Use of Eye Movement Desensitization and Reprocessing (EMDR) on Tsunami Victims with Posttraumatic Stress Disorder (PTSD) in Indonesia

Najlaa N. Wadaa\textsuperscript{1} & Haidar Karem Sukar\textsuperscript{2}
Department of Psychological & Education
School of Education \ Almustanseryyeah University

\textsuperscript{1}Najla_nazar2006@yahoo.com
\textsuperscript{2}sukarhaiderattabi@yahoo.com
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Najlaa N. Wadaa and Haidar Karem Sukar
Educational School\ Almustanseryah University

Abstract

After a traumatic experience such as Tsunami, individuals differ in their rate and extent of recovery. Many Indonesian developed symptoms of post-traumatic stress disorder (PTSD), which include re-experiencing the trauma memory, avoidance of thoughts and feelings associated with the trauma, and hyperarousal symptoms. The Tsunami causes symptoms of PTSD in Indonesian students who lived in Malaysia. The objectives of the present study were to determine the prevalence of PTSD among Indonesian students after five year who are studying in Malaysia and to determine the effectiveness of EMDR as a program in reducing PTSD symptoms among these students. The participants of this study were 40 Indonesian students (20 male and 20 female). The Impact of the Events Scale (IES-R) was used. Then, EMDR was used in students who diagnosed with PTSD, and the results suggested that EMDR was effective in reducing PTSD.

Statement of the Problem

The consequences of Tsunami included mental impact on survivors who are likely to spend years struggling too much as a result of one of the deadest natural disasters. Victims of tsunami had to face the challenge of higher levels of emotional distress and disorders (Assanangkornchai, Tangboonngam, & Edwards, 2004). The vast majority of persons experience little or no distress as a result of such calamities (Bonanno, 2004). In response to the damage Tsunami left, aid programmes quickly hurried to reconstruct homes, schools and hospitals for those who survived. However, rebuilding the destroyed lives and minds of the people who lost friends, family, homes and their occupations surely take longer period of time.

The present study identifies many problems to focus on:
1- The prevalence of PTSD among Indonesian students after five years is unknown.

2- The effectiveness of EMDR among Indonesian students is unknown.

**Important of the Study**

Tsunami that hit different regions in Asia on 26 December 2004 was a great natural catastrophe. Tsunami was also accompanied by a huge earthquake striking Sumatra, an Island in Indonesia. One of the countries in which the damage was massive was Indonesia which suffered more damage than other regions. The huge earthquake on 26 December with its central point near the Indonesian island of Sumatra pushed walls of water to the coasts of Indonesia and other neighboring countries. More than 280000 people lost their lives and more than one million people were displaced. After three months, of the aftershock was reported when 1300 people were killed on the Indonesian island of Nias.

Human resiliency protects against distress for the majority of persons experiencing the trauma of disaster. However, among those who experience Mental Health Distress (MHD), it would be of benefit to counselors to understand what facts contribute to increased levels of distress. Several studies have been conducted in order to determine the psychological vulnerability in the consequences of disasters. In most of these studies, a range of health conditions and survivors’ proximity to the disaster have been measured. One of such studies was North, Smith, and Spitznagel (1997), which was a longitudinal study of disaster survivors. North, et al. (1997), found a situation of comorbidity of various health conditions.

In their meta-analysis of 52 studies measuring psychological outcomes following various types of natural and technical disaster, Rubonis and Bickman (1991) found a positive correlation between psychopathology by 17.4%. In 36 of the studies reviewed, between 7% and 40 of victims demonstrated some kind of psychopathology. The authors’ special finding was identifying anxiety as the most prevalent condition among the victims of those various types of natural and technical disasters.

In another study, 225 articles published on 132 disaster events including natural, technological, and mass violence, Norris (2005) demonstrated that mental health conditions including depression, anxiety, and posttraumatic stress as well as somatic complaints were typically aggravated by such disasters. The level of impact that is caused by a disaster on the variables of mental health seemed to be affected by two factors: the severity of the disaster and the variables related to a particular sample being evaluated.

**Research Objectives**

The objectives of the present study were:

1- Identify the prevalence of PTSD among Indonesian students.
2- Identify the effectiveness of EMDR in reducing PTSD symptoms among Indonesian students

**Literature Review**

3
In 1987, Francine Shapiro was walking in the park when she realized that eye movements appeared to decrease the negative emotion associated with her own distressing memories (Shapiro, 1989; 1997). She assumed that eye movements had a desensitizing effect, and when she experimented with this she found that others also had the same response to eye movements. It became apparent however that eye movements by themselves did not create comprehensive therapeutic effects and so Shapiro added other treatment elements, including a cognitive component, and developed a standard procedure that she called Eye Movement Desensitization (EMD) (Shapiro, 1989).

Shapiro then conducted a case study (Shapiro, 2002) and a controlled study1 to test the effectiveness of EMD. In the controlled study, she randomly assigned 22 individuals with traumatic memories to two conditions: half received EMD, and half received the same therapeutic procedure with imagery and detailed description replacing the eye movements. She reported that EMD resulted in significant decreases in ratings of subjective distress and significant increases in ratings of confidence in a positive belief. Participants in the EMD condition reported significantly larger changes than those in the imagery condition.

Shapiro wrote “a single session of the procedure was sufficient to desensitize subjects’ traumatic memories, as well as dramatically alter their cognitive assessments (Shapiro, 2002).” Unfortunately, Shapiro has often been erroneously cited as claiming that “EMDR can cure [posttraumatic stress disorder] PTSD in one session (Shapiro, 1989). Shapiro never made this statement; what she actually wrote was that the EMD procedure "serves to desensitize the anxiety … not to eliminate all PTSD-related symptomatology and complications, nor to provide coping strategies for the victims (MacCulloch, & Feldman, 1996)" and reported "an average treatment time of five sessions"(MacCulloch, & Feldman, 1996) to comprehensively treat PTSD.

1989 was the first year that controlled studies investigating the treatment of PTSD were published. Besides Shapiro’s article, three other studies (Brom, et al., 1989; Cooper, & Clum, 1989; Keane, et al., 1989). Were published. The Brom, Kleber, and Defares, (1989) study compared the results of psychodynamic therapy, hypnotherapy, and desensitization and provided an average of 16 sessions. It found clinically significant treatment effects for 60% of the civilian participants, with no differences between the conditions. The Cooper and Clum study compared flooding to standard care in a Veterans Administration Hospital. They reported moderate clinical effects after 6-14 sessions, with a 30% patient drop-out rate. The Keane et al. (1989) study compared flooding to a wait-list control for Veteran participants and reported moderate clinical effects after 14-16 sessions.

Shapiro continued to develop this treatment approach, incorporating feedback from clients and other clinicians who were using EMD. In 1991 she changed the name to Eye Movement Desensitization and Reprocessing (Shapiro, 1991) (EMDR) to reflect the insights and cognitive changes that occurred during treatment, and to identify the information processing theory that she developed to explain the treatment effects.

Because EMDR therapy was an effective treatment, achieving results very quickly for many clients, Shapiro felt an ethical obligation to teach other clinicians so that individuals suffering from PTSD could find relief. However, EMDR was still experimental since it had not received independent confirmation through other controlled studies. She attempted to resolve this ethical dilemma by teaching EMDR only to
licenced clinicians, and by ensuring that everyone who learned the approach was trained
by the EMDR Institute in the same model. That way safeguards would be in place,
iclinicians would be taught to inform clients of its status, and a feedback system would
allow everyone that was trained to get the most up to date information. In 1995, after
other controlled studies had been published, the label “experimental” and the training
restrictions were removed and a textbook of procedures was published (Shapiro, 1995).
Shapiro has been severely criticized by some for her method of dissemination, because
she initially restricted training and because she taught an experimental procedure.
However, these critics ignore the APA ethics code mandated responsibilities of an
innovator to determine training practices and the fact that even as late as 1998, there were
no treatments for PTSD that were designated as well-established and empirically
validated. At that time, independent reviewers for the Clinical Psychology Division of the
American Psychological Association identified three treatments with “probable efficacy.”
These were EMDR, exposure therapy, and stress inoculation therapy.
Since the initial studies were published in 1989, hundreds of case studies have
been published, and there have been numerous controlled outcome studies (Chambless,
1998). These studies have demonstrated EMDR’s effectiveness in PTSD treatment and
EMDR is now recognized as efficacious in the treatment.
Despite its demonstrated effectiveness, similar to most new approaches in
psychotherapy, EMDR has been surrounded by controversy. While some critics have
labeled EMDR a “pseudoscience” others have commented that these conclusions are
based on misinterpretations of the literature. Another area of debate is the role of eye
movements in EMDR.
Shapiro developed an information processing theory (Shapiro, 1989a, 1989b, 1997) to
explain and predict the treatment effects seen with EMDR therapy. This theoretical
model also describes the development of personality, psychological problems and mental
disorders. The following is a simplified description of Shapiro’s theory.
All humans are understood to have a physiologically-based information
processing system. This can be compared to other body systems, such as digestion in
which the body extracts nutrients for health and survival. The information processing
system processes the multiple elements of our experiences and stores memories in an
accessible and useful form. Memories are linked in networks that contain related
thoughts, images, emotions, and sensations. Learning occurs when new associations are
forged with material already stored in memory.

Method

Participants
Participants in this study were 40 Indonesian students selected randomly, who
were studying at University Science Malaysia. They were asked to answer a
questionnaire regarding their PTSD symptoms.
Based on the results of the administration of the Impact of the Events Scale (IES-
R, Horowitz et al. 1979). (10) students who were diagnosed with PTSD agreed to take
part in the study and received EMDR treatment. It is very significant to mention these
students were between 29 to 42 years old (mean age = 36), and exposed to tsunami trauma and had not received any previous therapy.

Table 1  
*Background of the participants*

<table>
<thead>
<tr>
<th>Age</th>
<th>n</th>
<th>%</th>
<th>Gender</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>5</td>
<td>12.5%</td>
<td>Male</td>
<td>12</td>
<td>30%</td>
</tr>
<tr>
<td>30-39</td>
<td>29</td>
<td>72.5%</td>
<td>Female</td>
<td>28</td>
<td>70%</td>
</tr>
<tr>
<td>40-49</td>
<td>6</td>
<td>15%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mean age= 34     SD=2.6

**Instrument**

The IES-R is a self-administered, 22-item based on three clusters of symptoms identified in the diagnostic and statistical manual of mental disorders, third edition (DSM-III), as indications of posttraumatic stress disorder (PTSD).

The IES-R was originally developed by Horowicts et al. (1979) to monitor the main phenomena of re-experiencing the traumatic event and of avoidance of that event and the feeling to which it gave rise. Hence, this 22 item, four-point scale, had two subscales of Intrusion and Avoidance. The original scale was translated into Malay language from English language. The researchers did the translation processes. However, after determining the correctness of the translation, the researchers modified the scale to suit the participants' culture. Thereafter, professional Indonesian psychologists and psychiatrists were asked to assess the questionnaire for testing PTSD in the Indonesian students.

Reliability analysis was also performed for of the internal consistency of the scale. The result of the analysis showed that Cronbach’s Alpha was high at 0.76 for the entire sample.

Two instruments were used to assess the student's reaction to EMDR: Subject Unit Disturbance Scale and Validity of Cognition Scale. The Subject Unit Disturbance Scale (SUD; Wolpe, 1991) is a commonly used self-report measure for affective distress. In EMDR methodology, it is commonly used prior to the start of finger movement and later to quantify the client’s report of reduced or eliminated disturbance and other treatment to measure baseline emotional or physical pain and also to assess progress being made. This is a personal measurement of distress, where 0 = no distress and 10 = worst distress possible.

The Validity of Cognition Scale (VOC; Shapiro, 1989) uses a 7-point Likert-type scale and measures positive cognitive judgment of self while thinking about the traumatic event. The positive cognition is rated while thinking about the traumatic experience, with 1 = feeling totally false and 7 = feeling totally true.

**Procedure**
The students were given the, the Impact of the Events Scale (Horowitz et al, 1979) to rate students PTSD symptoms. The Indonesian students were informed that researcher was conducting a study on post-traumatic stress disorder among the Indonesian.

The researchers obtained consent forms from the students before distributing the questionnaire. To ensure that respondents feel comfortable to answer the questions honestly, the researcher read out the instructions for answering the questionnaire. Then, the participants were given enough time to read all items of the questionnaire, after which they were asked if they had any difficulty in understanding the items of the questionnaire. After the participants had answered the questionnaire, the researcher collected the questionnaire.

The students who diagnosed with PTSD were given the treatment (EMDR). They were given only SUD and VOC. The treatment follows the typical eight stages of EMDR. The students received the treatment over different time frames.

In the first phase, the therapist took a complete history of the students and designed a treatment plan. In the second phase (preparation), the students were taught relaxation and self-calming techniques. The students were asked to describe the trauma visually as well as the associated feelings and negative cognitions in phase three (assessment). Next, the students were asked to identify a desired negative thought like such as "I am a bad person", "I deserve to die", "I am not good enough", "I deserve only bad things), which was rated against positive cognitions. The students then combined the visual image of the trauma with the negative belief. After that, the accompanying feelings were then rated on the Subjective Unit of Disturbance (SUD) scale. The therapist applied set of eye movements or other bilateral stimulation (for 90 seconds to a few minutes).

The therapist examined the change in SUD levels (both experimental and control groups) from the beginning to the processing of a target trauma memory during a given experimental session (i.e., first SUD - last SUD for a given target during the session). Then, psychotherapists measured the VOC to assess progress being made in phase four (desensitization) for both groups as well.

While focusing on the combination of the traumatic image and negative thought, the students watched finger movements in a particular pattern causing their eyes to move involuntarily. After each set of eye movements, the students were asked to clear their minds and relax. This process was repeated several times during a session.

The therapist also focused on cognitive restructuring in the fifth phase (i.e installation). The goal was to have students believe the positive statements about themselves. While the students focused on the trauma image and positive thought, the sensations were targeted with another set of finger movements. Then, the therapist determined whether the memory had been adequately processed or not.

The eight phases of EMDR treatment were completed in 8 sessions within a period of two months.

Results
Results from the application of The IES are presented in Table 2. Out of 40 students, 30 (75%) did not have PTSD; 10 (25%) had mild and moderate PTSD symptoms.

Table 2
Pre- and after EMDR (Wilcoxon’s table)

<table>
<thead>
<tr>
<th>Subj</th>
<th>Pre-treatment (x)</th>
<th>Post-treatment (y)</th>
<th>Original (x-y)</th>
<th>Absolute (x-y)</th>
<th>Rank of absolute (x-y)</th>
<th>Signed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
<td>19</td>
<td>+1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
<td>18</td>
<td>+7</td>
<td>7</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>29</td>
<td>20</td>
<td>+9</td>
<td>9</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>35</td>
<td>19</td>
<td>+16</td>
<td>16</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>36</td>
<td>18</td>
<td>+18</td>
<td>18</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>32</td>
<td>32</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>25</td>
<td>21</td>
<td>+4</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>23</td>
<td>15</td>
<td>+8</td>
<td>8</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>24</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>25</td>
<td>14</td>
<td>+11</td>
<td>11</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

The test statistic is \( w=36 \) and the critical value is 8 for a two-tailed test statistic is significant. From table of critical values of \( z \), the observed value of \( z=+8 \) is significant. For a two-tailed non-directional test, it would be significant just beyond the .05 level.

Discussion

The first aim of current study was to determine the prevalence of PTSD, the study included survivors of the Tsunami in December 2004 and was conducted among Indonesian students in University Science Malaysia, in Malaysia more than five years after the tsunami. PTSD was diagnosed in 25% of the participants. The PTSD prevalence found in this study less than found in two other studies of PTSD in survivors of the 2004 tsunami. These studies, conducted in Sri Lanka and Thailand during January and February 2005, Sri Lankan children and 3-12% of the Thai adults fulfilled the criteria for Tsunami related PTSD (Neuner, schauer, Catani, Ruf, & Elbert, 2006, Van Griensven et al, 2006). However, a study by Ranasinghe and Levy (2007) among Sri Lankan people living in temporary shelters housing tsunami survivors found a similar PTSD prevalence to our findings, 56% at 6 months post-trauma. As the studied population and results of last study are comparable to this study. Difference in the PTSD prevalence with other two studies is probably due to differences in instruments, scoring rules, sampling strategies, socio-economic factors, received support after the tsunami and cultural differences.

Also the result of this study in the same line with Norris, 2005 the victims of natural disaster had depression, anxiety and posttraumatic stress disorder.

The rapid drop in SUD and VOC scores observed in the EMDR sessions is consistent with the findings of Shapiro (1989), Montgomery and Ayllon (1994), Wilson
et al. (1996) and Lohr et al. (1996). Moreover, the rapid drop in SUD and VOC is supports of the comments made by Pitman et al. (1991) and Boudewyns et al. (1996), which assert that EMDR is more comfortable for the client than other more direct forms of exposure. We reached this conclusion because the present study has shown that there is improvement in the 5 students with whom EMDR treatment was used. The present study has also shown that the Indonesian students, who witnessed tsunami in 2004, are still suffering from PTSD.

The improvement in the post-treatment demonstrated the effectiveness of EMDR in the treatment of PTSD. This was consistent with the results obtained by previous studies (e.g., Silver, Brooks & Obenchain, 1995; Shapiro, 1989b; Vaughan et al., 1994).

A limitation of this study was the small sample size. Despite this limitation, results from previous studies suggest that many clinicians have found positive outcomes in their work using EMDR to warrant further research. The rapid response to EMDR of the students in this study indicates that this treatment may contribute to the development of an effective, less painful, and cost-efficient treatment technique for young PTSD clients. The study is also limited to postgraduates’. This may probably the reason behind the positive outcome, i.e. highly response to EMDR.

References


Appendix (A)

DASS Scale

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I found it hard to wind down</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>I was aware of dryness of my mouth</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>I couldn't seem to experience any positive feeling at all</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>I found it difficult to work up the initiative to do things</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>I tended to over-react to situations</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>I experienced trembling (eg, in the hands)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>I felt that I was using a lot of nervous energy</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>I was worried about situations in which I might panic and make a fool of myself</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>I felt that I had nothing to look forward to</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>I found myself getting agitated</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>I found it difficult to relax</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>I felt down-hearted and blue</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>14</td>
<td>I was intolerant of anything that kept me from getting on with what I was doing</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>I felt I was close to panic</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>I was unable to become enthusiastic about anything</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>I felt I wasn't worth much as a person</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>I felt that I was rather touchy</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I was aware of the action of my heart in the absence of physical exertion</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(eg, sense of heart rate increase, heart missing a beat)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I felt scared without any good reason</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>I felt that life was meaningless</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>