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The Effectiveness of Art Therapy in the Treatment of Traumatized Adults: A Systematic Review on Art Therapy and Trauma

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Abstract

Art therapy has often been applied in the treatment of traumatized adults, and good results in clinical practice have been reported. However, although art therapy experts underline these benefits, the effectiveness of art therapy in trauma treatment has not been established by systematic review. The aim of this systematic review is to identify and evaluate empirical evidence of the effectiveness of art therapy for trauma treatment. As a result of the systematic review, six controlled, comparative studies on art therapy for trauma in adult patients were found. In half of the included studies, a significant decrease in psychological trauma symptoms was found in the treatment groups, and one study reported a significant decrease in depression. Although there are limitations in the number of included studies, the number of participants, the heterogeneity of included studies, and their methodological quality, the results contribute to insight into the effectiveness of art therapy in trauma treatment and form an evidence base for the urgent need for further research on art therapy and trauma treatment.

Keywords

art therapy, PTSD, trauma, traumatized, psychotrauma, efficacy, (treatment) goal, interventions, method, (treatment) outcome, result

Posttraumatic stress disorder (PTSD), one of the anxiety disorders, is characterized by severe symptoms of reexperiencing, avoidance, and hyperarousal as consequence of one or more traumatizing experiences. PTSD is diagnosed when the duration of the symptoms is more than 1 month and the disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning (American Psychiatric Association, 2000). According to the guidelines (e.g., National Institute for Clinical Excellence, 2005), evidence-based treatments such as Eye Movement Desensitization and Reprocessing (EMDR) and Trauma-Focused Cognitive Behavioural Therapy (TF-CBT) are most recommended in PTSD treatment. Although these treatments have proved to be effective, it has been stated by several authors (Bisson et al., 2007a; Bradley, Greene, Russ, Dutra, & Weaten, 2005; Harvey, Bryant, & Tarrier, 2003) that more than 30% of the clients do not benefit from these treatments. Many of these patients suffer from prolonged and multiple exposure to trauma (Robertson, Humphreys, & Ray, 2004; Spinazzola, Blaustein, & van der Kolk, 2005) or have a poor verbal memory (Wild & Gur, 2008). For these patients, no alternative evidence-based treatment has been recommended yet (Bisson et al., 2007b). Art therapy might offer an alternative appropriate treatment for these patients, because it appears to fit in with the often wordless and nonverbal nature of traumatic memories (Herman, 1992; van der Kolk, 1999).

Art therapy is one of the creative art therapies (along with music therapy, drama therapy, and dance therapy). The creative art therapies differ from other therapies by their experiential and nonverbal character. Characteristic for art therapy is the methodical use of art means as drawing, painting, collage, and sculpting to shape and express feelings, thoughts, and memories. Art therapy is distinguished from other forms of

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treatment by active performing and experiencing with art materials, by the visual and concrete character of the process as well as by the result of art making. In clinical practice, art therapy is mostly applied in combination with trauma-focused psychotherapy such as EMDR, TF-CGT, Brief Eclectic Psychotherapy, and Narrative Exposure Therapy. Art therapy is also applied in multidisciplinary trauma-focused day treatment (Droždek & Bolwerk, 2010a, 2010b) or inpatient clinical treatment (Wertheim-Cahen, van Dijk, Schouten, Rozen, & Droždek, 2004). Recent research (Droždek & Bolwerk, 2010b; Droždek, Bolwerk, Tol, & Kleber, 2012) suggests that the more nonverbal treatment sessions (art therapy, music therapy, and psychomotor therapy) are applied, within the day-treatment programs and next to trauma-focused psychotherapy, the better are the results in decrease of psychopathology.

The aim of art therapy is to elicit processes of change, development, and acceptance, using art (like drawing, painting, collage, and sculpting) in a purposeful and methodical way in the treatment of psychosocial problems and mental disorders. Art therapy experts (Avrahami, 2005; Baker, 2006; Gant & Tinnin, 2007, 2009; Johnson, 1999; Spring, 2004; Stok, 2007; Wertheim, 2007; Wertheim-Cahen et al., 2004) have described the benefits of art therapy in the treatment of PTSD with adults. Decrease in primary PTSD symptoms and global clinical improvement have been frequently reported as outcomes of art therapy (Johnson & Lahad, 2009). For instance, Collie, Backos, Malchiodi, and Spiegel (2006) describe art therapy in PTSD treatment as helpful in decreasing reexperience, arousal, and less visible symptoms as avoidance and emotional numbing.

Art therapy enables the processing of traumatic experiences by accessing and integrating traumatic memories, by communicating and documenting images of traumatic memories and through rituals (Wertheim-Cahen, 1991). Smeijsters (2008) states that therapeutic art interventions provide the possibility to distance oneself from emotion and provide cognitive integration of emotion and stimulate meaning-making processes.

According to official guidelines for PTSD treatment (e.g., Foa, Keane, Friedman, & Cohen, 2009), the creative arts therapies can be helpful in reducing depression and trauma-related symptoms such as alexithymia, dissociation, anxiety, nightmares, and sleep problems. Also positive results of creative arts therapies are mentioned in the guidelines, that is, increasing emotional control, improving interpersonal relationships, and improving body image (Johnson & Lahad, 2009). However, these therapies are not recommended in the guidelines as effective intervention, because of the lack of robust information on their effectiveness. Most of the reported effects of art therapy are based on expert opinions or case studies (Foa et al., 2009). Literature reviews are scarce and do not meet the criteria for systematic reviews (Collie, Backos, Malchiodi, & Spiegel 2006; Kaiser et al., 2005). To the best of our knowledge, no systematic reviews have been published to date. The aim of this study is to address this gap in knowledge.

In this systematic review, the central questions are (1) to identify literature concerning effectiveness research on art therapy with traumatized adults, (2) to review the results of this research, and (3) to draw conclusions on the effectiveness of art therapy in the treatment of trauma.

Method

Study Inclusion and Exclusion Criteria

To be included in the systematic review, the treatment interventions had to meet the criteria for art therapy interventions, the treatment and control population had to be traumatized adults (independent of type of trauma or type of trauma population), and the design of the included studies had to be a comparison outcome trial with a control group. Studies on art therapy with children and adolescents (<18 years), family members, and medical staff were excluded. Studies without outcome measures were excluded.

Search Strategy

PubMed, PsycInfo, Ovid MEDLINER, EMBASE Psychiatry, The Cochrane Central Register of Controlled Trials, the Cochrane Database of Systematic Reviews, and all EBM Reviews (APC Journal Club, Database of Abstracts of Reviews of Effects, Cochrane Methodology Register, Health Technology Assessment, and NHS Economic Evaluation Database) were searched up to April 2013. The key words were related to PTSD (trauma, psychotrauma, and traumatized) and art therapy. The first search was filtered on titles on art therapy interventions and traumatized adults. Search results were refined with the key words "efficacy," "goals" (treatment goal*, goal*), "interventions," "methods," "outcome" (result*, outcome, treatment outcome), or "rationale." Abstracts of all studies identified by the search strategy were reviewed and included or excluded, based on the above-stated inclusion and exclusion criteria. The reviewing was done by the first author in close collaboration with the other three; decisions were made by the whole team. All full-text studies that met the inclusion criteria were reviewed on goals, interventions and outcome of the treatment, and levels of evidence.

Search Outcome

The broad search resulted in 749 references. After removing the duplicates and reviewing the titles for relevance, the list was reduced to 50 articles which were potentially relevant. Abstracts from these 50 articles were screened for usefulness. Twelve studies were excluded because they were not focused on trauma ($n = 2$) or on adults ($n = 2$), because they dealt with secondary trauma ($n = 1$) or with traumatic brain injury or unintentional therapy ($n = 1$), and because the study was a book review ($n = 4$) or a editorial ($n = 1$).

The full texts of the remaining 38 studies were reviewed. Selection was guided by the following issues: type of trauma, type of population, age, gender, outcome, result, and intervention. We included only studies with outcome measures and control condition, in order to calculate the effect sizes. Thirty-two studies were excluded because of the following

Table 1. Effect of Art Therapy Interventions on Psychological Trauma Symptoms, Based on Change Scores (Studies With Baseline Measures).

Outcome Measure	Change Treatment Group	Change Control Group	Standardized Mean Difference [95% CI]
Henderson et al. (2007)			
PDS—after intervention	1.32[a] (7.63)	0.30 (9.71)	0.12 [−0.54, 0.77]
PDS—1 month follow-up	5.95[a] (7.63)	0.24 (7.37)	**0.76 [0.07, 1.42]**
BDI II—after intervention)	−1.32 (10.50)	−2.00 (7.07)	−0.07 [−0.86, 0.72]
BDI II—1 month follow-up	−4.00 (9.38)	−2.29 (7.83)	0.20 [−0.46, 0.85]
STAI-State—after intervention	−1.89 (11.03)	−5.25 (11.36)	−0.30 [−0.95, 0.36]
STAI-State—1 month follow-up	−2.10 (11.15)	−6.69 (12.93)	−0.38 [−1.03, 0.29]
Henderson (2007)			
PDS—after intervention	−1.58 (9.93)	−0.17 (8.61)	0.15 [−0.41, 0.70]
PDS—1 month follow-up	−2.31 (10.61)	−4.09 (8.61)	−0.18 [−0.74, 0.38]
BDI II—after intervention)	−1.76 (9.41)	−1.04 (7.74)	0.08 [−0.47, 0.64]
BDI II—1 month follow-up	−1.42 (9.60)	−1.88 (8.57)	−0.05 [−0.60, 0.51]
STAI-State—1 month follow-up	−5.54 (11.96)	−3.29 (9.92)	0.20 [−0.36, 0.76]
STAI-Trait—after intervention	3.04 (9.82)	−1.58 (9.52)	0.48 [−0.09, 1.03]
STAI-Trait—1 month follow-up	2.39 (10.03)	−3.95 (10.04)	**0.63 [0.05, 1.19]**
Stok (2007)			
IES total—after intervention	−15.23 (10.97)	3.00 (7.20)	**1.96 [0.31, 3.25]**
Reexperiencing	−8.8 (8.28)	1.80 (4.00)	**1.63 [0.07, 2.87]**
Avoidance	−5.43 (4.86)	0.00 (3.77)	**1.25 [0.21, 2.46]**
Arousal	−1.40 (1.38)	0.80 (0.80)	**1.95 [0.30, 3.22]**
Avoiding people	−0.60 (1.47)	0.40 (0.50)	**0.91 [0.47, 2.11]**
Curry and Kasser (2005)			
Anxiety[b]	−17.10 (18.19)	−13.48 (18.78)	0.20 [−0.33, 0.71]
Anxiety[c]	−17.10 (18.19)	0.07 (23.60)	**0.82 [0.27, 1.35]**

Note. BDI = Beck Depression Inventory; CI = confidence interval; PDS = Posttraumatic Diagnostic Scale; STAI = Stait-Trait Anxiety Inventory; IES-22 = Impact of Event Scale. [a] *C*alculated change score. [b] *P*laid control. [c] *F*ree-form control. Large effectsizes are marked in bold.

reasons: no outcome study ($n = 29$), not specific on art therapy ($n = 2$), and no relevance ($n = 1$).

From the six studies with outcome measures, three studies were excluded because there was no control condition ($n = 3$). After exclusion, the search generated the following three studies meeting the selection criteria: Erickson (2008); Henderson, Rosen, and Mascaro (2007); and Volker (1999).

Due to the small number of studies meeting selection criteria, we performed an additional search in Google Scholar. This produced a nonpublished meta-analysis (Campbell, 2010) in which we found three additional studies: a pre–post study by Curry and Kasser (2005) on reducing anxiety, an unpublished study by Henderson (2007), and a pre–post study by Stok (2007).

Quality of Included Studies

The methodological quality of the selected studies was assessed using the Delphi list for quality assessment of randomized controlled trials (Verhagen et al., 1998). This 9-item Delphi list assesses randomization of allocation, blinding of allocation, group comparison, inclusion and exclusion criteria, blinding (assessor, therapist, and patient), presentation of estimates and intention-to-treat analysis.

Data Abstraction

Pre- and posttest means and standard deviations, demographic data, and condition properties were extracted from each included study.

Effect Sizes

A spreadsheet calculator (Effect Size Calculator, 2011) was used to calculate the standardized mean differences (Cohen's *d*) of the individual studies. When a controlled study without baseline scores was performed, the Cohen's *d* was based on the differences between the post-outcome scores of the experimental group and the control group. When large baseline differences between these groups were detected, the calculation was based on the change scores (the differences between the baseline score and the post-intervention score). For studies without baseline measures, post-outcome scores of the experimental and control groups were used to calculate the standardized mean difference.

Effect sizes of 0.2 are usually interpreted as small, those of 0.5 as moderate and from 0.8 and above as large (Cohen, 1988). Tables 1 and 2 show the means and calculated effect sizes of the included studies. For all studies in Table 1, baseline measures are calculated, and the studies in Table 2 were without baseline measures.

Results

Quality of Studies

All included studies had some methodological weaknesses based on the 9-item Delphi list criteria: all studies met the criteria with regard to randomization of allocation, group comparison, and presentation of estimates. All studies had explicit

Table 2. Effect of Art Therapy Interventions on Psychological Trauma Symptoms (Studies Without Baseline Measures).

Outcome Measure	Treatment Group	Control Group	Standardized Mean Difference [95% CI]
Volker (1999)			
TSC—total score	45.00 (*SD* = 19.40)	49.33 (*SD* = 17.77)	0.23 [−0.73, 1.18]
MSEI—total score	45.00 (*SD* = 9.19)	42.55 (*SD* = 8.63)	0.28 [−0.70, 1.22]
BDI	12.37 (9.37)	22.77 (10.41)	**1.05 [−0.02, 2.00]**
Erickson (2008)			
TSI anxious arousal	52.57 (*SD* = 9.53)	50.07 (*SD* = 8.91)	0.27 [−0.53, 1.05]
TSI depression	55.00 (*SD* = 9.17)	52.07 (*SD* =7.48)	0.35 [−0.46, 1.13]
TSI anger/irritability	57.29 (*SD* = 11.38)	53.36 (*SD* =11.12)	0.35 [−0.46, 1.13]
TSI intrusive experiences	61.57 (*SD* = 7.52)	58.29 (*SD* = 7.69)	0.43 [−0.38, 1.22]
TSI defensive avoidance	62.07 (*SD* = 8.97)	60.29 (*SD* = 10.08)	0.19 [−0.61, 0.97]
TSI dissociation	57.57 (*SD* = 8.72)	54.71 (*SD* = 10.92)	0.29 [−0.51, 1.08]
TSI sexual concerns	54.71 (*SD* = 10.44)	52.00 (*SD* = 7.57)	0.29 [−0.51, 1.08]
TSI dysfunctional s. beh.	65.07 (*SD* = 16.76)	58.64 (*SD* = 9.66)	0.46 [−0.36, 1.24]
TSI impaired self-reference	57.14 (*SD* = 8.71)	53.14 (*SD* = 8.71)	0.46 [−0.36, 1.24]
TSI tension reduction	61.50 (*SD* = 14.83)	56.57 (*SD* = 9.98)	0.38 [−0.43, 1.16]
OQ—total score	57.69 (*SD* = 22.06)	58.82 (*SD* = 28.68)	0.04 [−0.73, 0.81]
OQ—symptom distress	31.00 (*SD* = 12.85)	31.91 (*SD* = 18.23)	0.06 [−0.71, 0.82]
OQ—interpersonal relation	16.69 (*SD* = 5.62)	14.91 (*SD* = 7.61)	−0.27 [−1.03, 0.51]
OQ—social role	10.46 (*SD* = 4.31)	12.09 (*SD* = 5.39)	0.33 [−0.45, 1.10]

Note. BDI = Beck Depression Inventory; CI = confidence interval; TSC = Trauma Symptom Checklist; MSEI = Multidimensional Self-Esteem Inventory; TSI = Trauma Symptom Inventory; OQ-45.2 = Outcome Questionnaire; s. beh = sexual behavior. Large effectsizes are marked in bold.

inclusion and/or exclusion criteria except the study of Stok (2007). None of the studies had blinding of assessor, therapist, and patient; and only half of the studies (Erickson, 2008; Henderson, 2007; Henderson et al., 2007) had blinding of allocation.

The studies of Curry and Kasser (2005) and Stok (2007) met four of the nine criteria, five of the nine selection criteria were reported from the studies of Erickson (2008) and Volker (1999), and both studies of Henderson (2007) and Henderson et al. (2007) met six of the nine criteria of the Delphi list.

Study Characteristics

The characteristics of the six studies that met the inclusion criteria are presented in Table 3. The studies included a total of 223 participants, comprising 102 participants in the intervention groups and 120 in the control groups. One participant did not answer the questionnaires. One hundred and fifty-nine participants were female and 61 were male, and 3 participants did not indicate sex or age. Three studies involved undergraduate students. In two studies, the intervention was art therapy in combination with other treatment (Stok, 2007; Volker, 1999). In the other four studies, art therapy was the only intervention. All studies had explicit inclusion and/or exclusion criteria, with the exception of the study by Stok (2007).

Curry and Kasser (2005) conducted a pre–post study design. Eighty-four undergraduate students, 18–22 years old, were randomly assigned to the mandala coloring treatment condition ($n = 30$), the plaid coloring control condition ($n = 27$), and the free-form coloring control condition ($n = 27$). A mandala is a circle with inner symbolic patterns (Henderson, 2007). The activity involved coloring a plaid in geometric pattern that was as complex as the mandala (Curry & Kasser, 2005). Outcome measures were derived by using the State-Trait Anxiety Inventory (STAI) at baseline, after an anxiety induction, after art therapy intervention, and after 1 month follow-up.

In the Dutch study of Stok (2007), 10 clients with PTSD were selected by their therapists. Selection was based upon symptoms of avoidance, reexperiencing, anxiety, and stress. Participants were randomly assigned to the art therapy intervention group ($n = 5$) and the control group ($n = 5$). A short-term trauma-focused art therapy intervention in three sessions next to verbal psychotherapy treatment was given in the intervention group. Participants in the control group received psychotherapy treatment. Intervention group participants filled in the Impact of Event Scale (IES-22) in Sessions 1 and 3; participants in the control group completed the IES-22 in Weeks 1 and 5.

Twenty-six incarcerated women (mean age 31.24 years) in two county jails participated in the study of Erickson (2008). Participants were randomly assigned in groups, according to the dorms in which they stay, either to the art therapy treatment group ($n = 14$) or to the control group ($n = 11$). In the treatment group, participants attended six weekly art therapy group sessions of 1 hr. Participants in the control group attended treatment as usual (TAU). Symptoms of traumatic stress were measured by the Trauma Symptoms Inventory and by the Outcome Questionnaire 45.

Henderson and colleagues conducted two studies. In the first study, Henderson et al. (2007) conducted a pre–post design in which 36 undergraduate students were randomly assigned to a trauma-focused mandala drawing treatment group ($n = 19$) and a nontrauma-focused art control group ($n = 17$).

Table 3. Study Characteristics.

Author (year)	Total (*n*)	Treatment (Art Therapy Intervention)	Control Condition	Type of Design	Population/Type of Trauma	Mean Age/or Age	M/F	Measure	Result	Quality of Design	Delphi List Score
Curry and Kasser (2005)	84	Mandala coloring	Art control	Pre–post With 2 control conditions	Undergraduate students with PTSD	18–22	M 29/ F 55	STAI	Decrease in anxiety	IIb	4
Erickson (2008)	26	Group art therapy	Treatment as usual	Pre–post	Traumatized incarcerated women	31.24	F 26	OQ-45.2, TSI	No significant decrease in trauma symptoms severity	III	5
Henderson, Rosen, and Mascaro (2007)	36	Trauma-focused mandala drawing	Art control	Clinical trial with control condition	Undergraduate students with PTSD	18.39 18–23	M 7 / F 26	PDS1-3, STAI, BDI-II	PDS 1-3 Decrease in trauma symptoms severity	IIb	6
Henderson (2007)	50	Trauma-focused mandala drawing	Art control	Clinical trial with control condition	Undergraduate students with PTSD	18.9 18–22	M 21/ F 29	PDS, BDI-II, STAI	Decrease in trauma symptom severity in the art therapy control condition	IIb	6
Stok (2007)	10	Art therapy in combination with psychotherapy	Treatment as usual	Clinical trial with control condition	PTSD	21–60	M 4/F 6	IES-22	Significant decrease in arousal, reexperiencing, and avoidance	IIb	4
Volker (1999)	17	10-Session group art therapy next to CBT	Wait list condition	RCT	Sexual assault, PTSD	19.42	F 17	TSC, IES, BDI	Significant decrease in depression	IIb	5

Note. M = male; F = female; PTSD = posttraumatic stress disorder; STAI = State-Trait Anxiety Inventory; OQ = Outcome Questionnaire; PDS = Posttraumatic Diagnostic Scale; BDI = Beck Depression Inventory; IES = Impact of Event Scale; RCT = randomized controlled trial; TSC = Trauma Symptoms Checklist.

In the unpublished thesis of Henderson (2007), 50 undergraduate students were randomly assigned to a trauma-focused mandala drawing treatment group ($n = 26$) and a nontrauma-focused art control group ($n = 24$). Symptom severity after 1 month follow-up was measured by the Posttraumatic Diagnostic Scale 3.

In the study of Volker (1999), eight female sexual assault survivors (mean age 19.42 years) with PTSD in the intervention group received combined treatment of CBT and art therapy with a solution-centred approach. Participants in the control group ($n = 9$) received no treatment. Trauma symptom severity was measured with the IES and the Trauma Symptoms Checklist (TSC-40). Depression was measured with the Beck Depression Inventory (BDI).

Effect Sizes

The calculated effect sizes of the studies of Curry and Kasser (2005), Henderson (2007), Henderson et al. (2007), and Stok (2007) with measured baseline scores are presented in Table 1. The calculated effect sizes of the other studies (Erickson, 2008; Volker, 1999) without baseline scores can be found in Table 2.

Statistically significant decrease in anxiety (1.95 [0.30, 3.22]), reexperiencing (1.63 [0.07, 2.87]), and avoidance (1.25 [0.21, 2.46]) was measured in the studies of Stok (2007). Curry and Kasser (2005) also measured a significant decrease in anxiety (0.82 [0.27, 1.35]). Moderate decrease in trauma symptoms severity (0.76 [0.07, 1.42]) was found in the study of Henderson et al. (2007). Erickson (2008) found no significant decrease in symptoms of distress (0.06 [−0.71, 0.82]) and no significant decrease in anxious arousal (0.27 [−0.53, 105]) after a 10-session art therapy. Henderson (2007) reported no significant decrease in trauma symptoms severity. A low but significant decrease in anxiety (0.47) was measured in the study of Volker (1999), in addition a significant decrease in depression (1.05 [−0.02, 2.00]) was measured.

Discussion

The aim of this systematic review was to identify and evaluate research on art therapy with traumatized adults. As a result of the systematic review, six controlled, comparative studies on art therapy for trauma in adult patients were found. In half of the included studies, a significant decrease in psychological trauma symptoms was found in the treatment groups and one study reported a significant decrease in depression.

The evidence of effectiveness is based on comparative outcome trials with a control group, demonstrating a robust methodological approach in the following four studies: Curry and Kasser (2005), Henderson et al. (2007), Stok (2007), and Volker (1999). Although this is promising, there are several limitations to the included studies and of this review.

Limitations

Most included studies have a small number of participants, consequently the total sample size of this review was small ($n = 223$). The included studies all suffered from some methodological weakness. Assessment of the Delphi List for study quality showed that the studies met only four to six of the nine study quality criteria. The quality of the included studies is thus moderate.

Another issue in this review is the large heterogeneity of art therapy interventions (type and duration of the interventions), control conditions, follow-up assessments, and characteristics of the study population.

A relatively high number of participants in the included studies were undergraduate students ($n = 170$): 75 in the treatment condition and 95 in the control condition. The number of participants aged 18–22 years was even higher ($n = 187$), 83 in the treatment condition and 104 in the control condition. Therefore, the treatment population may not be representative of traumatized adults and biased toward the young and highly educated population.

Another limitation in this review is that two studies concerned art therapy in combination with another treatment. The study of Volker (1999) showed a significant decrease in depression after treatment with art therapy in combination with CBT, while the study of Stok (2007) showed a significant decrease in trauma symptoms after art therapy in combination with psychotherapy compared to psychotherapy in the control condition. The significant decreases in symptoms might be due to art therapy solely or to behavior therapy/psychotherapy, or to the combination of both treatments.

Art Therapy Interventions

Beside the heterogeneity of study characteristics, two studies had a trauma-focused mandala drawing art therapy intervention and one study had a mandala coloring intervention group. The relatively high number of mandala treatment interventions in this study might suggest that mandala interventions are often applied in art therapy. However, the use of mandalas is only one of the possible art interventions and there is no evidence that mandala interventions are more often applied in trauma treatment than other art therapy interventions. In the excluded studies, several other art therapy interventions are described in expert opinions, case studies, and trials without outcome and control condition. The significant decrease in trauma symptom severity after a trauma-focused mandala drawing intervention in the study of Henderson et al. (2007) and the significant decrease of trauma symptom severity after the nontrauma-focused art therapy intervention (drawing after reality) in the control group might point at the effectiveness of both interventions.

Art Therapy Separate or in Combination With Other Treatment

In three of the six studies, art therapy was the only intervention and the control condition also was an art therapy intervention.

Based on this review, there is no evidence that art therapy as a separate treatment is more effective than art therapy in combination with other treatments, like TF-CBT, EMDR, or other forms of psychotherapy. In this review, the most statistically significant decrease in trauma symptom severity was found after art therapy intervention in combination with psychotherapy treatment.

An explanation for the large difference in reduction of trauma symptom severity might be that Henderson et al. (2007) applied a one-session art therapy intervention alone; whereas, in the study by Stok (2007) the three-session art therapy intervention was applied next to psychotherapy treatment. The addition of art therapy to psychotherapy offered more reduction in trauma symptom severity than the psychotherapy control group. This might point at more effectiveness of art therapy in combination with other treatment than art therapy as a separate intervention. The significant decrease in depression in the study of Volker (1999) after 10-session group art intervention in combination with TF-CBT appears to support this statement. In clinical practice, art therapy mostly is applied next to, or in combination with, other treatment, and seldom as a separate intervention.

Recommendations for Further Research

We recommend that future research should examine which aspects of art therapy are most effective in the treatment of traumatized adults, and which groups would benefit the most in terms of age, sex, trauma exposure, and symptom profile. Empirical inquiries using control groups and randomized assignment on art therapy in the treatment of psychological trauma are necessary (Johnson & Lahad, 2009). Finally, we recommend that the control group intervention should not be art therapy, but rather TAU or wait list condition.

Conclusion

In contrast to clinical practice (where art therapy is often applied with traumatized adults) and the many art therapy experts underlining the benefits, only a few controlled outcome trials considering art therapy are available. Art therapists and other creative art therapists do not have an established research tradition. The results of this systematic review, based on six relatively small studies, show that there is some evidence that art therapy interventions are effective in reducing trauma symptom severity and anxiety in traumatized adults. However, because of the small number of studies meeting inclusion criteria and the methodological weakness of the studies, the evidence base for art therapy with traumatized adults remains relatively weak. Still, the available results do provide useful information about art therapy for trauma and for future research. Therefore, we strongly recommend more studies with robust methodology on the effectiveness of art therapy for traumatized adults.

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References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Avrahami, D. (2005). Visual art therapy's unique contribution in the treatment of post-traumatic stress disorders. *Journal of trauma and dissociation*, *6*, 5–38.

Baker, B. A. (2006). Art speaks in healing survivors of war: The use of art therapy in treating trauma survivors. *Journal of Aggression, Maltreatment and Trauma*, *12*, 183–198.

Bisson, J. I., Ehlers, A., Matthews, R., Pilling, S., Richards, D., & Turner, S. (2007). Psychological treatments for chronic post-traumatic stress disorder: Systematic review and meta-analysis. *British Journal of Psychiatry*, *190*, 97–104.

Bisson, J. I., Ehlers, A., Matthews, R., Pilling, S., Richards, D., & Turner, S. (2007). Psychological treatments for chronic post-traumatic stress disorder: Systematic review and meta-analysis. *British Journal of Psychiatry*, *2*, 97–104.

Bradley, R., Greene, J., Russ, E., Dutra, L., & Weaten, D. (2005). A multidimensional meta-analysis of psychotherapy for PTSD. *American Journal of Psychiatry*, *162*, 214–227.

Campbell, E. (2010). *The effectiveness of art therapy in reducing the symptoms of trauma, anxiety and stress: A meta analysis* (Unpublished thesis). Wheaton: Wheaton College Graduate School, Wheaton, IL. Retrieved from ProQuest Dissertation Publishing.

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Collie, K., Backos, A., Malchiodi, C., & Spiegel, D. (2006). Art therapy for combat-related PTSD: Recommendations for research and practice. *Art Therapy: Journal of the American Art Therapy Association*, *23*, 157–164.

Curry, N. A., & Kasser, T. (2005). Can colouring mandalas reduce anxiety? *Art Therapy: Journal of the American Art Therapy Association*, *22*, 81–85.

Droždek, B., & Bolwerk, N. (2010a). Evaluation of Group Therapy With Traumatized Asylum Seekers and Refugees—The Den Bosch Model. *Traumatology*, *16*, 117–127. doi:10.1177/1534765610388298

Droždek, B., & Bolwerk, N. (2010b). Group therapy with traumatized asylum seekers and refugees: For whom it works and for whom it

does not? *Traumatology*, *16*, 160–167. doi:10.1177/15347656 10388299

Drožđek, B., Bolwerk, N., Tol, W. A., & Kleber, R. J. (2012). Group therapy with male asylum seekers and refugees with PTSD: A controlled comparison cohort study of three day-treatment programs. *Journal of Nervous and Mental Disease*, *200*, 758–765.

Effect Size Calculator. (2011). Effect size calculator. Durham University, Centre for Evaluation & monitoring. Retrieved December 19, 2012, from http://www.cem.org/evidence-based-education/effect-size-calculator

Erickson, B. J. (2008). Art therapy treatment with incarcerated women (Unpublished dissertation). *Dissertation Abstracts International Section A: Humanities and Social Sciences*, *70*(1-A), 100.

Foa, E. B., Keane, T. M., Friedman, M. J., & Cohen, J. A. (2009). *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* (2nd ed.). New York, NY: Guilford Press.

Gantt, L., & Tinnin, L. W. (2007). Intensive Trauma therapy of PTSD and dissociation: An Outcome study. *The Arts in Psychotherapy*, *34*, 69–80.

Gantt, L., & Tinnin, L. W. (2009). Support for a neurobiological view of trauma with implications for art therapy. *The Arts in Psychotherapy*, *36*, 148–153.

Harvey, A. G., Bryant, R. A., & Tarrier, N. (2003). Cognitive behaviour therapy for posttraumatic stress disorder. *Clinical Psychology Review*, *23*, 501–522.

Henderson, P. G. (2007). *Creativity, expression, and healing: An empirical study using mandalas within the written disclosure paradigm* (Unpublished dissertation). Texas: Texas A & M University.

Henderson, P., Rosen, D., & Mascaro, N. (2007). Empirical study on the healing nature of mandalas. *Psychology of Aesthetics, Creativity, and the Arts*, *1*, 148–154.

Herman, J. L. (1992). *Trauma and recovery*. New York, NY: Basic Books.

Johnson, D. R. (1999). *Essays on the creative arts therapies. Imaging the birth of a profession*. Springfield, IL: Charles C. Thomas publishers Ltd.

Johnson, D. R., & Lahad, M. (2009). Creative therapies for adults. In E. B. Foa, T. M. Keane, & M. J. Friedman (Eds.), *Effective treatments for PTSD: Practice guidelines from the International society for Traumatic Stress Studies* (pp. 600–602). New York, NY: Guilford.

Kaiser, D., Dunne, M., Malchiodi, C., Feen, D., Howie, P., Cutcher, D., & Ault, R. (2005). Call for art therapy research on treatment of PTSD. American Art therapy Association, Inc. Retrieved from www.arttherapy.org

National Institute for Clinical Excellence (2005). *Post-traumatic stress disorder: The management of PTSD in adults and children in primary and secondary care*. London: Gaskell.

Robertson, M. F., Humphreys, L., & Rey, R. (2004). Psychological treatments for posttraumatic stress disorder: Recommendations for the clinician based on a review of the literature. *Journal of Psychiatric Practice*, *10*, 106–118.

Smeijsters, H. (2008). *Handboek creatieve therapie*. Bussum, The Netherlands: Uitgeverij Coutinho.

Spinazzola, J., Blaustein, M., & van der Kolk, B. A. (2005). Posttraumatic stress disorder treatment outcome research: The study of unrepresentive samples? *Journal of Traumatic Stress*, *18*, 425–436. doi:10.1002/jts.20050

Spring, D. (2004). Thirty-year study links neuroscience, specific trauma, PTSD, Image conversion, and language translation. *Art Therapy: Journal of the American Art Therapy Association*, *21*, 200–209.

Stok, M. (2007). Eenmalige exposure in beeldende therapie. Onderzoek naar het in beeld brengen van traumatische ervaringen op traumagerelateerde klachten. *Tijdschrift voor Vaktherapie*, *3*, 3–10.

van der Kolk, B. A. (1994). The body keeps the score: Memory and the evolving psychobiology of posttraumatic stress disorder. *Harvard Review of Psychiatry*, *1*, 253–265.

Verhagen, A. P., De Vet, H. C. W., De Bie, R. A., Kessels, A. G. H., Boers, M., Bouter, L. M., & Knipschild, P. C. (1998). The Delphi list: A criteria list for quality assessment of randomized clinical trials for conducting systematic reviews developed by Delphi consensus. *Journal of Clinical Epidemiology*, *51*, 1235–1241.

Volker, C. A. (1999). *Treatment of sexual assault survivors utilizing cognitive therapy and art therapy* (Unpublished Dissertation). Dissertation Abstracts International: Section B. *60*(5B), 2374.

Wertheim-Cahen, T. (1991). *Getekend bestaan, creatieve therapie met oorlogsgetroffenen*. Utrecht, the Netherlands: ICODO.

Wertheim-Cahen, T. (2007). De rol van vaktherapieën bij de behandeling van psychotrauma. In P. G. H. Aarts & W. D. Visser (Eds.), *Trauma: Diagnostiek en behandeling* (pp. 313–328). Houten, The Netherlands: Bohn Stafleu van Loghum.

Wertheim-Cahen, T., van Dijk, M., Schouten, K., Rozen, I., & Droždek, B., (2004). About a weeping Willow, a Phoenix rising from its Ashes, and building a house. In J. P. Wilson & B. Droždek (Eds.), *Broken spirits: The treatment of traumatized asylum seekers, refugees, war and torture victims* (pp. 419–442). New York, NY: Routledge and Brunner.

Wild, J., & Gur, R. C. (2008). Verbal memory and treatment response in post-traumatic stress disorder. *British Journal of Psychiatry*, *193*, 254–255. doi:10.1192/bjp.bp.107.045922

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