Acupuncture for the Treatment of Post Traumatic Stress Disorder

Meghan Goff

Recommended Citation
https://commons.pacificu.edu/pa/262

This Capstone Project is brought to you for free and open access by the College of Health Professions at CommonKnowledge. It has been accepted for inclusion in School of Physician Assistant Studies by an authorized administrator of CommonKnowledge. For more information, please contact CommonKnowledge@pacificu.edu.
Acupuncture for the Treatment of Post Traumatic Stress Disorder

Abstract

Background: Of those military service members returning from the current conflict in the Middle East, nearly 20% report symptoms of Post-Traumatic Stress Disorder (PTSD) and only slightly more than half of them seek treatment. Most of these patients are reluctant to participate in traditional interventions such as group or individual psychotherapy, or the supplemental anti-depressives or anxiety pharmaceuticals prescribed to alleviate their symptoms. Through a systematic review of the literature based on GRADE criteria to validate the quality of evidence, this paper seeks to evaluate alternative medicine practices for the treatment of PTSD that are both effective and appealing to the patient.

Method: An exhaustive search of available medical literature was conducted using specific inclusion/exclusion criteria. Nineteen studies were selected for review. After applying inclusion/exclusion criteria, two studies were selected to be analyzed.

Results: An initial search of available medical literature journal databases using specific keyword searches produced 19 articles for analysis. From these initial resulting studies, all unanimously showed positive results for the use of acupuncture in effectively reducing patients’ depression and anxiety. None of the studies produced any evidence of adverse effects for the use of acupuncture in the treatment of PTSD. These articles were then limited to the time span of 2002 to the present in order to best capture those studies limited to investigations of servicemen and women specific to the current Middle East conflict. Several studies were excluded as anecdotal or small population case studies. The remaining 2 studies included Randomized Control Trials and Cohort Studies. These studies uniformly supported the use of acupuncture as therapy for PTSD.

Conclusion: Based on GRADE criteria, acupuncture used as an alternative to traditional cognitive behavioral therapy or anti-depressives/ mood-altering pharmaceuticals provides equal to superior results in patients’ symptom resolution and in extended remission of Post-Traumatic Stress Disorder.

Keywords: Acupuncture, PTSD, veterans, depression, anxiety

Degree Type
Capstone Project

Degree Name
Master of Science in Physician Assistant Studies

First Advisor
Dr. Torry Cobb

Keywords
Acupuncture, PTSD, veterans, depression, anxiety

Subject Categories
Medicine and Health Sciences

This capstone project is available at CommonKnowledge: https://commons.pacificu.edu/pa/262
NOTICE TO READERS

This work is not a peer-reviewed publication. The Master’s Candidate author of this work has made every effort to provide accurate information and to rely on authoritative sources in the completion of this work. However, neither the author nor the faculty advisor(s) warrants the completeness, accuracy or usefulness of the information provided in this work. This work should not be considered authoritative or comprehensive in and of itself and the author and advisor(s) disclaim all responsibility for the results obtained from use of the information contained in this work. Knowledge and practice change constantly, and readers are advised to confirm the information found in this work with other more current and/or comprehensive sources.

The student author attests that this work is completely his/her original authorship and that no material in this work has been plagiarized, fabricated or incorrectly attributed.
Acupuncture Therapy for Post Traumatic Stress Disorder

Meghan Eileen Goff

A course paper presented to the College of Health Professions
in partial fulfillment of the requirements of the degree of
Master of Science

Pacific University School of Physician Assistant Studies

December, 2010

Faculty Advisor: Professor Mary Von, PA-C
Clinical Graduate Project Instructors: Torry Cobb, DHSc, MPH, PA-C & Annjanette Sommers MS, PA-C

- 1 - Revised November 2010
Biography

[Redacted for privacy]

Acknowledgements

[Redacted for privacy]
ABSTRACT

**Background:** Of those military service members returning from the current conflict in the Middle East, nearly 20% report symptoms of Post-Traumatic Stress Disorder (PTSD) and only slightly more than half of them seek treatment. Most of these patients are reluctant to participate in traditional interventions such as group or individual psychotherapy, or the supplemental anti-depressives or anxiety pharmaceuticals prescribed to alleviate their symptoms. Through a systematic review of the literature based on GRADE criteria to validate the quality of evidence, this paper seeks to evaluate alternative medicine practices for the treatment of PTSD that are both effective and appealing to the patient.

**Method:** An exhaustive search of available medical literature was conducted using specific inclusion/exclusion criteria. Nineteen studies were selected for review. After applying inclusion/exclusion criteria, two studies were selected to be analyzed.

**Results:** An initial search of available medical literature journal databases using specific keyword searches produced 19 articles for analysis. From these initial resulting studies, all unanimously showed positive results for the use of acupuncture in effectively reducing patients’ depression and anxiety. None of the studies produced showed any evidence of adverse effects for the use of acupuncture in the treatment of PTSD. These articles were then limited to the time span of 2002 to the present in order to best capture those studies limited to investigations of servicemen and women specific to the current Middle East conflict. Several studies were excluded as anecdotal or small population case studies. The remaining 2 studies included Randomized Control Trials and Cohort Studies. These studies uniformly supported the use of acupuncture as therapy for PTSD.

**Conclusion:** Based on GRADE criteria, acupuncture used as an alternative to traditional cognitive behavioral therapy or anti-depressive/ mood-altering pharmaceuticals provides equal to superior results in patients’ symptom resolution and in extended remission of Post-Traumatic Stress Disorder.

**Keywords:** Acupuncture, PTSD, Veterans, Military
# TABLE OF CONTENTS

INTRODUCTION ............................................................................................................. 5  
  Background............................................................................................................... 5  
  Purpose of the Study .............................................................................................. 9  

METHOD ......................................................................................................................... 9  
  Inclusion Criteria ..................................................................................................... 10  
  Exclusion Criteria .................................................................................................... 10  

RESULTS ...................................................................................................................... 10  

DISCUSSION ................................................................................................................ 14  

REFERENCES .............................................................................................................. 18  

APPENDIX .................................................................................................................... 19  
  A. Grade Table ....................................................................................................... 19  
  B. Brain Scan of Male Veteran with PTSD .............................................................. 20  
  C. fMRI of Brain Response During Manual Acupuncture ........................................ 21  
  D. Acupuncture Therapy Chart ................................................................................ 22
INTRODUCTION

Background

Since the United States Military’s involvement in the Middle East following the attacks of September 11th, 2001, over 1.6 million U.S. troops have deployed to the wars in Iraq and Afghanistan and of those returning, nearly 20% of military service members report symptoms of Post-Traumatic Stress Disorder (PTSD) or Major Depression. (Rand 2008) More alarming, is that only slightly more than half of that figure actually seek treatment. These facts are more startling when one considers that this figure only captures those individuals who chose to come forward and report their symptoms. There is no actual figure to truly show the possible magnitude of PTSD and how it affects our troops and returning veterans. While advancements have been made in our American culture regarding more open discussion and recognition of disorders such as depression and anxiety, these gains have been minimal and remain mostly exclusive to the civilian world. Unfortunately, despite the increased incidence of PTSD and Depression among Military members, there has not been a subsequent decrease in the stigma that surrounds such a diagnosis.

The American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) defines Post-Traumatic Stress Disorder as the development of symptoms following exposure to an extreme traumatic stressor involving direct or witnessed personal harm, death, injury or threat to personal integrity. The characteristic symptoms that manifest with PTSD can include depression, anxiety, sleep disturbances, nightmares, fatigue, gastrointestinal disorders, musculoskeletal and joint pain, social withdrawal, and addictive behaviors. (Uomoto & Williams, 2009).
For many patients with likely PTSD etiology, initial treatment is usually sought merely to address their symptomology—insomnia or migraines, for example—instead of the blanketing PTSD psychosis itself. More so than their civilian counterparts with the same psychosis, many active duty and retired military members remain reluctant to seek medical care for their condition. Dr. Cal Robinson, Clinical Psychologist with the United States Air Force, notes that many servicemen and woman wish to avoid the diagnosis of PTSD altogether (personal interview, November 11, 2010). According to Dr. Robinson, “They fear a history of mental health services on their record will affect their selection for promotion, or require them to stay behind from their unit for any upcoming deployments should they still be engaged in active treatment at the time their orders come through.” [Robinson, C. (2010, November 11). Personal interview.]

The traditional treatment for PTSD has been a regimen of frequent and consistent cognitive behavior therapy, and adjunct anti-depressive or mood stabilizing drugs, as needed, based on the patients’ individual symptoms. For members of the military in particular, neither of these therapy options is especially appealing. Many military members with PTSD are reluctant to talk about their difficulties within a group cognitive therapy setting due to embarrassment about what they perceive is an inability to cope with their combat duties. They are sensitive to the concept of sharing these perceived weaknesses in front of a group of their peers. Individual sessions are somewhat more appealing but still require the member to present to the mental health unit at their base hospital.

Similar to their civilian counterparts struggling with PTSD or depressive type syndromes, many servicemen are resistant to the idea of pharmaceutical therapies for
their disease due to the side-effect profiles and adverse reactions for the drugs typically prescribed as part of their treatment regimens. Drugs such as selective serotonin re-uptake Inhibitors (SSRIs), which are a mainstay of pharmaceutical therapy in PTSD, have a side-effect profile that many people – civilian and military alike- report as disruptive to their personal life and job requirements. Symptoms such as nausea, somnolence, tremor, diarrhea and decreased libido are among the most common reactions while taking SSRIs (Hirsh 2010). Patients are thus forced to choose between suffering with PTSD or suffering with the side-effects of the medications used to treat it. 

Given the barriers and drawbacks associated with traditional interventions, acupuncture is emerging as a promising alternative treatment for PTSD. Though post traumatic stress disorder itself is a modern phenomenon, traditional Chinese medicine has been used to treat psychiatric illnesses since at least 1100 B.C. (Sinclair-Lian, N., Hollifield, M, Menache, M., Warner, T., Viscaya, J. & Hammerschlag, R., 2006). Modern studies capturing neurological imaging during acupuncture treatment show that the effects of acupuncture are mediated in part by the autonomic nervous system, the prefrontal cortex and the limbic system of the brain. (Cannistraro & Rauch, 2003). This is an extremely remarkable finding because these are the same neurological systems and structures implicated in the pathophysiology of PTSD. (Cannistraro & Rauch, 2003). Nuclear imaging illustrating these findings is shown in the Appendix (Figure 2 and Figure 3). It is suspected that the sympathoinhibitory effects of acupuncture are mediated largely through neurotransmitter systems in an opioid-dependant cascade (Hollifield, M., Sinclair-Lian, N., Warner, T. & Hammerschlag, R., 2007). In PTSD patients, this normal neuro-pathway is believed to be dysfunctional. Participating in
acupuncture treatments thus has the potential to reestablish this natural system and regulate imbalances that exist with the patients’ organic neurotransmitter production and its use within the body.

One might argue that a non-Western medicine modality like acupuncture requires a certain amount of patient ‘buy-in’, or confidence in the fact that the treatment approach is indeed valid. One article found in the research for this project, conducted by Eich, Angelink, Lehmann, Lemmer, and Klieser, W. (2000), tested such a hypothesis with a randomized control study of patients for depression. The study assigned patients to either traditional Chinese acupuncture or a placebo acupuncture group using “sham” points for needle placement. Significant reduction was reported in symptoms based on the Hamilton Anxiety Score Test for the traditional acupuncture group but no reduction was reported by those in the sham acupuncture group. (Eich et al, 2000) A diagram of common points used in acupuncture treatments can be seen in the appendix (Figure 4). Studies such as this, demonstrate that the belief in acupuncture working is not necessary for the therapy to be effective; the acupuncture has to be performed correctly in order to obtain positive patient results.

If acupuncture treatments can be proven to be both safe and effective, such an intervention would be an especially appealing option to a military population of patients, since it would potentially keep their condition under control without the use of the pharmaceuticals that would otherwise disqualify them from their duties. Acupuncture can be performed in base hospitals by general practitioners with a license in acupuncture and, as such, keep them from the anxiety and stigma – perceived or real-of being seen presenting to a Mental Health specific ward or office.
Purpose of the Study

The purpose of the study is to perform a systematic review of the literature to investigate randomized control studies that demonstrate the efficacy of acupuncture in the treatment of PTSD. Resulting studies from an exhaustive search of current medical journal databases will be evaluated using GRADE criteria. By finding an effective alternative to traditional psycho- and pharmacotherapies for post traumatic stress disorder (PTSD), particularly as it applies to active-duty and retired military personnel, it is hoped that PTSD psychosis can more readily be addressed using a treatment the patients are both comfortable with and can trust to be effective in addressing their PTSD symptomology.

METHOD

An extensive literature search of peer-reviewed literature was performed using PubMed, Web of Science, Cochrane, and CINHAL. These databases were accessed through the Pacific University Library system. The keywords used included “acupuncture”, “PTSD”, “anxiety” and “veterans.” These words were searched individually and in combination. The initial results included 19 articles. The search was then limited to systematic reviews and English language versions (original or translated), published since September 11, 2001. This yielded 10 articles to review. The search was further limited to include randomized controlled trials conducted in North America. After applying these criteria, two articles were selected for final analysis.
Inclusion Criteria

The inclusion criteria for consideration in the study included male or female active duty or retired military members ages 18-65, with a diagnosis of post traumatic stress disorder, anxiety or depression.

Exclusion Criteria

The exclusion criteria required that study participants have no previous diagnosis of any other psychosis or personality disorder. There was no restriction on the time between their original post traumatic stress disorder diagnosis and participation in the acupuncture randomized controlled studies. Study patients had to have stopped taking any other previously prescribed anti-depressants or anti-psychotic medications for a time period of at least 30-days prior to enrollment in the study. Participants who were already actively engaged in group or individual psycho-therapy within 30-days of beginning the trial were also excluded. Finally, and most importantly, those Veterans with co-morbidity of traumatic brain injury in addition to their PTSD diagnosis were excluded from the study.

RESULTS

Study #1: Holifield et al 2007

The first study considered for analysis was performed by Hollifield et al (2007) through the Department of Psychiatry at the University of Louisville, Kentucky. The purpose of the study was to evaluate the potential efficacy and acceptability of acupuncture for post-traumatic stress disorder. Patients were recruited for the study based on four inclusion/exclusion criteria. First, they had to have been diagnosed under the DSM-IV criteria for PTSD, scoring a 16 or above on the Post-Traumatic Symptom
Scale-Self Report (PSS-SR) questionnaire before being assigned to the study. Secondly, they had to be willing to accept randomization. Next, patients were excluded if they had any active substance abuse or psychosis. And finally, potential patients could not be currently receiving treatment specific to their PTSD. From the original group of 209 contacts, after inclusion/exclusion criteria were applied, 84 patients were randomized to either an acupuncture intervention group (29 patients), a Cognitive Behavioral Therapy intervention group (28 patients), or a control “Wait-List” (27 patients). Randomization was performed by assigning patient identity numbers via a 3rd party research coordinator. The allocation procedure was concealed from the clinicians involved in the study and the Master List linking study ID with treatment ID numbers was kept in a locked file accessible only by the Research Coordinator.

For the acupuncture group, interventional therapy consisted of one-hour sessions, twice a week. These acupuncture appointments consisted of 15-20 minutes of standard Traditional Chinese Medicine symptom review, a pulse and tongue evaluation (2-5 minutes), needle insertion, manipulation and retention for 25-40 minutes, and ear-seed placement (2 minutes) which the patient would continue to wear and manipulate for 15 minutes a day, at home. The acupuncture points chosen for the therapy were pre-established for all patients; consisting of 11 bilateral points on the anterior side of the body, 14 bilateral points on the posterior side of the body, and an additional 15 possible needle points applicable to PTSD anxiety/depression symptoms from which up to 3 different points could be used in addition to the pre-established 25 standard points. For study participants in the acupuncture group, lifestyle advice and counseling was limited
and given only in response to direct questioning or concerns brought up by the patient so as to limited the amount of ‘counseling’ intervention performed at their sessions.

For the Cognitive Behavioral Therapy Group, participants met individually with their therapists once a week for 2 hours, following the manual for Psychological Treatment of Post-Traumatic Stress Disorder (Hollifield et al 2007). As part of the therapy plan, patients were required to do 15-minutes of homework independent of their in-clinic visits. Therapy sessions 1-3 consisted of psychoeducation, behavioral activation, and activity planning. During sessions 4-10, patients were taught classic cognitive restructuring. Finally, sessions 10-12 were used for classic exposure and desensitization techniques. Each session was delivered with a standard agenda order covering education, review of previous sessions and homework, addressing any acute problem areas, and adding or adjusting any new technique training.

Outcomes were assessed by for both groups via self-reported measures at baseline, mid-treatment, end-treatment and a 3-month follow-up using the standardized Post-Traumatic Symptom Scale-Self Report (PSS-SR), which consists of patients’ ratings of 17 items addressing DSM-IV PTSD diagnostic criteria (Hollifield et al 2007). Scores below a 10 using the PSS-SR scale, are considered “mild” PTSD, and scores above 20 are considered “severe” PTSD. The Sheehan Disability Inventory survey was also used by the participants to rate their anxiety and depression symptoms as they relate to impairment in the areas of work, social, and home/family life. This data collection was performed by the research coordinator, and concealed from the study clinicians.
The study’s results, showed an effects analysis with a significant decline in PSS-SR scores from baseline to end-treatment for both the acupuncture group (n=19, means=31.3 [8.4] vs. 14.3 [12.1], p<0.01, d= 1.63) and the cognitive behavioral therapy group (n=21, means=32.0 [6.4] vs. 17.5 [8.3], p<0.01, d= 1.95) but not for the control wait-list group (n=21, means=29.1 [8.9] vs. 27.5 [12.5], NS, d= 0.15). By the end of treatment, 68% of patients in the acupuncture group, 43% of people in the cognitive behavioral therapy group and 19% of people in the wait-list control group had PSS-SR scores below the entry criterion level of • 16. (Hollifield et al., 2007) At 3-months post-treatment follow-up, 63% of patients in the acupuncture group and 52% of people in the cognitive behavior therapy group remained below the entry criterion level of • 16. (Hollifield et al., 2007)

Study #2: Wendling 2010

In the second study submitted for consideration, 55 veterans were randomized to either traditional therapy (either selective serotonin re-uptake inhibitors or psycho-therapy sessions) or acupuncture for post traumatic stress disorder. The patients were 64% Male/ 36% female in the Acupuncture group and 74% Male/ 26% female in the traditional therapy group; with the mean ages of the two groups being 37 and 33 years old, respectively. (Wendling 2010) Baseline Clinician-Administered PTSD Scale (CAPS) scores were obtained at the start of the study. The PTSD Checklist-Civilian Version (PCL-C) was also performed as a measurement gage, since the veterans’ PTSD could have stemmed from trauma outside of direct combat. The average CAPS score in the acupuncture group was 76.2 and 70.0 in the standard-care group. The average PCL-C
score in the acupuncture group was 58.1 and 55.4 in the standard-care group. Patients with moderate to severe brain injury were excluded from study participation.

Treatment sessions were 90-minutes long and held twice a week for 4 weeks, whether psycho-therapy or acupuncture was being administered. Analysis was performed at end-treatment and at 12-week post-treatment follow-up. At both measured intervals, the acupuncture group was associated with significantly greater decreases in PTSD symptoms on the PCL-C scale. At end-treatment, the PCL-C scores for the acupuncture group decreased by a mean of 19.4 points, and by 19.8 points at 12-week post-treatment follow-up; compared with 4.0 and 9.7 mean decreases for the traditional therapy group at the respective intervals. (Wendling, 2010)

DISCUSSION

With the current military conflicts in the Middle East, PTSD is a serious and growing problem among the United States servicemen and woman. An effective treatment variation that is not associated with the stigma of psychiatric care would be an important option of care to offer these struggling returning veterans. This systematic review explored the efficacy of acupuncture as an alternative to traditional therapies in the treatment of PTSD using GRADE criteria.

As both these studies show, there is significant clinical evidence to support the use of acupuncture as an effective alternative to traditional interventions for the treatment of symptoms associated with PTSD. Perhaps even more convincing, are the long-term effects acupuncture treatment seems to hold for PTSD patients. Both the studies analyzed demonstrated substantial reductions in symptom improvement at mid, and end-treatment points. In both studies, three months post-treatment intervals
showed that those in an acupuncture therapy group maintained or improved their symptomology, whereas those in cognitive therapy or pharmacotherapy groups lost ground or made very minimal gains. The fact that acupuncture’s treatment effects not only are effective as PTSD treatment, but also may be longer lasting, is reason to promote acupuncture over other traditional therapies, particularly in those with more prolonged, severe or repressed cases of PTSD.

While those skeptical of acupuncture might argue that the efficacy of such an unconventional modality is dependent on the patient’s own belief in its helpfulness, controlled clinical trials have shown that placebo acupuncture does not produce the same positive results in symptom relief that comes from traditional standardized Chinese acupuncture. (Eich et al, 2000) Controlled studies such as this, discount any psychosomatic explanation that critics might suspect is involved with the success of acupuncture. They also make a strong case for exact needle-point placement according to standardized points and established physiological studies. The traditions of acupuncture stem from thousands of years of practice and research and patients should seek out their acupuncture care only from board certified and regulated practitioners to ensure that they receive the safest and most effective treatment possible.

While the overall results produced for the studies analyzed in this report are promising, neither of the studies are without limitations. First of all, both studies used relatively small sample sizes of roughly 80 patients. Also, in both studies, once randomized, all patients were assigned to a specific designated practitioner, Dr. X or Dr. Y—where Dr. X was an acupuncturist who worked with all participants from the acupuncture group, and Dr. Y was a specific clinical psychologist seeing all patients
assigned to the cognitive therapy group. Because a treatment plan wasn’t outlined and standardized so that any practitioner could deliver the treatments, it is hard to say that the study results were specific or non-specific to the provider. Further studies would need to be implemented with a set rubric for treatment guidelines, so that the patient’s symptom results could be compared across multiple providers, assuring continuity of quality and consistent care.

Furthermore, neither of the two studies analyzed, reported why – on a physiological level- acupuncture groups did so well compared to their comparative traditional therapy groups. To further validate the use of clinical acupuncture in patients with psychosis such as PTSD, anxiety and depression, it would be best to demonstrate critical evidence showing what – if anything- changes in a patient’s biochemistry that allows their symptoms to be reduced through acupuncture treatments. Do serotonin or melatonin levels rise? Do cortisol levels fall? Is it a combination of all of these things? The acupuncture procedure itself should also be analyzed to determine which points or combination of points work best. Are effects greater with electro-acupuncture versus manual stimulation, etc?

To compare the pros and cons and determine the overall quality of evidence in both studies, Grading of Recommendations Assessment, Development and Evaluation (GRADE) criteria was used. GRADE rates outcomes are initially rated on study design and then the outcomes are up or downgraded based on set criteria as shown in the appendix. Ultimately the outcome gets a GRADE then the overall evidence and all outcomes combined gets a GRADE. The GRADE system uses the following definitions in grading the quality of the evidence: High = further research is very unlikely to change
our confidence in the estimate of effect; moderate = further research is likely to have an
important impact on our confidence in the estimate of effect and may change the
estimate; low = further research is very likely to have an important impact on our
confidence in the estimate of effect and is likely to change the estimate; very low = any
estimate of effect is very uncertain. Both studies analyzed here qualified as an overall
quality rating of “High.” Any further research done to expand on the use of Acupuncture
in the treatment of PTSD is likely to address some of the remaining un-answered
questions about the process (ie. the effects it has on physiological chemistry in the
subject body) but is unlikely to negatively change the confidence with which providers
can safely recommend the use of Acupuncture treatments.

Despite the questions that remain unknown at this time, it is reasonable and safe
to recommend and allow patients who are curious in exploring acupuncture for the
treatment of post traumatic stress disorder to do so. Based on the encouraging
evidence demonstrated by the two articles analyzed here, practitioners working with
PTSD patients should feel secure in recommending acupuncture to their PTSD patients
who might otherwise be hesitant to use more traditional methods. Such patients may
find acupuncture treatments more acceptable and easier to tolerate than other
interventions, allowing them to get consistent and constant care which, above all- no
matter what the modality- is truly the greatest factor in healing from the unseen wounds
of PTSD.
REFERENCES


# APPENDIX A

Figure 1. GRADE Table

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Outcome</th>
<th>Quality and Type of Evidence</th>
<th>Findings</th>
<th>Decrease GRADE</th>
<th>Increase GRADE</th>
<th>GRADE of Evidence for Outcome</th>
<th>Overall GRADE of Evidence Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acupuncture</td>
<td>Symptom Reduction or No Change</td>
<td>RCT</td>
<td>Decreased Symptoms</td>
<td>High</td>
<td>0</td>
<td>1</td>
<td>High</td>
</tr>
<tr>
<td>Cognitive Behavior Therapy</td>
<td>Symptom Reduction or No Change</td>
<td>RCT</td>
<td>Decreased Symptoms</td>
<td>High</td>
<td>0</td>
<td>0</td>
<td>High</td>
</tr>
<tr>
<td>Wait-List Control</td>
<td>Symptom Reduction or No Change</td>
<td>RCT</td>
<td>No difference</td>
<td>High</td>
<td>0</td>
<td>-1</td>
<td>Moderate</td>
</tr>
<tr>
<td>Acupuncture</td>
<td>Symptom Reduction or No Change</td>
<td>RCT</td>
<td>Decreased Symptoms</td>
<td>High</td>
<td>0</td>
<td>1</td>
<td>High</td>
</tr>
<tr>
<td>Cognitive Behavior Therapy &amp; SSRIs</td>
<td>Symptom Reduction or No Change</td>
<td>RCT</td>
<td>Decreased Symptoms</td>
<td>High</td>
<td>0</td>
<td>0</td>
<td>High</td>
</tr>
<tr>
<td>Control</td>
<td>Symptom Reduction or No Change</td>
<td>RTC</td>
<td>No difference</td>
<td>High</td>
<td>0</td>
<td>-1</td>
<td>Moderate</td>
</tr>
</tbody>
</table>
APPENDIX B

Figure 2. Brain Scan of Male Veteran with PTSD. (Clements, 2010)
APPENDIX C

Figure 3. fMRI of Brain Response During Manual Acupuncture (Hui, 2000)
APPENDIX D

Figure 4. Acupuncture Therapy Chart, anterior and posterior points covering common needle points (Gelisy, 2005)