Prolonged Exposure Therapy for Posttraumatic Stress Disorders

Date of Review: December 2007

Prolonged Exposure (PE) Therapy for Posttraumatic Stress Disorders is a cognitive-behavioral treatment program for adult men and women (ages 18-65+) who have experienced single or multiple/continuous traumas and have posttraumatic stress disorder (PTSD). The program consists of a course of individual therapy designed to help clients process traumatic events and reduce their PTSD symptoms as well as depression, anger, and general anxiety. PE has three components: (1) psychoeducation about common reactions to trauma and the cause of chronic posttrauma difficulties, (2) imaginal exposure (also called revisiting the trauma memory in imagination), repeated recounting of the traumatic memory, and (3) in vivo exposure, gradually approaching trauma reminders (e.g., situations, objects) that are feared and avoided despite being safe. Treatment is individualized and is conducted by social workers, psychologists, psychiatrists, and other therapists trained to use the PE manual, which specifies the agenda and treatment procedures for each session. Standard treatment consists of 8-15 sessions conducted once or twice weekly for 90 minutes each. The duration of treatment can be shortened or lengthened depending on the needs of the client and his or her rate of progress.

Descriptive Information

<table>
<thead>
<tr>
<th>Areas of Interest</th>
<th>Mental health treatment</th>
</tr>
</thead>
</table>
| Outcomes          | 1: Severity of PTSD symptoms  
                     2: Depression symptoms  
                     3: Social adjustment  
                     4: Anxiety symptoms  
                     5: PTSD diagnostic status |
| Outcome Categories| Mental health  
                     Social functioning  
                     Trauma/injuries |
| Ages              | 18-25 (Young adult)  
                     26-55 (Adult)  
                     55+ (Older adult) |
| Genders           | Male  
                     Female |
| Races/Ethnicities | Black or African American  
                     White  
                     Race/ethnicity unspecified  
                     Non-U.S. population |
| Settings          | Outpatient  
                     Other community settings |
| Geographic Locations | Urban  
                     Suburban |
| Implementation History | The first study of PE began in 1984. Since then, the program has been evaluated in numerous outcome studies across the United States and in Australia, Israel, and Japan. Several hundred clients, including survivors of sexual and nonsexual assault, have participated in the intervention. PE workshops for clinicians have been conducted across the U.S. and in Israel, Japan, Korea, and many European countries. |
| NIH Funding/CER Studies | Partially/fully funded by National Institutes of Health: Yes  
                       Evaluated in comparative effectiveness research studies: Yes |
| Adaptations       | The intervention manual has been translated into Hebrew, Japanese, and Spanish. |
Outcomes

Outcome 1: Severity of PTSD symptoms

Description of Measures

Severity of PTSD symptoms was measured using three instruments:

- The PTSD Symptom Scale--Interview (PSS-I), a 17-item interview, assesses the severity of each of the DSM-IV PTSD symptoms during the past 2 weeks and ascertains PTSD diagnostic status. Each symptom is rated on a 4-point scale from 0 (not at all) to 3 (very much; 5 or more times per week). Subscale scores are calculated by summing items in each of the PTSD symptom clusters: reexperiencing, avoidance, and arousal.
- The PTSD Symptom Scale--Self-Report (PSS-SR) is a self-report version of the PSS-I. Symptoms are rated for frequency and severity in the past week.
- The Clinician Administered PTSD Scale (CAPS) is an interviewer-administered diagnostic instrument that measures PTSD. A clinician rates the frequency and intensity of each symptom on a scale ranging from 0 to 4. For a symptom to be considered clinically significant, it must score at least 1 on frequency and at least 2 on intensity.

Key Findings

In a study that compared four treatment conditions--PE, stress inoculation training (SIT), PE plus SIT, and a wait-list control condition--all three active treatments significantly reduced the severity of PTSD symptoms compared with the wait-list condition (p < .05). Effect sizes were large for all the active treatment conditions, with PE having the largest effect size (Cohen's d = 1.46 for PE, 0.85 for SIT, and 0.82 for PE plus SIT).

Another study compared PE, cognitive processing therapy (CPT), and a minimal attention condition. Participants in the PE and CPT groups showed significantly reduced severity of PTSD symptoms compared with participants who received minimal attention (p < .001). The PE and CPT groups did not differ significantly from each other on severity of PTSD symptoms.

A third study compared PE, PE plus cognitive restructuring (CR), and a wait-list control condition. Participants in the PE and PE plus CR groups showed significantly reduced severity of PTSD symptoms compared with participants in the wait-list group (p < .001). The PE and PE plus CR groups did not differ significantly from each other on severity of PTSD symptoms.

Studies Measuring Outcome

Study 1, Study 2, Study 3

Study Designs

Experimental

Quality of Research Rating

3.7 (0.0-4.0 scale)

Outcome 2: Depression symptoms

Description of Measures

Depression symptoms were assessed using two instruments:

- The Beck Depression Inventory is a 21-item self-report instrument used to assess symptoms of depression, each rated on a scale from 0 (e.g., I do not feel sad) to 3 (e.g., I am so sad or unhappy that I can't stand it).
- The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) is a diagnostic instrument used to assess current and lifetime diagnosis of depression, alcohol dependence, substance dependence, and other Axis I DSM-IV disorders.
### Key Findings

In a study that compared four treatment conditions—PE, SIT, PE plus SIT, and a wait-list control condition—all three active treatments significantly reduced the symptoms of depression compared with the wait-list condition (p < .001). The effect size was large for PE (Cohen’s d = 1.42) and medium for SIT (Cohen's d = 0.73) and PE plus SIT (Cohen's d = 0.57).

Another study compared PE, CPT, and a minimal attention condition. Participants in the PE and CPT groups showed significantly reduced symptoms of depression compared with participants who received minimal attention (p < .001). The PE and CPT groups did not differ from each other on depression symptoms.

A third study compared PE, PE plus CR, and a wait-list control condition. Participants in the PE and PE plus CR groups showed significantly reduced symptoms of depression compared with participants in the wait-list group (p < .05). The PE and PE plus CR groups did not differ significantly from each other on depression symptoms.

### Studies Measuring Outcome

#### Study 1, Study 2, Study 3

#### Study Designs

Experimental

#### Quality of Research Rating

3.7 (0.0-4.0 scale)

### Outcome 3: Social adjustment

#### Description of Measures

Social adjustment was measured using the Social Adjustment Scale (SAS), a semistructured interview that assesses an individual’s functioning in eight areas. The study used the Social and Work scales of the SAS, which were rated on a 7-point scale, with higher scores indicating more severe maladjustment.

#### Key Findings

In a study that compared four treatment conditions—PE, SIT, PE plus SIT, and a wait-list control condition—PE participants had significantly improved social adjustment compared with participants in SIT, PE plus SIT, and the wait-list condition (p < .05). When the wait-list condition was compared with SIT and with PE plus SIT, no differences were detected.

Another study compared PE, PE plus CR, and a wait-list control condition. Participants in the PE and PE plus CR groups showed significantly improved social adjustment compared with participants in the wait-list group (p < .01). The PE and PE plus CR groups did not differ significantly from each other on social adjustment.

#### Studies Measuring Outcome

Study 1, Study 3

#### Study Designs

Experimental

#### Quality of Research Rating

3.3 (0.0-4.0 scale)

### Outcome 4: Anxiety symptoms

#### Description of Measures

Anxiety symptoms were assessed using the State subscale of the State-Trait Anxiety Inventory (STAI). The STAI is a 40-item questionnaire that evaluates anxiety at the immediate moment (state anxiety) and the enduring tendency to experience anxiety (trait anxiety).

#### Key Findings

In a study that compared four treatment conditions—PE, SIT, PE plus SIT, and a wait-list control condition—all three active treatments significantly reduced the symptoms of anxiety compared with the wait-list condition (p < .05). The effect size was large for PE (Cohen’s d = 1.32) and small for SIT (Cohen's d = 0.37) and PE plus SIT (Cohen's d = 0.45).

#### Studies Measuring Outcome

Study 1

#### Study Designs

Experimental

#### Quality of Research Rating

3.7 (0.0-4.0 scale)

### Outcome 5: PTSD diagnostic status

#### Key Findings In a study that compared four treatment conditions—PE, SIT, PE plus SIT, and a wait-list control condition—all three active treatments significantly reduced the symptoms of anxiety compared with the wait-list condition (p < .05). The effect size was large for PE (Cohen’s d = 1.32) and small for SIT (Cohen's d = 0.37) and PE plus SIT (Cohen's d = 0.45).
Study Populations

The studies reviewed for this intervention included the following populations, as reported by the study authors.

<table>
<thead>
<tr>
<th>Study</th>
<th>Age</th>
<th>Gender</th>
<th>Race/Ethnicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
<td>18-25 (Young adult)</td>
<td>100% Female</td>
<td>63% White</td>
</tr>
<tr>
<td></td>
<td>26-55 (Adult)</td>
<td></td>
<td>36% Black or African American</td>
</tr>
<tr>
<td></td>
<td>55+ (Older adult)</td>
<td></td>
<td>1% Race/ethnicity unspecified</td>
</tr>
<tr>
<td>Study 2</td>
<td>18-25 (Young adult)</td>
<td>100% Female</td>
<td>71% White</td>
</tr>
<tr>
<td></td>
<td>26-55 (Adult)</td>
<td></td>
<td>25% Black or African American</td>
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<tr>
<td></td>
<td>55+ (Older adult)</td>
<td></td>
<td>4% Race/ethnicity unspecified</td>
</tr>
<tr>
<td>Study 3</td>
<td>18-25 (Young adult)</td>
<td>100% Female</td>
<td>49% White</td>
</tr>
<tr>
<td></td>
<td>26-55 (Adult)</td>
<td></td>
<td>44% Black or African American</td>
</tr>
<tr>
<td></td>
<td>55+ (Older adult)</td>
<td></td>
<td>7% Race/ethnicity unspecified</td>
</tr>
<tr>
<td>Study 4</td>
<td>18-25 (Young adult)</td>
<td>51% Female</td>
<td>100% Non-U.S. population</td>
</tr>
<tr>
<td></td>
<td>26-55 (Adult)</td>
<td>49% Male</td>
<td></td>
</tr>
<tr>
<td></td>
<td>55+ (Older adult)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Quality of Research

The documents below were reviewed for Quality of Research. Other materials may be available. For more information, contact the developer(s).

Study 1

Study 2

Study 3

Study 4
Supplementary Materials


Quality of Research Ratings by Criteria (0.0-4.0 scale)

External reviewers independently evaluate the Quality of Research for an intervention's reported results using six criteria:

1. Reliability of measures
2. Validity of measures
3. Intervention fidelity
4. Missing data and attrition
5. Potential confounding variables
6. Appropriateness of analysis

For more information about these criteria and the meaning of the ratings, see Quality of Research.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Reliability of Measures</th>
<th>Validity of Measures</th>
<th>Fidelity</th>
<th>Missing Data/Attrition</th>
<th>Confounding Variables</th>
<th>Data Analysis</th>
<th>Overall Rating</th>
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<tbody>
<tr>
<td>1: Severity of PTSD symptoms</td>
<td>4.0</td>
<td>4.0</td>
<td>3.9</td>
<td>3.5</td>
<td>3.3</td>
<td>3.5</td>
<td>3.7</td>
</tr>
<tr>
<td>2: Depression symptoms</td>
<td>4.0</td>
<td>4.0</td>
<td>3.9</td>
<td>3.5</td>
<td>3.3</td>
<td>3.5</td>
<td>3.7</td>
</tr>
<tr>
<td>3: Social adjustment</td>
<td>2.8</td>
<td>2.8</td>
<td>3.9</td>
<td>3.5</td>
<td>3.1</td>
<td>3.8</td>
<td>3.3</td>
</tr>
<tr>
<td>4: Anxiety symptoms</td>
<td>4.0</td>
<td>4.0</td>
<td>3.8</td>
<td>4.0</td>
<td>3.0</td>
<td>3.5</td>
<td>3.7</td>
</tr>
<tr>
<td>5: PTSD diagnostic status</td>
<td>4.0</td>
<td>4.0</td>
<td>3.0</td>
<td>1.8</td>
<td>2.0</td>
<td>2.5</td>
<td>2.9</td>
</tr>
</tbody>
</table>

Study Strengths

The studies used standardized instruments with good to excellent psychometric properties. Adequate attention was given to intervention fidelity and process monitoring and assessment. The data analysis strategies (i.e., intent-to-treat samples, analyses of completers versus noncompleters) were thorough and attended to the potential threats posed by differential attrition and missing data.

Study Weaknesses

The studies had moderate levels of attrition and, in some cases, differential attrition by treatment condition.

Readiness for Dissemination

The documents below were reviewed for Readiness for Dissemination. Other materials may be available. For more information, contact the developer(s).

Dissemination Materials


Center for the Treatment and Study of Anxiety, University of Pennsylvania. (n.d.). PTSD Symptom Scale--Interview (PSSI).


PE Treatment Checklist

Training documents:

- Four-day training workshop agenda
- PTSD reading list
- Resources for training and implementation

**Readiness for Dissemination Ratings by Criteria (0.0-4.0 scale)**

External reviewers independently evaluate the intervention’s Readiness for Dissemination using three criteria:

1. Availability of implementation materials
2. Availability of training and support resources
3. Availability of quality assurance procedures

For more information about these criteria and the meaning of the ratings, see *Readiness for Dissemination*.

<table>
<thead>
<tr>
<th>Implementation Materials</th>
<th>Training and Support Resources</th>
<th>Quality Assurance Procedures</th>
<th>Overall Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>3.5</td>
<td>2.8</td>
<td>3.1</td>
</tr>
</tbody>
</table>

**Dissemination Strengths**

The treatment manual includes session-by-session strategies and case examples. A comprehensive training provides opportunities for implementers to observe and practice the application of intervention concepts. Several tools, including client outcome measures and session checklists, are available to support quality assurance.

**Dissemination Weaknesses**

No resources or training is provided for program administrators or clinical supervisors. The intervention requires a high degree of clinical skill. Little guidance is available for using quality assurance measures and interpreting results.

**Costs**

The information below was provided by the developer and may have changed since the time of review. For detailed information on implementation costs (e.g., staffing, space, equipment, materials shipping and handling), contact the developer.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Cost</th>
<th>Required by Program Developer</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-day, on-site clinical training (includes intervention therapist guide, client workbook, educational DVD, assessment measures, and adherence manual)</td>
<td>$1,100 per participant</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Replications**

Selected citations are presented below. An asterisk indicates that the document was reviewed for Quality of Research.


Contacts

For information on implementation or research:

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Learn More by Visiting:

- http://www.med.upenn.edu/ctsa/workshops_pet.html

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