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# The Scientist-Practitioner on the Front Line: Development and Formalization of Evidenced- Based Interventions on the Battlefield

Alan L. Peterson

Jeffrey A. Cigrang  
*Wright State University*, [jeffrey.cigrang@wright.edu](mailto:jeffrey.cigrang@wright.edu)

Richard P. Schobitz

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***Response to Commentaries on Three American Troops in Iraq:  
Evaluation of a Brief Exposure Therapy Treatment  
for the Secondary Prevention of Combat-Related PTSD***

**The Scientist-Practitioner on the Front Line:  
Development and Formalization of  
Evidenced-Based Interventions on the Battlefield\***

**ALAN L. PETERSON<sup>a,d</sup>, JEFFREY A. CIGRANG<sup>b</sup>, RICHARD P. SCHOBITZ<sup>c</sup>**

<sup>a</sup> Wilford Hall Medical Center, San Antonio, Texas

<sup>b</sup> Wright-Patterson Medical Center, Dayton, Ohio

<sup>c</sup> Tripler Army Medical Center, Honolulu, Hawaii

<sup>d</sup> Correspondence concerning this article should be addressed to Alan L. Peterson,  
Department of Psychology, Wilford Hall Medical Center, 2200 Bergquist Drive, Suite 1,  
San Antonio, TX 78236-5300. email: [alan.peterson@lackland.af.mil](mailto:alan.peterson@lackland.af.mil)

\*Note: The views expressed in this article are those of the authors and are not the official policy of the Department of Defense or the United States Air Force.

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**ABSTRACT**

Nathan (2005) and Petronko (2005) provide excellent commentaries on our three case studies (Cigrang, Peterson, & Schobitz, 2005) describing the use of prolonged imaginal exposure for the secondary prevention of Post-Traumatic Stress Disorder (PTSD). In this response, we note that future research should build upon the lessons and experiences of these cases and include larger sample sizes, additional measures (anxiety, depression, grief, quality of life, subjective units of distress ratings), the development of a flexible treatment manual, and formal measures of Acute Stress Disorder (ASD). Future research should also target process measures such as patient acceptability of the treatment and willingness to engage in the exposure sessions. Deployed military psychologists, in collaboration with civilian researchers, have the potential to further advance the scientific knowledge base on the assessment and treatment of combat-stress disorders through the use of innovative case studies. The potential importance of research and formalized treatments for individuals exposed to the significant psychological trauma related to terrorist attacks and bombings is highlighted.

*Key words:* scientist-practitioner; Post-Traumatic Stress Disorder (PTSD); imaginal exposure; Acute Stress Disorder (ASD)

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We read with great interest the commentaries by Nathan (2005) and Petronko (2005) on our case report of imaginal exposure therapy as secondary prevention for Post-Traumatic Stress Disorder (PTSD) with military members seeking help following their exposure to combat

trauma. As noted by Nathan, this report might be more accurately described as case studies on the treatment of Acute Stress Disorder (ASD) as a means of secondary prevention of PTSD. However, as mentioned in our original report (Cigrang, Peterson, & Schobitz, 2005), while the early symptoms of PTSD frequently fall under the category of ASD and it was our clinical impression that our patients did fall within this category, the ASD diagnosis requires the presence of dissociative symptoms, which we did not specifically assess for. Nathan's point reminds us that in the future, it would be important to formally evaluate our patients for ASD, in order to link more systematically with the literature on this syndrome (e.g., Bryant, 2004).

We especially appreciated Nathan and Petronko's recognition of the immediacy of the report to real world events and to the challenges involved in assisting military men and women serving in Iraq and Afghanistan. Our three cases exemplify a process of adapting evidenced-based, cognitive-behavioral therapies to a unique and dynamic clinical context that offered less opportunity for a priori planning and control than is possible in other settings. The commentaries offer valuable advice on how to strengthen the methodology of future research on this topic.

We agree with both Nathan and Petronko's observation that a definitive test of the exposure procedures would require a larger sample of subjects, random assignment to manualized treatment conditions, and an extended follow-up period. However, we propose an intermediate step involving the use of a larger, single-subject, clinical replication series with perhaps 10-12 patients prior to the evaluation of a randomized clinical trial. The logistical challenges of coordinating such a randomized clinical trial in the midst of a war zone are quite daunting. This is especially true if the intention is to evaluate the use of repeated imaginal exposure therapy for military members seeking help one to two weeks following trauma exposure. Additionally, there are several other questions that may be at least partially answered by a larger clinical replication series.

Within the context of the rationale for this *PCSP* journal (Fishman, 2005), it is important to point out that additional case studies such as the three we presented would continue to document the ways in which the individual contexts, needs, and personalities of different traumatized servicemen interact with a more formalized treatment model. Specifically, additional cases could provide useful and interesting information on how the model works with specific categories of individuals based on type of trauma, single versus multiple traumas, chronicity of PTSD symptoms, and gender (Foa, Keane, & Friedman, 2000). Our experience in using this treatment model with different military members following combat-related trauma has left us with the impression that pre-treatment levels of PTSD symptoms may be predictive of treatment participation and response. The three cases presented in this report all had PCL-M scores (PTSD Checklist-Military Version: Weathers, Litz, Herman, Huska, & Keane, 1993) at intake above the threshold for PTSD ( $\geq 50$ ). When initial PCL-M scores have been lower than 40, the subsequent therapy appeared to be less beneficial and involved fewer treatment sessions. Whether the long-term outcome in these cases was similar or different from those with greater reported distress at intake is unknown.

Petronko suggested future studies focus on process measures of the exposure therapy. Two process factors that would be important to evaluate more systematically in a clinical replication series are patient acceptability of this exposure therapy treatment approach and patient willingness to engage in the exposure sessions. A recently published randomized clinical trial of women with PTSD related to childhood sexual abuse ( $n = 74$ ) compared exposure therapy, present-centered problem-solving therapy, and a wait-list group (McDonagh, Friedman, McHugo, Ford, Sengupta, Mueser, Demment, Fournier, Schnurr, & Descamps, 2005). The results indicated that exposure therapy participants were significantly more likely to no longer meet criteria for a PTSD diagnosis at follow-up assessments. However, exposure therapy participants had a significantly greater dropout rate (41%; 12 of 29) than problem-solving therapy (9%; 2 of 22) and the wait-list group (13%; 3 of 23). One possible explanation of the differential dropout rate is that some patients may be reticent to engage in the exposure portion of this treatment. Presumably, the memories of the traumatic events may be too frightening or emotionally painful for patients to voluntarily engage in re-experiencing the events during the exposure treatment. These findings are consistent with anecdotal experiences of the authors with some combat-trauma-exposed patients in Iraq who have been hesitant to engage in this treatment approach. Supportive, present-centered therapy may be more acceptable to these patients, although it may also be less effective in decreasing PTSD symptoms.

Another thoughtful suggestion to help evaluate process measures of sessions was for the use of “subjective units of distress” (SUDS) ratings as a measure of emotional responding. This measure could be helpful in evaluating changes in emotional responding across treatment sessions and possibly as a measure of the potency of the memories of the traumatic events. It may be that high SUDS ratings related to the traumatic events correspond to reticence to engage in the exposure portions of this treatment approach.

Petronko’s suggestions for developing a flexible treatment manual to help standardize the implementation of the model in future case studies were very helpful. One suggestion was to standardize the length of the treatment sessions. Although this makes sense in general, it should be noted that the specific length of the exposure portion of the sessions was determined by the patients and tended to be reduced with successive exposure sessions. For example, Airman C.’s initial exposure lasted 76 minutes, whereas his fourth exposure session lasted only 33 minutes. All exposure sessions for Airman C focused on the same traumatic event (car bomb) and the reduction in length of the exposure portion corresponded to significant decreases in emotional intensity and detailed descriptions of the event across sessions. This patient-determined reduction in duration of the length of the exposure portion of sessions was thought to be indicative of decreased potency of the memories of the traumatic event similar to an extinction paradigm from a learning theory perspective.

Another notable question that could be addressed in future case studies is how standardization of the model can best accommodate individual differences in number of previous combat-related traumas. By the time a military member is referred to a psychologist at a forward-deployed medical unit he or she may have experienced multiple potentially traumatizing events. One possibility would be to obtain a SUDS rating of each trauma at the initial evaluation

to help prioritize the incidents for exposure-based therapy. The clinician and patient would then use a graduated exposure to increasingly more emotionally reactive experiences. This method of prioritizing traumatic events for imaginal exposure apparently worked well in the recent study of individual psychotherapies for adult women with PTSD associated with childhood sexual abuse (McDonagh et al., 2005).

One aspect that was not addressed in this case study was grief that may have been related to trauma exposure. Obviously, many combat trauma cases involve the traumatic death of comrades. Recent research has indicated that a 16-session, cognitive-behavior therapy treatment approach that was modified from imaginal exposure used for PTSD was effective in reducing the symptoms of complicated grief (Shear, Frank, Houck, & Reynolds, 2005). The current report focused on PTSD symptoms and did not evaluate the symptoms of complicated grief that may have been associated with the trauma. Future studies should include measures of complicated grief as well as measures of anxiety, depression, and quality of life as recommended by Petronko.

As was noted by Nathan, we cannot be certain that the overall outcome in these three case studies is specifically related to the exposure therapy. It is also not known how well this treatment approach might generalize to other cases of combat-related ASD or PTSD. Finally, it is unclear whether exposure therapy alone is sufficient in such cases or whether the addition of other specific cognitive-behavioral therapy approaches will improve outcomes.

With the unfortunate frequency of terrorist attacks and other bombings around the world, one must presume there are many untreated individuals who have ASD, PTSD, or related symptoms. Additional research and development of a formalized manual may provide help for a population of individuals who would otherwise very likely go untreated. With additional research we may one day find that the best approach is to have a "cognitive-behavior therapy tool kit" of possible intervention strategies. This tool kit might include imaginal exposure, in-vivo exposure, relaxation training, cognitive restructuring, and other evidenced-based approaches that could be implemented based upon individual assessment and case formulation. A database of continuing case studies illustrating individual differences in responses to the emergent manualized procedures would itself also be an important component of the tool kit.

Our three case studies highlight the potential traumatic impact of IEDs ("improvised explosive devices"), VBEDs ("vehicle-borne explosive devices"), and other similar devices on individuals who are exposed to such explosions. One often overlooks the fact that with each individual bombing that occurs, there may be dozens of physically uninjured bystanders and first responders who are exposed to horror and disgust of these traumatic events. Historically, many significant scientific advances in surgical trauma treatment have come from combat surgical hospitals located near combat zones. Military psychologists stationed near the front lines also have the potential (albeit unfortunate) opportunity to advance the scientific knowledge base on the assessment and treatment of ASD and PTSD. In the author's opinions, this work is best exemplified by the collaborative efforts of military psychologists working on the front lines in concert with civilian researchers providing guidance and consultation. This report is an excellent

example of how the use of electronic journal review and publication technologies allows for the rapid dissemination of research findings and their immediate application in applied settings.

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