Prolonged Exposure Therapy for Posttraumatic Stress Disorders

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>
<tbody>
<tr>
<td><strong>Outcomes</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Review Date:</strong></td>
<td>December 2007</td>
</tr>
<tr>
<td>1: Severity of PTSD symptoms</td>
<td></td>
</tr>
<tr>
<td>2: Depression symptoms</td>
<td></td>
</tr>
<tr>
<td>3: Social adjustment</td>
<td></td>
</tr>
<tr>
<td>4: Anxiety symptoms</td>
<td></td>
</tr>
<tr>
<td>5: PTSD diagnostic status</td>
<td></td>
</tr>
<tr>
<td><strong>Outcome Categories</strong></td>
<td>Mental health</td>
</tr>
<tr>
<td></td>
<td>Social functioning</td>
</tr>
<tr>
<td></td>
<td>Trauma/injuries</td>
</tr>
<tr>
<td><strong>Ages</strong></td>
<td></td>
</tr>
<tr>
<td>18-25 (Young adult)</td>
<td></td>
</tr>
<tr>
<td>26-55 (Adult)</td>
<td></td>
</tr>
<tr>
<td>55+ (Older adult)</td>
<td></td>
</tr>
<tr>
<td><strong>Genders</strong></td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Female</td>
</tr>
<tr>
<td><strong>Races/Ethnicities</strong></td>
<td>Black or African American</td>
</tr>
<tr>
<td></td>
<td>White</td>
</tr>
<tr>
<td></td>
<td>Race/ethnicity unspecified</td>
</tr>
<tr>
<td></td>
<td>Non-U.S. population</td>
</tr>
<tr>
<td><strong>Settings</strong></td>
<td>Outpatient</td>
</tr>
<tr>
<td></td>
<td>Other community settings</td>
</tr>
<tr>
<td><strong>Geographic Locations</strong></td>
<td>Urban</td>
</tr>
<tr>
<td></td>
<td>Suburban</td>
</tr>
<tr>
<td><strong>Implementation History</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>NIH Funding/CER Studies</strong></td>
<td>Partially/fully funded by National Institutes of Health: Yes</td>
</tr>
<tr>
<td></td>
<td>Evaluated in comparative effectiveness research studies: Yes</td>
</tr>
</tbody>
</table>
### Quality of Research

**Review Date: December 2007**

**Documents Reviewed**
The documents below were reviewed for Quality of Research. The research point of contact can provide information regarding the studies reviewed and the availability of additional materials, including those from more recent studies that may have been conducted.

**Study 1**

**Study 2**

**Study 3**

**Study 4**

**Supplementary Materials**


**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 PTSD symptoms.
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

**Description of Measures**
PTSD diagnostic status was assessed using the Clinician Administered PTSD Scale, Form 2, which assesses the frequency and severity of each PTSD symptom in the past week. This instrument was used at posttreatment and follow-up diagnostic assessments only, as the timing of those interviews (at least 30 days after baseline) made it possible to differentiate diagnoses of PTSD from acute stress disorder (in which severe symptoms typically do not persist after 30 days).

**Key Findings**
In a study that compared PE, PE plus anxiety management, and supportive counseling, patients in both the PE plus anxiety management group and the PE group were less likely to meet the criteria for PTSD diagnosis at posttest than those in the supportive counseling group (p < .05). Similar results were observed at 6-month follow-up (p < .01).

**Studies Measuring Outcome**
Study 4

**Study Designs**
Experimental

**Quality of Research Rating**
2.9 (0.0-4.0 scale)

### Study Populations
The following populations were identified in the studies reviewed for Quality of Research.
Readiness for Dissemination

Review Date: December 2007

Study Age Gender Race/Ethnicity

Study 1
18-25 (Young adult) 26-55 (Adult) 55+ (Older adult)
100% Female
63% White
36% Black or African American
1% Race/ethnicity unspecified

Study 2
18-25 (Young adult) 26-55 (Adult) 55+ (Older adult)
100% Female
71% White
25% Black or African American
4% Race/ethnicity unspecified

Study 3
18-25 (Young adult) 26-55 (Adult) 55+ (Older adult)
100% Female
49% White
44% Black or African American
7% Race/ethnicity unspecified

Study 4
18-25 (Young adult) 26-55 (Adult) 55+ (Older adult)
51% Female 49% Male
100% Non-U.S. population

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>
</tr>
</thead>
<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

Review Date: December 2007

Materials Reviewed
The materials below were reviewed for Readiness for Dissemination. The implementation point of contact can provide information regarding implementation of the intervention and the availability of additional, updated, or new materials.

Costs

Replications

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 cost information below was provided by the developer. Although this cost information may have been updated by the developer since the time of review, it may not reflect the current costs or availability of items (including newly developed or discontinued items). The implementation point of contact can provide current information and discuss implementation requirements.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Cost</th>
<th>Required by 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.


**Contact Information**

To learn more about implementation or research, contact:
Edna B. Foa, Ph.D.
(215) 746-3327
foa@mail.med.upenn.edu

Sandy Capaldi, Psy.D.
(215) 746-3327
sandraca@mail.med.upenn.edu

Consider these Questions to Ask (PDF, 54KB) as you explore the possible use of this intervention.

**Web Site(s):**

- [http://www.med.upenn.edu/ctsa/workshops_pet.html](http://www.med.upenn.edu/ctsa/workshops_pet.html)

This PDF was generated from [http://nrepp.samhsa.gov/ViewIntervention.aspx?id=89](http://nrepp.samhsa.gov/ViewIntervention.aspx?id=89) on 5/15/2014