

BRIEF REPORT

A Meta-Analysis of Hypnotherapeutic Techniques in the Treatment of PTSD Symptoms

Siobhan K. O'Toole, Shelby L. Solomon, and Stephen A. Bergdahl

California School of Professional Psychology at Alliant International University, Fresno Campus, Fresno, California, USA

The efficacy of hypnotherapeutic techniques as treatment for symptoms of posttraumatic stress disorder (PTSD) was explored through meta-analytic methods. Studies were selected through a search of 29 databases. Altogether, 81 studies discussing hypnotherapy and PTSD were reviewed for inclusion criteria. The outcomes of 6 studies representing 391 participants were analyzed using meta-analysis. Evaluation of effect sizes related to avoidance and intrusion, in addition to overall PTSD symptoms after hypnotherapy treatment, revealed that all studies showed that hypnotherapy had a positive effect on PTSD symptoms. The overall Cohen's d was large (-1.18) and statistically significant ($p < .001$). Effect sizes varied based on study quality; however, they were large and statistically significant. Using the classic fail-safe N to assess for publication bias, it was determined it would take 290 nonsignificant studies to nullify these findings.

The efficacy of hypnotherapeutic techniques in treating posttraumatic stress disorder (PTSD) is not settled. These techniques have been utilized throughout the last two centuries, though only recently empirically studied (Cheek & LeCron, 1968). Regardless of the patient's age or traumatic experience, asking to recall information surrounding trauma can be damaging (Cardeña, 2000). Therefore, using hypnotherapy to induce a calming atmosphere, while suggesting changes in sensations and perceptions can be advantageous. Researchers have shown the efficacy of hypnotherapy in meta-analyses on disability-related pain and irritable bowel syndrome (Bowker & Dorstyn, 2014; Lee, Choi, & Choi, 2014). The effectiveness of hypnotic techniques has also been shown in case studies of United States veterans of the Vietnam and Korean wars with posttraumatic stress, though these are less compelling (Brende & Benedict, 1980; Degun-Mather, 2001). Additionally, children and individuals of differing national origins have appeared to benefit from hypnotherapy as well, particularly after traumatic experiences (Friedrich, 1991; Lee & Lu, 1989; Lesmana, Suryani, Jensen, & Tiliopoulos, 2009).

Examining the efficacy of hypnotherapy in treating PTSD is timely and relevant. Research has shown that serious PTSD symptoms follow not only war, but also car accidents, sex-

ual assault, and community violence, among other Criterion A events according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., *DSM-IV*; American Psychiatric Association [APA], 1994; Beckett, 2014). As PTSD is a serious problem affecting communities around the world and throughout the United States, adequate treatments are needed to address its symptomology. Given the dearth of empirical research pertaining to hypnotherapeutic techniques in the treatment of PTSD, this meta-analytic review summarized the existing research to add clarity to the status of these treatment techniques.

Method

Procedure

All studies that used a form of hypnotherapy as treatment for traumatic stress symptoms were considered for inclusion in the meta-analysis. A systematic literature search was undertaken examining 29 electronic databases (e.g., PsychINFO and Medline; see the Appendix). Studies were selected using the search terms (hypno*) AND (PTSD OR posttraumatic stress OR posttraumatic stress OR traumatic stress) NOT (hypnotic*). Reference lists of reviewed studies were then examined for any additional studies not identified in the initial search. After deletion of duplicates, 81 studies were identified. Criteria for inclusion were as follows: (a) used either a randomized control group or a single sample pre/post design, (b) involved only hypnotherapy or hypnotherapeutic techniques as treatment, (c) had sufficient data to calculate effect sizes, (d) had a sample size >10 , and (e) was published in English.

Correspondence concerning this article should be addressed to Siobhan K. O'Toole, California School of Professional Psychology, Alliant International University, 5130 East Clinton Way, Fresno, CA 93727. E-mail: sotoole@alliant.edu

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Table 1
Summary of the Six Included Hypnotherapy Studies

Study	Tx	Design	<i>n</i>	Comparison	Time	% Men	Age (years)	Sample
Abramowitz et al., 2008	HYP	RCT	17	Zolpidem	Unknown	100	31.7	Military
Abramowitz & Lichtenberg, 2010	HOC	Pre/post	36	None	16.5 years	100	41.2	Military
Brom et al., 1989	HYP	RCT	29	Waitlist	Unknown	21	42.0	Mixed
Ibbotson & Williamson, 2010	HYP	Pre/post	26	None	>5 months	43	41.0	NM
Lesmana et al., 2009	SHAT	RCT	48	No tx	6 weeks	47	9.8	Military
Shakiaei et al., 2008	HYP	Pre/post	20	None	1 week	57	23.6	NM

Note. HOC = hypnotherapeutic olfactory conditioning; HYP = hypnotherapy; SHAT = spiritual hypnosis-assisted therapy; Tx = treatment; time = time since traumatic exposure; RCT = randomized controlled trial; NM = nonmilitary.

Evaluation of criteria for inclusion was initially conducted using the abstract. Studies that met the criteria or those for which a determination could not be made were then reviewed in full text. Of the 81 studies identified, 74 were excluded because they did not meet inclusion criteria. Of the remaining seven studies, six were used in the present analysis; one was excluded because it was a follow-up to a study already meeting inclusion criteria. Given the dearth of empirical research addressing hypnotherapy and PTSD, all six of the aforementioned studies were used in the meta-analysis, despite their inherent variability. A summary of the six studies is provided in Table 1.

Measures

Symptom severity was most commonly measured using the Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979) or the Impact of Event Scale-Revised (IES-R; Weiss & Marmar, 1996). The IES-R was updated to include the hyperarousal symptoms of PTSD introduced in the *DSM-IV* (Weiss & Marmar, 1996). When studies provided more than one outcome measure, data from the IES or IES-R were used. Two studies discussed the lack of valid cross-cultural scales for measuring PTSD in the language necessary for their studies and devised their own measures of PTSD symptoms based on *DSM-IV-TR* (APA, 2000) and *DSM III* (APA, 1980) criteria (Lesmana et al., 2009; Shakibaei, Harandi, Gholamrezaei, Samoei, & Salehi, 2008). The negative mood states and hyperarousal diagnostic criteria of PTSD were not examined due to an insufficient number of samples reporting scores on these symptoms of PTSD.

Data Analysis

Studies were coded using a standardized coding handbook by two clinical psychology graduate students trained in traumatic stress disorders. Study variables included sex, average age, the average time since the trauma (measured in months), and whether the sample was military. Other variables included treatment paradigm, research design, comparison group, and publication year. Studies were coded blindly by both researchers.

Afterward, every coding protocol was cross-referenced in the presence of the third researcher, a licensed psychologist trained in meta-analysis. Discrepancies were discussed until agreement could be reached. Cohen's κ was selected as the coefficient for categorical items and continuous data. These intraclass correlation coefficients (ICC) were high and ranged between κ /ICC = 0.00–1.00, with a mean of .91 and a median of 1.00. A final set of data was then imported into the Comprehensive Meta-Analysis program (Version 2.0; Biostat, 2005) for analysis.

Three of the six studies included in the analysis were randomized clinical trials. Effect size data for these studies were based on posttest means and standard deviations for the treatment and control groups. Effect sizes for the three remaining studies were calculated based on single sample baseline and posttest data. Heterogeneity of effect sizes was calculated using the Q statistic (Lipsey & Wilson, 2001). In addition, the influence of moderator variables, intrusion and avoidance, was calculated using analysis of variance (ANOVA) Q tests (Borenstein, Hedges, Higgins, & Rothstein, 2009). Due to high variance between effect sizes, I^2 was calculated to determine the percentage of variation due to heterogeneity rather than chance (Lipsey & Wilson, 2001).

To account for potential unpublished data, two publication bias tests were run. First, using Duval and Tweedie's (2000) trim and fill procedure, we determined that no studies needed to be excluded from the point estimate. Next we calculated the classic fail-safe N , an estimate of how many insignificant unpublished studies it would take to raise the p value to .05 (Orwin, 1983).

Results

Across the six studies there was a total of 391 participants. Most of the participants were adults; however, one study examined only preadolescents. The studies were evenly divided between military (e.g., war or terrorism) and nonmilitary-related trauma victims. The studies were conducted in four countries: Bali, Israel, the Netherlands, and Iran.

Using a random effects model, the overall mean effect size across studies was -1.18 (stander error [SE] = 0.20) indicating

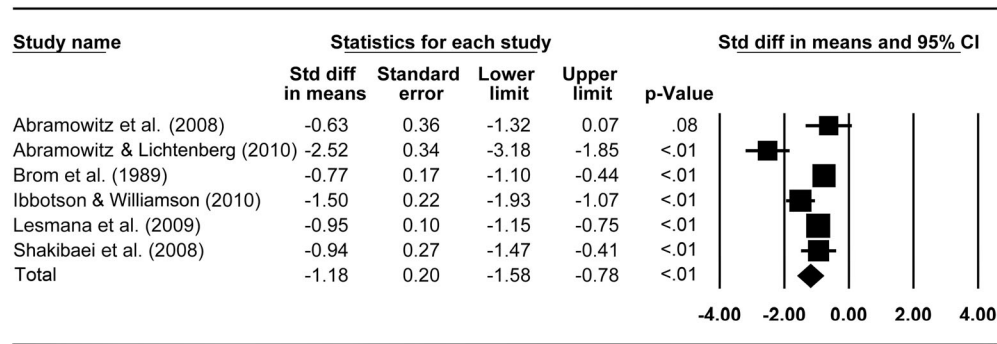


Figure 1. Hypnotherapy with posttraumatic stress disorder patients—summary of overall effect size results. The graph displays effect size estimates of each study as boxes and their 95% confidence intervals as whiskers. The effect size estimate of the combined result is displayed as a rhombus.

a decrease in symptoms on average of $> 1 SD$ following treatment. The 95% confidence interval (CI) showed a lower limit of -1.58 and an upper limit of -0.78 . The Cohen's d values across the studies showed that all had a large effect. Despite this agreement in the direction of the effect size, the test for heterogeneity revealed significant variation in amount of the effect, $Q(5) = 28.20$, $p < .001$. Figure 1 shows the effect size data for each study as well as the mean across all studies. Variance proportion analysis (I^2) indicated that approximately 82% of the observed variance appeared to be true variation rather than chance. This suggested that further analysis is required to explain this variation.

To determine the effect of having a control group, the three with a control group were compared to the three without a control group. Studies without a control group achieved an effect size of -1.52 , $SE = 0.15$, $p < .001$, 95% CI $[-1.82, -1.22]$, and those with a control group exhibited a significant but smaller effect size of -0.89 , $SE = 0.08$, $p < .001$, 95% CI $[-1.05, -0.73]$. The test for variance between subgroups was also statistically significant ($Q_{Between} = 5.20$, $p = .020$).

Avoidance and intrusion were analyzed separately in secondary analyses. Avoidance yielded a statistically significant effect size with a Cohen's d of -0.92 , $SE = 0.13$, $p < .001$, 95% CI $[-1.17, -0.67]$, that was homogeneous across the three studies that included this subscale, $Q(2) = 0.59$, $p = .740$. Effect sizes for the intrusion subscale, however, were not homogeneous across the four studies reporting this variable, $Q(3) = 16.31$, $p = .001$, although they also exhibited a large effect -1.23 , $SE = 0.32$, $p < .001$, 95% CI $[-1.86, -0.61]$.

First, using Duval and Tweedie's (2000) trim and fill procedure, we determined that no studies needed to be excluded from the point estimate. Next, according to the classic fail-safe N (Orwin, 1983), it would take 290 insignificant studies to nullify the effect found in this meta-analysis. Given these results, no substantial evidence of publication bias was found, suggesting the effect sizes reported are robust measures of the treatment effect.

Discussion

This study is the first meta-analytic review of the effects of using hypnotherapeutic techniques as treatment for symptoms of PTSD of which we are aware. Our results demonstrated that forms of hypnotherapy were effective treatment for traumatic stress, with large effect sizes in the samples included. In addition, the specific PTSD symptoms of intrusion and avoidance were both found to decrease significantly in response to hypnotherapy. Therefore, in every area measured by this analysis, hypnotherapeutic techniques significantly reduced PTSD symptoms, regardless of the time since the trauma occurred and whether it was witnessed, directly experienced, or both.

The main limitations of this present analysis are the small number of studies used and the quality of the studies. Of the six studies used in this analysis, all had treatment groups with fewer than 50 individuals, with varying treatment designs and outcome measures. Additionally, not all studies used the same type of treatment, as only four studies addressed the efficacy of pure hypnotherapy, and two utilized hypnotherapeutic techniques. Therefore, it is difficult to determine if the reduction in PTSD symptoms was due specifically to hypnotherapy, or if nonvalidated outcome measures and varying treatment designs were impacting the results. As such, the findings of this study may not represent the overall efficacy of hypnotherapeutic techniques. To remedy this, larger high quality studies would need to be included in this analysis.

Due to the fairly comprehensive literature search, it is probable that the majority of relevant studies regarding this topic were used in this meta-analysis. Although researchers in this area were contacted, we did not receive correspondence regarding unpublished or nonsignificant data. Though it is possible that unpublished studies could refute our findings, it would take more than 45 null studies for each study included in the analysis to alter our conclusions. As such, our sample of studies can be considered a small but robust sample. Given the results of this preliminary study, the efficacy of hypnotherapy for clients with PTSD warrants larger high quality, empirical trials to ascertain specific treatment effects for PTSD.

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Appendix

Comprehensive List of All Databases Used in the Meta-Analysis

Academic Search Premier
 AHFS Consumer Medication Information
 Alt Health Watch
 Business Source Complete
 eBook Collection (EBSCOhost)
 Education Research Complete
 ERIC (Education Resources Information Center)
 Funk & Wagnalls *New World Encyclopedia*
 GreenFILE
 Health and Psychosocial Instruments
 Health Source: Consumer Edition
 Health Source: Nursing/Academic Edition
 LGBT Life with Full Text
 Library, Information Science & Technology Abstracts
 MAS Ultra–School Edition
 MEDLINE with Full Text
 Mental Measurements Yearbook with Tests in Print
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