**Objective:** The purpose of this study was to examine the effectiveness of expressive arts therapy on decreasing anxiety of orphaned girls living in family-like centers of Mashhad, Iran.

**Method:** One week prior to final examinations, participants were randomly assigned to either an expressive art-making group or a control group. The State-trait anxiety inventory was administered before and after participation. Expressive art making activities included painting or coloring pre-designed Mandalas, free-form painting, collage making, still life drawing, and modeling with clay.

**Results:** The mean state anxiety score between pre-activity and post-activity decreased significantly in the expressive art-making group, whereas no difference was found in the control group. Similarly, the mean trait anxiety score between pre- and post-activity in the art-making group was significantly lower, and no difference was observed in the controls.

**Conclusion:** These findings suggest that a brief period of expressive art making can significantly reduce a person's state of anxiety, which may have implications for art and art therapy programs that offer methods for helping orphaned children coping with stress.

## 1. Introduction

Expressive arts therapy (EXA) is an arts-based approach to addressing clinical issues with various populations. EXA (Knill, Barba, & Fuchs, 1995; McKniff, 1981; Rogers, 1993) incorporates elements from the individual creative art modalities of visual art-making, music, dance/movement, poetry and drama in therapeutic work with individuals, families, groups and communities. This multimodal approach to formulate the clinical interventions sets expressive arts therapy apart from the other creative arts therapies. Some additional tenets of EXA include the following: an emphasis on process not product, intermodal exchange, and the use of artistic and aesthetic responses in the giving and receiving feedback from participants (Malchiodi, 2003). Expressive arts

therapists are employed in various clinical settings and can to work under a variety of theoretical models of traditional psychotherapy. This study describes the development and implementation of a ten-session expressive arts process group provided at a family-like community center. Children referred to this group presented a variety of issues, ranging from adjustment issues with peers, disruptive behavior disorders, and mood issues including anxiety.

Anxiety disorders are the most common mental disorders in the United States, with 18.1% of adults suffering from one of the six anxiety disorders identified in the diagnostic and statistical manual of mental disorders (as cited in Kessler et al., 2005).

Research on the dangers of institutional care for young children dates back to the 1940s. As long as they have

### \* Corresponding Author:

Seyedeh Fatemeh Hosseini Largany, PhD

Address: Department of Clinical Psychology, Semnan University, Semnan, Iran.

Tel/Fax: +9821-88790082

E-mail: Hosseini\_largani@yahoo.com

existed, orphanages have always had alarmingly high death rates. From the early 20th century onwards, this was blamed on contagious disease—and so, attempts were made to keep orphanages sterile, to isolate children from each other by doing things like hanging sterilized sheets between their cribs (Crampin et al, 2003). These children have lots of physical and psychosocial problems such as economic problems, child labor, difficulty in accessing education and difficulty in accessing health. Usually, the problems expounded above persist after the parents' death. Added to the emotional and material vulnerability, already the destruction of the family and psychosocial distress is described that afflicts any type of orphan.

In this regard, studies and surveys on child labor have proven indispensable to assess and measure this phenomenon among orphaned children more carefully. According to Luice Cluver and Frances Gardner (2007):

- Children had more emotional difficulties compared with national samples.
- Older youth and girls of all ages reported significantly more school and peer-related difficulties due to parental distance and disappointment.

This study examined the effects of expressive art making on stress levels in orphaned children aged 9 to 13 and claimed that the process of expressive art making would effectively reduce anxiety and stress, as measured by the State-trait anxiety inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983).

Although it seems that expressive art making is stress relieving, few children have addressed this claim. Throughout history, musical and visual arts have played positive roles in healing the human body, mind, and spirit. In traditional treatment settings, arts interventions offer opportunities for emotional expression and social interaction and have been shown to improve motivation, to increase personal empowerment, and to relieve negative symptoms associated with mental illness. According to this, Lipe et al., (2012) examine the effectiveness of an arts program for individuals with chronic mental illness served by a community "Clubhouse". Result suggested improvements of the ability to manage Self-care and of overall quality of life. De Lue (1999), who monitored heart rate in school-aged children during a 15-minute period of expressive art making, found that drawing within a circle produced a physiologically measurable relaxation response.

Walsh, Chang, Schmidt, and Yoepf (2005) reported that college children who participated in art-making activities experienced low stress and anxiety than those who did not engage in expressive art making. The authors suggested that "creative arts corners" could be established in lobbies or other areas, and argued that for children with test anxiety, such centers might be particularly helpful prior to test taking.

Pesso-Aviv, Regev and Guttmanon (2014) have focused on the importance of art materials used in art therapy and examined whether different materials have different effects on participants (children aged 7-9). The materials investigated ranged from regressive to control – gouache paints, oil chalks, and pencils – and examined their effect on four psychological variables: aggression, Self-esteem, anxiety, and Self-control. The research findings revealed a significant difference in the level of aggression between pre- and post-intervention scores among all participants. This study partially validates the hypothesis that different materials have different effects in art therapy; thereby, demonstrating the importance of the specific and educated choice of materials in the therapeutic framework.

Curry and Kasser (2005) examined the effects of a 20-minute period of expressive art making on stress-induced undergraduate children. They found that coloring in previously prepared mandalas (i.e., circular geometric designs) and plaid designs following a stress-inducing event significantly reduced the participants' "state" anxiety level, whereas free-form coloring (i.e., on a blank sheet of paper) did not.

Morais et al, (2014) have done a study in Brazil to evaluate the effect of clay work on depression and anxiety in patients in a day in hospital compared with patients who did not undergo therapy. The survey was included 24 patients, 12 in control group, and 12 who completed eight sessions of clay work. Validated questionnaires for depression (Beck Depression Inventory) and anxiety (Spielberger State-Trait Anxiety Inventory) were administered to patients in both groups. Results showed that the clay work group tended to be less anxious than the control group, but this difference was not significant. This suggests that therapy with clay improves depression compared to no therapy.

Curry and Kasser's (2005) findings suggest that the level of anxiety reduction afforded by expressive art making may be related to the degree of free expression and creativity inherent in the medium used. It is possible that simply coloring a prepared mandala design

requires little creative thought, and thus encourages a “trance-like” state of relaxation; whereas the perceived expenditure of creativity required making an original artwork may be more stress inducing to the artist. Presumably, arts and crafts centers in universities give college children a variety of art-making opportunities from free-form expression to copy work. Therefore, it would be informative to study the potential anxiety-reducing effect of any art medium.

We hypothesized that, participants who engaged in an expressive art-making activity of their choice for 30 minutes would experience a significant reduction of anxiety compared to a control group.

## 2. Method

### Participants

Twenty-six female children with age of 10 to 13 years were voluntarily attended a ten-session expressive arts group series. All children lived in family-like community centers in Mashhad, Iran, and the mean age was 11.1 years. Children who reported any anxiety disorder or other documented mental illness were excluded from this study, as children currently using a prescribed or over-the-counter medication known to influence the central nervous system, such as drugs for treatment of depression or attention deficit disorders. All participants were required by their professors to write a brief summary of their participation in the study as part of their course requirements.

### Procedure

Prior to participation in the study, children attended a brief informational meeting to review the exclusion criteria and to sign consent form. The setting of expressive art group therapy sessions was purposefully chosen to mimic an environment that children would find comfortable and included a general atmosphere of random noise. The purpose of this study was to create an environment that simulated an art center where children could utilize art materials to relieve stress. When participants arrived at one of the family-like community centers (Fereshtegan), the investigators randomly assigned them to one of the two groups. Participants first completed the STAI, after which the experimental subjects begun the expressive art-making activity in their assigned room while the control subjects sat in comfortable chairs in the other room. Participants in both groups were allowed to socially interact but were not permitted to use electronic devices.

The investigators instructed the participants in the experimental group to choose one of five art-making activities, read the simple instructions that guide them in the expressive art-making activity, and begin their expressive art making. In addition, a very simple example was provided to aid the subjects in their expressive art making.

The art-making activities and their instructions were as followed:

- **Mandala Design:** Choose a pre-designed mandala and use colored pencils, tempera paints, watercolors, crayons, or markers to complete the design.
- **Painting Free Form:** Choose one sheet of white paper and use that paper to create an image from your imagination using tempera or watercolor paints. Upon completion of the initial painting, you can add detailed design work with fine-tip permanent markers, crayons, colored pencils, and/or pastels.
- **Collage Making:** Take a white piece of paper and choose pre-cut images and text to design a collage. Use the scissors provided to further cut images before gluing them to the paper surface, or to cut additional images from the provided magazines.
- **Clay:** Choose a lump of clay and work it with your hands until it becomes warm and pliable. Then, mold the clay into a pleasing form. A pinch pot with etched designs, coil pot, and small animal figurine are examples of clay forms.
- **Drawing:** Take a large piece of white paper and choose from the variety of still life objects. Arrange the objects you choose into a pleasing assembly and begin drafting the still life in pencil. When done with your drawing, you can use diluted sepia ink to paint in tonal values to help give the subject form and dimension.

At the end of the 30-minute period, all participants again completed the STAI, followed by a debriefing session.

### Instrument

For the pre- and post-art-making testing, participants were required to complete the state trait anxiety inventory (STAI) form Y (Spielberger, Gorsuch, & Lushene, 1970), an administered analysis of reported anxiety symptoms. The instrument is divided into two sections, each having 20 questions. The first subscale measures

is state anxiety (i.e., a person’s current level of anxiety); and the second, measures trait anxiety (i.e., a person’s long-term disposition toward anxiety). The range of scores is 20–80, that higher scores indicating greater anxiety. The STAI, which is appropriate for adults who have at least a sixth-grade reading level, contains items on a 4-point Likert scale. The number on the scale is positively correlated with the anxiety identified in the question.

In a review of the STAI, Tilton (2008) noted that the STAI’s validity and reliability were comparable to other similar measures. Spielberger et al., (1983) reported reliability and validity alpha coefficients of 0.92 and 0.90, respectively, for both the state and trait portions of the inventory, and McEwan and Goldenberg (1999) reported reliability coefficients of 0.92 and 0.89 for the state and trait portions, respectively.

Two-tailed paired and unpaired Student’s t-tests, if appropriate, were performed to determine differences within and between groups. Because the mean data for pre-activity trait anxiety scores were not normally distributed, as assessed by an F statistic, a t-test for unequal variances was applied to that data set. All data are reported as means ± SD. A two-by-two factorial ANOVA determined whether the type of activity performed or the subject’s sex influenced the pre- to -post activity STAI scores. Probability values less than 0.05 were considered significant, and data analyses were performed using SPSS software version 19 (Wilkinson, 2005).

### 3. Results

The random assignment of participants into the experimental (n = 13) and control (n = 13) groups was effective as assessed by a two-tailed, unpaired Student’s t-test that revealed no significant difference in mean pre-activity state, (p = 0.20, t = 1.29), or trait, (p = 0.70, t = 0.39), anxiety scores between the experimental and control groups. Furthermore, Spielberger et al., (1983) reported that the state and trait anxiety scores and mean

values for the two groups were comparable to the normative data for children.

With the exception of two experimental participants who neglected to fill out the “trait” questions of the survey prior to the art-making activity, all surveys were thoroughly completed for both the pre-activity and post-activity segments of the protocol. Experimental and control group sample sizes were just below 30, and an F statistic showed that there was homogeneity of variances between the two groups for pre-activity state anxiety scores (F(13, 13) = 1.14, p = .38) but not for pre-activity trait anxiety scores (F(13, 13) = 3.11, p < 0.01). Hence, for the latter comparison, the Student’s t-test was used for samples of unequal variance.

#### State Anxiety

Pre-activity state anxiety mean scores ± SD for the control (non-expressive art making) and experimental (expressive art making) groups were 37.2 ± 8.6 and 39.6 ± 7.7, respectively. Post-activity state anxiety mean scores for the control and experimental groups were 37.0 ± 9.1 and 28.8 ± 8.4, respectively. A one-tailed, paired Student’s t-test revealed a significant decrease in the experimental group’s mean state anxiety score between the pre-activity and post-activity surveys, p < .001, t = 3.94. In contrast, a two-tailed, paired Student’s t-test for the control group showed no significant difference in mean state anxiety score between the pre-activity and post-activity surveys, t = 0.07 (Table 1).

#### Trait Anxiety

For trait anxiety analysis, pre-activity mean scores ± SD for the control and experimental groups were 38.2 ± 10.2 and 39.1 ± 5.8, respectively. Post-activity trait anxiety mean scores for the control and experimental groups were 37.3 ± 11.2 and 33.3 ± 6.1, respectively. A two-tailed, paired Student’s t-test revealed a significant decrease in the experimental group’s mean trait anxiety score between the pre-activity and post-activity surveys, p < .001, t = 4.20. However, a two-tailed, paired Student’s t-test for the control group showed no significant difference in mean trait anxiety score between the

**Table 1.** Comparison of Pre- and Post-activity mean state anxiety scores for control and experimental groups.

Group	Mean Pre-activity State Score (±SD)	Mean Post-activity State Score (±SD)	P	t
Control group (No expressive art making)	37.2±8.6	37.0±9.1	P<0.001	0.07
Experimental group (Expressive art making)	39.6±7.7	28.8±8.4		3.94

Note: Children’s t-test p value is indicated for significant pre- to post-activity mean score differences.

**Table 2.** Comparison of Pre- and Post-activity mean trait anxiety scores for control and experimental groups

Group	Mean Pre-activity Trait Score ( $\pm$ SD)	Mean Post-activity Trait Score ( $\pm$ SD)	P	t
Control group (No expressive art making)	38.2 $\pm$ 10.2	37.3 $\pm$ 11.2	P<0.001	1.22
Experimental group (Expressive art making)	39.1 $\pm$ 5.8	33.3 $\pm$ 6.1		4.32

Note: Children's t-test p value is indicated for significant pre- to post-activity mean score differences.

PRACTICE in  
CLINICAL PSYCHOLOGY

pre-activity and post-activity measures,  $t=1.19$  (Table 2).

A two-by-two factorial ANOVA test was performed on the data from all participants to determine the extent to which a participant's activity type is (expressive art making or no art making) contributed to the variation in the pre- to post-activity change in state anxiety score. This test revealed that only the participation (or lack thereof) in expressive art making significantly contributed to the variation in pre- to post-activity change in state anxiety score (Table 3). A similar two-by-two factorial ANOVA test was performed to determine the extent to which a participant's activity type contributed to the variation in the pre- to post-activity change in trait anxiety score. This test revealed that only participation

dropped to a significantly greater degree than its mean trait anxiety score,  $P<.001$ ,  $t=4.20$ , suggesting that art making contributed to the participants' reduction in state anxiety independent of the problem of blurred distinctions mentioned above.

#### 4. Conclusion

The study results support the hypothesis that 90 minutes of expressive art making would significantly reduce participants' state-related anxiety, as measured by the State-trait anxiety inventory. Interestingly, expressive art making was also associated with a significant drop in the participants' trait-related anxiety, suggesting that the children were not adequately distinguishing between state-related and trait-related questions on the

**Table 4.** Two-by-two factorial ANOVA for Pre- to Post-activity change in trait anxiety score.

Source	SS	Df	MS	F	P
Pre-test	3678.1	1	2.5	0.05	0.33
Group (Activity art)	2762.5	1	55.9	9.02	0.004
Error	710.8	26	710.8		
Total	5780.8	26			

PRACTICE in  
CLINICAL PSYCHOLOGY

(or lack thereof) in expressive art making significantly contributed to the variation in pre- to post-activity change in trait anxiety score (Table 4).

This suggests that participants may have been equating questions on the state anxiety inventory with those on the trait anxiety inventory. Nevertheless, despite this potential blurring of responses, it is important to note that a two-tailed, paired Student's t-test revealed that the experimental group's mean state anxiety score

inventory. Nevertheless, the fact that the expressive art making group's mean state anxiety score dropped to a significantly greater extent than their mean trait anxiety score suggests that there is a real state anxiety-reducing effect of a short period of expressive art making. Because the sample sizes of both the experimental group ( $n = 13$ ) and the control group ( $n = 13$ ) were small, the findings should be considered pilot data warranting further investigation.

**Table 3.** Two-by-two factorial ANOVA for Pre- to Post-activity change in state anxiety score

Source	SS	Df	MS	F	P
Pre-test	5678.1	1	2.5	0.05	0.83
Group (Activity art)	2962.5	1	55.9	12.72	0.001
Error	710.8	26	710.8		
Total	6780.8	26			

PRACTICE in  
CLINICAL PSYCHOLOGY

For children who have the opportunity to live in this family-like community centers, these years can be at once the most rewarding and the most anxiety-provoking phase of their life. However, this period entails an exciting chapter of personal and career exploration separation from their families and development of new social networks. Our findings show that a short period of expressive art making may significantly reduce a person's current state of anxiety that has important ramifications for these children, given the role that anxiety plays in academic success.

King, Heinrich, Stephenson, and Spielberger (1976) found that anxiety level was inversely correlated with academic performance. Similarly, Grinnell and Kyte (1979) showed a relationship between lower "trait" anxiety scores and higher first-semester grade point average among first-year graduated children. Culler and Holahan (1980) demonstrated that children with higher levels of test anxiety not only had lower test scores but also had poorer study skills and higher dropout rates. Lo (2002) showed that children who could reduce their level of stress had better study techniques and time management strategies as well as an increased fund of knowledge. The anxiety-reducing effects of expressive art making suggested by our study certainly help to justify the establishment of these art centers on college campuses.

In this study, experimental participants were allowed to choose one of five different types of expressive art making. Although our intention was to simulate the environment of a campus art-making center, it meant that there were unequal numbers of participants for each art medium. Twelve participants chose to paint or color a pre-designed Mandala, 8 subjects chose to create a 3-dimensional clay object, 5 chose freeform painting, 3 chose collages making, and only 1 chose still-life drawing. It was not possible to assess the differential anxiety-reducing effects of specific types of expressive art making with any statistical certainty due to these small and uneven groupings. Future studies might benefit from such analysis, given Curry and Kasser's (2005) findings that the level of anxiety reduction afforded by expressive art making may be related to the degree of free expression and creativity inherent in the activity.

One confounding variable in this study may be the varying degrees of social interaction among both the experimental and the control participants. Although each 90-minute session between testing measures had equal numbers of experimental and control participants,

the total number of participants varied from session to session. The overall degree and nature of social interaction among participants in the experimental groups appeared to be similar to that of the control groups; however, some individuals were more talkative than others.

Although such variety of interaction would be typical of most art centers on university campuses, however, it could have influenced the degree of anxiety felt by the participants over the course of the experiment. To solve this problem, future experimental designs might ensure equal numbers of participants for each session and limit participant social interactions in either group, which would more completely isolate expressive art making as the only independent variable on which the degree of anxiety reduction depends.

Further investigation of the influence of expressive art making on anxiety might include other age groups and settings. For example, studies suggest that expressive art making may reduce anxiety in family caregivers of cancer patients (Walsh, Martin, & Schmidt, 2004; Walsh & Weiss, 2003). Walsh, Radcliffe, Castillo, Kumar, and Broschard (2007) also found that art making significantly reduced anxiety in adult family caregivers of cancer patients; however, their study did not include a control group, making it difficult to determine whether expressive art making, rather than social interaction among subjects, was the anxiety-relieving factor. Nonetheless, if an anxiety-reducing effect of expressive art making does exist, and if it stretches across all ages, it may have profound implications for society, given that the relationship between anxiety and a person's mental and physical health has been well documented (Rahe, 1988; Sareen et al., 2006).

Another potential limitation of this study relates to the assignment of participants into art-making (experimental) and non-art-making (control) groups. Possibly that the control participants were disappointed that they could not engage in the art-making process, which increased their anxiety level and inadvertently increased the difference in anxiety scores between the two groups. However, it should be noted that prior to their consent, all participants were told that there was a chance that they would be assigned to the non-art-making group.

This study and others suggest that expressive art-making is a means for reducing commonly experienced anxiety through a temporary, relaxing escape from reality. The present study suggests that the relaxing effect of expressive art making is significant, which reinforces

the notion that entering a flow-like state can reduce anxiety. Given the high incidence of anxiety among female children who live in family-like community centers, it may be beneficial to establish campus-based art centers to promote and enhance student relaxation. These benefits have important implications for art and art therapy programs in other settings and populations where anxiety is a major health care issue.

## References

- Anne W, L., K. C. Ward, et al. (2012). "The effects of an arts intervention program in a community mental health setting: A collaborative approach." *The Arts in Psychotherapy*, 39(1), 25-30.
- Anxiety Disorders Association of America. (2010). Facts-statistics. Retrieved from <http://www.adaa.org/finding-help/helping-others/collegechildren/facts>.
- Benson, H. and M. Z. Klipper (2009). *The relaxation response*. New York, William Morrow.
- Crampin, A., S. Floyd, et al. (2003). "The long-term impact of HIV and orphanhood on the mortality and physical well-being of children in rural Malawi." *AIDS journal*, 17(3), 389-97.
- Csikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discovery and invention*. New York, HarperCollins publishers.
- Culler, R. E. and C. J. Holahan. (1980). "Test anxiety and academic performance: The effects of study-related behaviors." *Journal of Educational Psychology*, 72, 16-20.
- Curry, N. A. & T. Kasser. (2005). "Can coloring mandalas reduce anxiety?" *Art Therapy: Journal of the American Art Therapy Association* 22(2), 81-85.
- DeLue, C. (1999). *Physiological effects of creating mandalas. Medical art therapy with children*. Philadelphia: Jessica Kingsley.
- Grinnell, R. M. & N. S. Kyte. (1979). "Anxiety level as an indicator of academic performance during first semester of graduate work." *Journal of Psychology* 101: 199-201.
- Kessler, R. C., P. Berglund, et al. (2005). "Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replications." *Archives of General Psychiatry*, 62, 593-602.
- King, F. J., D. L. Heinrich, et al. (1976). "An investigation of the causal influence of trait and state anxiety on academic achievement." *Journal of Educational Psychology*, 68(3), 330-334.
- Knill P, L. E. G, et al. (2005). *Principles and practice of expressive arts therapy: Towards a therapeutic aesthetics*. London, Jessica Kingsley Publishers.
- Knill, P. J., H. N. Barba, et al. (1995). *Minstrels of soul: Intermodal expressive therapy*. Toronto, Plamerston Press.
- Lipe A.W, K.C. Ward, et al. (2012). "The effects of an arts intervention program in a community mental health setting: A collaborative approach." *The Arts in Psychotherapy*, 39(1), 25-30.
- Lo, R. (2002). "A longitudinal study of perceived level of stress, coping and self-esteem of undergraduate nursing children: An Australian case study." *Journal of Advanced Nursing*, 39(2), 119-126.
- Malchiodi, C. (1999). *Medical art therapy with children*. Philadelphia, Jessica Kingsley publishers Ltd.
- Malchiodi, C. (2003). *Expressive Therapies*. New York, Guilford.
- Mander, G. and S. B. Sarason (1952). "A study of anxiety and learning." *Journal of Abnormal and Social Psychology*, 47, 166-173.
- McEwan, L. and D. Goldenberg (1999). "Achievement motivation, anxiety and academic success in first year Master of Nursing children." *Nurse Education Today*, 19(5), 419-430.
- McKniff, S. (1981). *The arts and psychotherapy*. Springfield, Thomas Pub.
- Mercer, A., E. Warson, et al. (2010). "Visual journaling: An intervention to influence stress, anxiety and affect levels in medical children." *The Arts in Psychotherapy*, 37(2), 143-148.
- Morais, A., N. D. M., et al. (2014). "Effect on scores of depression and anxiety in psychiatric patients after clay work in a day hospital." *The Arts in Psychotherapy*, 41(2), 205-210.
- Pesso-Aviv, T., D. Regev, et al. (2014). "The unique therapeutic effect of different art materials on psychological aspects of 7- to 9-year-old children." *The Arts in Psychotherapy*, 37(2), 95-102.
- Podsakoff, P. M., S. B. MacKenzie, et al. (2003). "Common method biases in behavioral research: A critical review of the literature and recommended remedies." *Journal of Applied Psychology*, 88(5), 879-903.
- Rahe, R. H. (1988). "Anxiety and physical illness [Supplemental material]." *Journal of Clinical Psychiatry*, 49, 26-29.
- Sareen, J., F. Jacobi, et al. (2006). "Disability and poor quality of life associated with comorbid anxiety disorders and physical conditions." *Archives of Internal Medicine*, 166, 2109-2116.
- Sarid, O. and E. Huss (2010). "Trauma and acute stress disorder: A comparison between cognitive behavioral intervention and art therapy." *The Arts in Psychotherapy*, 37, 8-12.

- Spielberger, C. D. (1962). "The effects of manifest anxiety on the academic achievement of college children." *Mental Hygiene*, 46, 420-426.
- Spielberger, C. D. (1966). *Anxiety and behavior*. New York, Academic Press.
- Spielberger, C. D., R. L. Gorsuch, et al. (1970). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, Consulting Psychologists Press.
- Spielberger, C. D., R. L. Gorsuch, et al. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, Consulting Psychologists Press.
- Spielberger, C. D. (1989). *State-Trait Anxiety Inventory: Bibliography (2nd Ed.)*. Palo Alto, CA: Consulting Psychologists Press.
- Tilton, S. R. (2008). "Review of the State-Trait Anxiety Inventory." *NewsNotes* 48(2), 7-9.
- Walsh, S. M., C. Y. Chang, et al. (2005). "Lowering stress while teaching research: A creative arts intervention in the classroom." *Journal of Nursing Education*, 44(7): 330-333.
- Walsh, S. M., S. C. Martin, et al. (2004). "Testing the efficacy of a creative-arts intervention in family caregivers of patients with cancer." *Journal of Nursing Scholarship*, 36: 214-219.
- Walsh, S. M., R. S. Radcliffe, et al. (2007). "A pilot study to test the effects of art-making classes for family caregivers of patients with cancer." *Oncology Nursing Forum*, 34(1): E9-E16.
- Walsh, S. M. and S. Weiss (2003). "Art intervention with family caregivers and patients with cancer." *Oncology Nursing Forum* 30(6): E115-E120.
- Wilkinson, L. (2005). *Systat (Version 11) [Computer software]*. Chicago, Systat Software.