The Effectiveness of Eye Movement Desensitization and Reprocessing Therapy to Treat Symptoms Following Trauma in Timor Leste

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The effectiveness of eye movement desensitization and reprocessing (EMDR) therapy for treating trauma symptoms was examined in a postwar/conflict, developing nation, Timor Leste. Participants were 21 Timorese adults with symptoms of posttraumatic stress disorder (PTSD), assessed as those who scored ≥2 on the Harvard Trauma Questionnaire (HTQ). Participants were treated with EMDR therapy. Depression and anxiety symptoms were assessed using the Hopkins Symptom Checklist. Symptom changes post-EMDR treatment were compared to a stabilization control intervention period in which participants served as their own waitlist control. Sessions were 60–90 mins. The average number of sessions was 4.15 (SD = 2.06). Despite difficulties providing treatment cross-culturally (i.e., language barriers), EMDR therapy was followed by significant and large reductions in trauma symptoms (Cohen’s $d = 2.48$), depression ($d = 2.09$), and anxiety ($d = 1.77$). At posttreatment, 20 (95.2%) participants scored below the HTQ PTSD cutoff of 2. Reliable reductions in trauma symptoms were reported by 18 participants (85.7%) posttreatment and 16 (76.2%) at 3-month follow-up. Symptoms did not improve during the control period. Findings support the use of EMDR therapy for treatment of adults with PTSD in a cross-cultural, postwar/conflict setting, and suggest that structured trauma treatments can be applied in Timor Leste.

Timor Leste (East Timor), situated 300 km northeast of Australia, has a long history of political and social insecurity and a past marked by extraordinary levels of conflict, violence, oppression, and genocide (Commission for Reception, Truth and Reconciliation in Timor Leste, 2005). Following the 1999 referendum run by the United Nations, in which Timorese people voted for their independence after 24 years of Indonesian occupation, an assessment of the prevalence of torture in East Timor was conducted (Modvig et al., 2000). Almost all (97%) Timorese had experienced a traumatic event, 57% reported being tortured, 22% witnessed family or friends being murdered, 34% had posttraumatic stress disorder (PTSD), and 20% believed they would never recover from their experiences.

In Timor Leste today, as in other low-income, postconflict countries, few services are available for those with mental health issues, despite these issues accounting for disproportionate disability in the community, and a large residue group still suffers a chronic form of PTSD (Silove et al., 2008).

Internationally, two psychological therapies are considered efficacious treatments for PTSD: trauma-focused cognitive-behavioral therapy (CBT) and eye movement desensitization and reprocessing (EMDR) therapy (Australian Centre for Post-traumatic Mental Health [ACPMH], 2013; World Health Organization [WHO], 2013). Most research has examined the effectiveness of these therapies in developed Western populations, and there is less evidence for their use cross-culturally. There is some evidence, however, primarily from uncontrolled research, that EMDR therapy can be effective when used to treat disaster-related PTSD in adults who experienced earthquakes in Turkey (Konuk, Knipe, Eke, Yuksek, & Yurtsesever, 2006) and Mexico (Jarero, Artigas, & Luber, 2011), Indian Ocean Tsunami survivors treated in Sri Lanka (Errebo, Knipe, Forte, Karlin, & Altayli, 2008), and other trauma events in Israel (Kutz, Resnik, & Dekel, 2008) and Palestine (Zaghrout-Hodali, Alissa, & Dodge, 2008). In addition, earthquake survivors in...
Turkey and China were treated effectively with single-session behavior therapy (Başoğlu, Sağlık, Livanoù, Kalender, & Acar, 2005) and brief narrative exposure therapy (Zang, Hunt, & Cox, 2013). As a treatment for trauma cross-culturally, however, EMDR may have advantages over other psychological therapies (Maxfield, 2008). EMDR therapy relies less on language than other therapy approaches, and it does not require creating a narrative, verbal disclosure of details, reliving traumatic experiences, or homework (Ho & Lee, 2012).

In terms of treating war/conflict-related trauma and PTSD in non-Western developing countries, there is no consensus on what treatment should be offered, and there is a paucity of research on EMDR therapy and various forms of modified CBT (Dossa & Hatem, 2012) in these settings. Recently, Wadaa, Zaharim, and Alqashan (2010) examined the effectiveness of EMDR therapy for traumatized Iraqi children who had immigrated to Malaysia during the Iraqi war. EMDR therapy effectively reduced PTSD symptoms compared to a control condition. These findings were consistent with previous research on war-related PTSD in which adult combat veterans from Western countries were treated effectively with EMDR therapy (Carlson, Chemtob, Ruskak, Hedlund, & Muraoka, 1998). Despite all the research on PTSD treatment with EMDR therapy, to our knowledge there is no published randomized controlled research or real-world effectiveness research on the use of EMDR therapy to treat adults with war/conflict-related PTSD in non-Western, developing countries.

This research gap is understandable. Offering targeted therapeutic interventions cross-culturally presents challenges ethically, politically, logistically, and financially. Essential tasks include identifying key stakeholders, establishing connections and building collegial, trusting relationships with local health organizations and workers, attaining government permissions, and overcoming language barriers are just some complexities to solve prior to commencing cross-cultural research (Ager, 1997; Errebo et al., 2008). Targeted interventions, like any community intervention, must also acknowledge the discourses on and debates about war trauma and PTSD (Kienzler, 2008). In this research we recognized that traumatic events occur within the complex interplay of political, socioeconomic, religious, and cultural forces of specific regions. Thus, this study was part of a wider project that explored the experience of trauma in Timorese culture (Butler, 2011), and training that focused on understanding trauma, local idioms of distress, and managing trauma symptoms within Timorese culture was delivered to local health workers.

To date, the use of EMDR therapy or any other treatment for trauma symptoms has not been examined in Timor Leste to our knowledge. Thus, our primary aim was to examine the effectiveness (Singal, Higgins, & Waljee, 2014) of EMDR therapy for the treatment of adults with PTSD symptoms when delivered in real world conditions in Timor Leste. It was hypothesized that EMDR therapy would be more effective at reducing PTSD symptoms than a minimal stabilization intervention provided to participants who served as their own waitlist control. Specifically, for primary outcome symptom measures (PTSD, depression, and anxiety) the hypotheses were no change from before-to-after the waitlist period, significant reductions from pre- to post-EMDR treatment, and no significant change from posttreatment to follow-up as treatment gains were expected to be maintained. For secondary treatment process measures (the Subjective Units of Distress Scale [SUDS], Wolpe, 1991, and vividness), the hypotheses were significant reductions from before-to-after EMDR sessions, with no significant changes at any following assessments.

### Method

This effectiveness study was designed to compare EMDR therapy to a minimal stabilization waitlist control intervention in which, following initial assessment and teaching stabilization techniques, participants served as their own delayed treatment waitlist control. The waitlist period was 2 weeks—equivalent to the estimated time required for treatment to be administered on alternate days (meaning one day between sessions). Posttreatment assessments occurred 2 weeks after the final treatment session, with follow-up at 3 months.

The posttreatment time point was equivalent to the 2-week waitlist period. The dependent variables were PTSD, depression, and anxiety symptoms (assessed at prewaitlist, pre- and posttreatment, and independently from therapists at follow-up); SUDs (assessed within session, at posttreatment, and follow-up); and vividness of targeted memories (measured within sessions before and after memory processing; also, vividness of the first memory targeted in treatment was assessed at posttreatment and follow-up). The design also took into account a secondary aim, which was to assess psychophysiological responses during standard EMDR therapy sessions. This was done in a similar manner to previous EMDR research (Sack, Lempa, Steinmetz, Lamprecht, & Hofmann, 2008; Schubert, Lee, & Drummond, 2011), but is a deviation from the standard delivery parameters. Physiological findings are reported elsewhere (Schubert, Lee, & Drummond, 2011 in press).

Murdoch University Human Research Ethics Committee, Australia, and The Cabinet of Health Research and Development under the Ministry of Health in Timor Leste approved the research. The trial was registered with the Australian New Zealand Clinical Trials Registry (Trial No. 12611000239965).

### Participants and Procedure

Recruitment was primarily through two key Timorese nongovernment organisations that focused on community development and health: APHEDA (Australian People for Health, Education and Development Abroad) and PRADET (Psychosocial Recovery & Development in East Timor). Staff of these organisations referred suitable participants. Participants made initial contact via phone. Inclusion criteria were Timorese aged 18–65 years, a traumatic event at least 3 months prior to study entry, reported PTSD symptoms, a trauma symptom scale score ≥2 using the Harvard Trauma Questionnaire (HTQ; Mollica.
et al., 1992), and some social support. Exclusion criteria were blindness or a history of eye disease. This trial was broadly inclusive to allow the sample to reflect the heterogeneity of the population who may seek treatment for PTSD and its comorbidities in Timor Leste (Singal et al., 2014). Of the 28 participants who responded, 5 were excluded: Four scored <2 on the HTQ, and one had symptoms more consistent with depression and anxiety than PTSD, as memories of traumatic experiences were not associated with hyperarousal. Sample size was limited by funding constraints, primarily impacting on the time that therapists could reside in Timor Leste, and was largely determined by the practicalities of recruiting and treating in a naturalistic setting.

These 23 participants (16 female, 69.6%) ranged in age from 18 to 57 years ($M = 30.52, SD = 11.29$). All participants’ native language was Tetun. For 14 study procedures were conducted in Tetun through a translator, and for the 9 others English without a translator was used. This was in English without a translator. What determined the language used in sessions was that if a participant spoke only Tetun, therapy was conducted in Tetun through a translator. If a participant also spoke English and requested treatment in English without use of a translator, this request was met. There were nine participants who worked in skilled employment; two were unskilled workers; four were in posthigh school education; four were in high school; one was engaged in primary school education; and three were unemployed but had completed high school. All participants resided in urban Timor Leste. The mean number of traumatic events occurred. Typical memories included war experiences, such as seeing people killed or tortured, losing family members, homes being burnt down, witnessing and avoiding combat, and being threatened by the militia. Other memories related to domestic violence, vehicle accidents, floods, earthquakes, and witnessing people die. Two participants dropped out during the waitlist period and did not commence treatment, giving a sample of 21 for the analyses.

Participants attended a 2-hr assessment prewaitlist and stabilization intervention. Verbal and written information was provided that explained research rationale and procedures. Written consent was obtained. Information was collected on basic demographics, family, trauma history, and the self-report questionnaires were administered. Social supports and coping resources were assessed, and two stabilization techniques were taught - calm breathing and safe place. These techniques were chosen as they are common precursors to PTSD treatment in prolonged exposure therapy (Foa, Hembree, & Rothbaum, 2007) and EMDR therapy (Shapiro, 2001). Participants engaged in both techniques with the therapist. A handout summarizing the techniques and a list of each individual’s coping resources were provided. Participants were encouraged to use calming techniques and their coping resources while they waited 2 weeks prior to commencing EMDR therapy.

In the treatment sessions, EMDR therapy was delivered in accordance with all eight phases of the treatment protocol outlined in Shapiro (2001). Each session (up to a maximum of 10) lasted 60–90 min. The number of sessions was determined by the participant’s individual needs. In desensitization sessions conducted in Tetun, to minimize disruption translation may have had on memory processing, the translator was trained in the protocol in a way that translation of participant responses between EMDR therapy sets could be kept to a minimum. For example, the translator was trained to identify when processing continued to shift or had reached plateau (as the protocol then called for rechecking the target memory), and to highlight new negative emotions (in which the protocol required asking the participant where they noticed associated body sensation). The translator was also aware of the wording required in standard parts of the protocol such as rechecking the target memory, reassessing the positive cognition prior to installation, and instructions for the body scan. Therapists also learned standard, repetitive instructions in the protocol in Tetun, such as “take a breath,” “what do you get now,” and “stay with that,” to ensure that memory processing flowed as much as possible. Participants spoke to both the therapist and translator when sessions were in Tetun. Treatment was free and transportation costs to and from sessions were paid.

Two therapists provided EMDR therapy: Both were clinical psychologists and consultants accredited by the EMDR Association of Australia. One of the therapists conducted all initial assessments. A local Timorese person with tertiary education and experience in community development and health, but no formal training in psychology, was employed as a translator/interpreter and conducted all follow-up assessments. Therapists followed a step-by-step EMDR therapy protocol. Consent was provided by 18 of the participants to video record the EMDR sessions. A consultant approved by the EMDR International Association randomly chose 12 treatment sessions, including sessions in Tetun, and rated each on a 27-item EMDR fidelity checklist, with items scored on a 7-point scale (1 = poor; 7 = excellent). The mean rating for each session was 6.08 ($SD = 0.67$).

Measures

The HTQ (Mollica et al., 1992) assessed trauma exposure and symptoms consistent with PTSD. The HTQ was designed for use with trauma-affected populations from diverse cultures, and has been used to assess PTSD in Timor Leste (Modvig et al., 2000; Silove et al., 2008, 2009). Three parts of the HTQ were used. Part 1 listed 17 trauma events, but the item inquiring into rape was omitted due to the cultural inappropriateness of this question (Silove et al., 2009). Participants indicated whether they had experienced each item. Part 2 was an open question that asked participants, “What [do] you consider to be the most hurtful or terrifying events you have experienced?” This
allowed discussion of trauma events and their effects. Part 3 included 16 trauma symptom items that reflect PTSD criteria according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., DSM-IV; American Psychiatric Association, 1994) rated 1 = *not at all*, 2 = *a little*, 3 = *quite a bit*; or 4 = *extremely*. The mean score was calculated, and the recommended cutoff of ≥2 to indicate PTSD was used (Mollica, McDonald, Massagli, & Silove, 2004). Cronbach’s α estimation for the HTQ PTSD scale in this setting showed acceptable reliability for screening, α = .73.

The Hopkins Symptom Checklist (HSCL-25; Mollica et al., 1987) measured depression and anxiety symptoms. The HSCL-25 has 15 depression and 10 anxiety items consistent with the DSM-IV criteria for major depression and generalized anxiety. Item responses are the same as the HTQ Part 3. The recommended cutoff of > 1.75, which is considered checklist positive for major depression and generalized anxiety, was used (Mollica et al., 1987, 2004). This cutoff has been empirically validated as a screen for major depression (Silove et al., 2007), but the 10 anxiety items have not been tested as to their diagnostic validity. Cronbach’s α estimation for the Depression scale showed strong reliability, α = .89. The reliability estimate for the Anxiety scale, α = .64, was below the minimum α coefficient of .70 recommended for screening (Nunnaly & Bernstein, 1994).

The SUDs (Wolpe, 1991) assessed distress experienced while thinking about targeted trauma memories. SUDs is an 11-point self-report scale (0 = *no distress*; 10 = *highest distress possible*) routinely used to measure change in distress. The scale’s validity has been demonstrated, and research has shown it to correlate with levels of depression and anxiety (Kim, Bae, & Park, 2008).

The vividness of each target memory was rated. While participants held targeted memories in mind, on a 10-point visual analogue scale (VAS; “How vivid is the image of the memory to you right now?”), they rated the target memory from 10 = *very clear* to 0 = *not clear at all*. This measure is commonly used to rate vividness in EMDR and memory-processing research (Schubert et al., 2011; van den Hout, Muris, Salemink, & Kindt, 2001).

Expectancy and Confidence scales assessed the participant’s expectancy of a positive treatment outcome. Pretreatment, participants indicated “how much you think this therapy will help you” on an 11-point VAS (0 = *not at all*, 2.5 = *a little*, 5 = *somewhat*, 7.5 = *a lot*, 10 = *completely*). At posttreatment, participants indicated “how confident you thought the therapist was that the treatment they used would help you” on an 11-point scale (0 = *not confident*, 10 = *extremely confident*). These scales were similar to those used in previous research (Borkovec & Nau, 1972; Schubert et al., 2011).

All measures were translated and back-translated into Tetun using standard methods (Bracken & Barona, 1991). Measures were translated from English to Tetun by a bilingual Timorese person trained in psychology. These versions were blind back-translated into English by a bilingual Australian familiar with Timorese culture. Translations were compared and discrepancies were resolved by a team of translators.

**Data Analysis**

Significant effects in primary and secondary measures were examined using multivariate repeated measures analyses of variance (MANOVAs) that incorporated within-subject contrasts to examine a priori hypotheses related to primary symptom and secondary treatment process measures. For primary measures, the ANOVA incorporated time (four levels: prewaitlist, pre- and posttreatment, and follow-up) as the within-subjects factor, with three within-subjects variables (PTSD, depression, and anxiety). For secondary measures, the ANOVA incorporated time (three levels: before and after memory processing; posttreatment, and follow-up), with two within-subjects variables (SUDs and vividness). When data were missing at posttreatment (one participant) and 3-month follow-up (two participants), analysis of primary and secondary measures used intent-to-treat data with last observations carried forward. Vividness data were missing for one participant who, despite reporting distress related to the targeted traumatic experience, did not hold a visual memory of the experience. In this case, missing data were replaced by the mean vividness score of the whole sample at each time point. When the assumption of sphericity was violated Huynh-Feldt corrected statistics are reported. Partial eta squared (η²) was used to report effect sizes for ANOVAs, and Cohen’s d for planned contrasts. The criterion of statistical significance was an α level of .05.

Reliable and clinically significant change was assessed for the HTQ PTSD scale and the HSCL-25 Depression scale using methods recommended by Jacobson and Traux (1991). A reliable change score criterion was calculated using the pretreatment means and Cronbach’s α estimation for the PTSD and depression measures in this study. The formula for reliable change score criterion, based on change that would happen less than 5% of the time by unreliability of measurement alone, 1.96 * SEdiff (SEdiff = SD1 * \sqrt{2} / \sqrt{1-r}) . Thus, PTSD = 1.96 (.45 * \sqrt{2} * \sqrt{1-.725}) , and depression = 1.96 (.63 * \sqrt{2} * \sqrt{1-.887}) . Clinically significant change was calculated using a cutoff of the pretreatment mean <2 SDs. Data were analysed using SPSS version 21.

**Results**

The average number of EMDR treatment sessions was 4.14 (SD = 2.06, range = 1 to 10), over an average of 12.95 (SD = 8.45) days.

For primary outcome measures, using Pillai’s trace, there was a significant overall effect of treatment on symptoms, V = .81, F(9, 180) = 7.35, p < .001, η² = .27. Separate univariate ANOVAs revealed that symptom ratings decreased significantly over time for all measures: PTSD, F(1.85, 37.06) = 56.50, p < .001, η² = .74; depression, F(1.63, 32.66) = 52.38, p < .001, η² = .72; and anxiety, F(1.64, 32.74) = 20.87, p < .001, η² = .51 (Table 1). Planned contrasts indicated that symptom scores for PTSD, depression, and anxiety remained stable during the stabilization/waitlist period. Symptom scores
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Table 1
Mean and Standard Deviation at Four Time Points for PTSD, Depression, and Anxiety Symptom Ratings

<table>
<thead>
<tr>
<th>Variable</th>
<th>1. Pre-Waitlist</th>
<th>2. EMDR</th>
<th>3. PostEMDR</th>
<th>4. Follow-up</th>
<th>d change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>PTSD</td>
<td>21</td>
<td>2.41</td>
<td>0.40</td>
<td>2.25</td>
<td>0.45</td>
</tr>
<tr>
<td>Depression</td>
<td>21</td>
<td>2.51</td>
<td>0.76</td>
<td>2.33</td>
<td>0.63</td>
</tr>
<tr>
<td>Anxiety</td>
<td>21</td>
<td>2.14</td>
<td>0.77</td>
<td>2.06</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Note. PTSD = posttraumatic stress disorder symptoms.
*p < .05. ***p < .001.

Decreased significantly from before to after EMDR treatment for all measures: PTSD, $F(1, 20) = 50.57, p < .001, d = 2.48$; depression, $F(1, 20) = 59.05, p < .001, d = 2.09$; and anxiety, $F(1, 20) = 27.28, p < .001, d = 1.77$. Symptom scores at 3-month follow-up showed no significant change from posttreatment for PTSD or anxiety, whereas depression scores continued to decrease, $F(1, 20) = 5.16, p = .034, d = 0.30$. Decreases in PTSD symptoms were associated with decreases in anxiety ($r = .76, p < .001$) and depression ($r = .66, p < .001$).

Change that exceeded 0.65 on the HTQ PTSD scale, and 0.59 on the HSCL-25 Depression scale, was considered reliable. Reliable reductions in PTSD symptoms were reported by 18 of 21 (85.7%) participants posttreatment, and 16 (76.2%) participants at follow-up. Reliable reductions in depression symptoms were reported by 16 (76.2%) participants at both posttreatment and follow-up.

Participants who demonstrated clinically significant improvement were those who scored below 1.35 on the HTQ PTSD scale and below 1.07 on the HSCL-25 Depression scale. With this criterion, EMDR led to clinically significant improvement in PTSD symptoms for 16 (76.2%) of the participants at both posttreatment and follow-up, and clinically significant improvement in depression symptoms for 8 (38.1%) participants posttreatment and 13 (61.9%) participants at follow-up.

Change in symptoms consistent with PTSD was also examined. The percentage of participants who met the cutoff score of ≥2 to indicate PTSD on the HTQ PTSD scale was examined using a McNemar test with uncorrected $\chi^2$ statistics. At the end of the waitlist period, 17 (81.0%) of the 21 participants still scored ≥2 on the PTSD scale, whereas at posttreatment only 1 (4.8%) participant scored above 2 on the PTSD scale. This difference in proportions was statistically significant, McNemar’s $\chi^2 = 14.22, p = .001$. At follow-up, only two (9.5%) PTSD scores were above 2, indicating persistent treatment effects in most participants.

For secondary process measures (SUDs and vividness), using Pillai’s trace, there was a significant overall effect of treatment, $V = 1.06, F(6, 120) = 22.49, p < .001, \eta^2_p = .53$. Regarding SUDs, a univariate ANOVA revealed that distress ratings associated with initially targeted trauma memories decreased significantly over time, $F(1.69, 33.83) = 129.78, p < .001, \eta^2_p = .87$ (Table 2). Planned contrasts revealed that SUDs decreased significantly from pretreatment assessment to the end of sessions after desensitization, $F(1, 20) = 526.06, p < .001, d = 5.85$. This reduction in distress was maintained at posttreatment and follow-up.

In terms of vividness, ratings associated with the initially targeted trauma memory decreased significantly over time, $F(3, 60) = 26.92, p < .001, \eta^2_p = .57$ (Table 2). Planned contrasts revealed that vividness ratings decreased significantly from pre- to posttreatment to the end of desensitization in sessions, $F(1, 20) = 23.32, p < .001, d = 1.11$. Vividness ratings obtained posttreatment did not differ significantly from end of session scores. At follow-up, vividness ratings were significantly lower than those provided posttreatment, $F(1, 20) = 4.54, p = .046, d = .34$.

Finally, ratings of confidence in therapists were not related to pre- and posttreatment change scores of SUDs, PTSD, anxiety, or depression. Pretreatment expectancy scores correlated significantly, however, with posttreatment change scores in PTSD symptoms, $r = .60, p = .031$. This finding was difficult to interpret as it is not usual to find correlations in expectancy and treatment outcome in EMDR research (Devilly & Spence, 1999; Lee & Drummond, 2008); here, expectancy scores did not correlate with any other outcome or process measure.

Discussion

This study examined the effectiveness of EMDR therapy for the treatment of adults with PTSD symptoms in Timor Leste. Treatment with EMDR was followed by significant reductions in PTSD, depression, and anxiety symptoms. EMDR desensitization was also followed by significant decreases in the distress and vividness associated with traumatic memories targeted in sessions. These changes were maintained at 3-month follow-up.

These findings suggested that benefits can be achieved with EMDR therapy for decreasing PTSD symptoms in a postwar, cross-cultural setting in a relatively short period (on average four treatment sessions over 13 days). Although in need of replication, findings are consistent with international treatment guidelines (ACPMH, 2013; WHO, 2013) that recommend EMDR for treatment of PTSD, and offer support for independent reviews, meta-analyses, and controlled research that have examined EMDR and found robust reductions not only...
in trauma symptoms but also depression and anxiety after similarly few sessions, without use of homework (Carlson et al., 1998; Ho & Lee, 2012). Notably, and warranting further research, was that in this context patients had experienced a large number of traumatic events (seven on average reported on the HTQ) and had trauma memories for a considerable time (the average time since trauma event was 7.35 years), yet treatment effects were experienced very quickly. In this study, desensitization of trauma memories occurred frequently in the first treatment session, in which the distress and vividness associated with targeted trauma memories decreased significantly. This immediate, within-session reduction in distress and vividness associated with trauma memories is consistently reported in EMDR treatment literature (Wilson, Silver, Covi, & Foster, 1996). Cross-culturally, this treatment effect was important as Timorese health workers advised that if participants could not see treatment benefits straight away it was likely they would not engage in the therapy process.

Although there is still no consensus on the use of EMDR or any treatment post-large-scale disaster (Gelbach & Davis, 2007), our findings offer evidence for the use of EMDR cross-culturally. Findings are consistent with research in which EMDR (Jarero et al., 2011; Kutz et al., 2008; Wadaa et al., 2010) and other Western therapies (Başoğlu et al., 2005; Zang et al., 2013) have been used effectively to treat trauma following natural and man-made disaster events cross-culturally. Furthermore, this research supports the small body of naturalistic on-the-ground postdisaster treatment projects that back the use of EMDR in reducing PTSD and depressive symptoms in various cultures. For example, large-scale humanitarian projects have demonstrated that when local health workers in Sri Lanka (Errebo et al., 2008) and Turkey (Konuk et al., 2006) were trained in EMDR to treat survivors of an earthquake, tsunami, and suicide bomb blasts, treatment was effective despite chaotic, postdisaster treatment settings (i.e., in tent cities), transient patients, and where the hierarchy of basic needs of safety and health understandably took priority over psychological care. These naturalistic cross-cultural projects, along with the current study, demonstrate that trauma treatment outcome data and EMDR therapy process data can easily be attained.

Although real-world, effectiveness research is important, research specific to any culture, social context, and time, limits the generalization of findings. Many factors may have contributed to the effectiveness of EMDR therapy for the treatment of trauma in Timor Leste: First, although Timor as a nation has experienced horrific trauma for almost a quarter of a century, Timor Leste is now a relatively stable nation, well on the path to rebuilding and recovery (International Crisis Group, 2013); second, basic needs such as medical, health, shelter, and food have largely been met; third, traditional mechanisms of coping have been re-established; and fourth, EMDR therapy created minimal disruption to existing cultural forms of support. If such factors are not in place or considered, targeted therapeutic intervention may be inappropriate (Ager, 1997).

In addition to the social and political context, Timorese culture may also have been a factor that influenced the effectiveness of EMDR. Specifically, the experience of trauma by the Timorese was not private, but rather a collective experience (Butler, 2011). One’s sense of self was fundamentally group based, and a common perception was that it was the nation and shared values of the Timorese that were targeted rather than individuals themselves (Butler, 2011). Although no formal qualitative methods were used to assess participants’ responses, both therapists observed in postintervention debriefs that religious and spiritual beliefs, rituals, and prayer powerfully shaped how trauma events were perceived, experienced, made sense of, and the way recovery was able to occur. For many participants, traumatic events were interpreted as “God’s will.” Spirits of the dead were seen to be watching over and protecting as one lived life as a survivor, for whom God had a plan. Religious beliefs appeared to provide hope and gave life purpose and meaning. Although not formally assessed, these observations warrant further investigation. Various models of trauma recovery posit that healing occurs as people make sense of trauma experiences from their own perspective (Janoff-Bulman & Frantz, 1997). As these perspectives are likely to be influenced by cultural factors, narratives from people who reprocess trauma experiences in Timor Leste may well prove different to those from a Western background.

Some Timorese participants also stated they preferred not to have the Timorese translator present due to fears confidentiality would not be maintained. During the civil war in Timor Leste, people betrayed each other and interpersonal trust was eroded (Butler, 2011). Consequently, in this study the presence of a Western therapist may have facilitated a sense of confidentiality. More broadly, the issue of trust and confidentiality

### Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>1. Pretreatment</th>
<th>2. End session</th>
<th>3. Posttreatment</th>
<th>4. Follow-up</th>
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</tr>
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<td>VAS</td>
<td>21</td>
<td>7.66</td>
<td>2.96</td>
<td>4.26</td>
<td>3.08</td>
</tr>
</tbody>
</table>

Note. SUDs = substance use disorders; VAS = visual analogue scale. *p < .05. **p < .001.
pose a significant challenge to the dissemination of therapies, including EMDR cross-culturally (Jarero et al., 2011).

As this study was a real-world, naturalistic intervention, several compromises in the design limit confidence in the interpretation of findings. This is a single-arm study with no separate control condition; thus, factors other than EMDR therapy may account for improvements in trauma-related symptoms. Nevertheless, no significant improvement in symptoms occurred during the waitlist period in which stabilization and calming techniques were taught. As the sample size was small, generalization of the findings is limited. This could be overcome in future larger, randomized, controlled research trials, with structured formal diagnostic assessment and qualitative data to examine the cultural appropriateness of EMDR in Timor Leste.

To conclude, this research is significant as it appears to be the first study to examine the effectiveness of EMDR therapy for the treatment of PTSD symptoms in a postwar/conflict developing country. Findings demonstrated that EMDR therapy, as a structured trauma treatment, could be used effectively in Timor Leste. Our findings may be useful for future cross-cultural humanitarian efforts following war and large-scale disasters. Future research in this area is strongly encouraged, as it is vital to know that any intervention offered to treat trauma symptoms postwar/conflict or disaster in any context not only is harmless and effective, but that it complements survivors’ traditional coping strategies.

References


