

Northumbria Research Link

Citation: Scott-Bell, Andrea, Allen-Baker, Georgia, Howatson, Glyn, Kiernan, Matt, Wippich, Anna and Farrell, Derek (2023) Eye movement desensitization reprocessing as a treatment for PTSD in conflict-affected areas. *Psychological Trauma: Theory, Research, Practice, and Policy*. ISSN 1942-9681 (In Press)

Published by: American Psychological Association

URL: <https://doi.org/10.1037/tra0001430> <<https://doi.org/10.1037/tra0001430>>

This version was downloaded from Northumbria Research Link:
<https://nrl.northumbria.ac.uk/id/eprint/50953/>

Northumbria University has developed Northumbria Research Link (NRL) to enable users to access the University's research output. Copyright © and moral rights for items on NRL are retained by the individual author(s) and/or other copyright owners. Single copies of full items can be reproduced, displayed or performed, and given to third parties in any format or medium for personal research or study, educational, or not-for-profit purposes without prior permission or charge, provided the authors, title and full bibliographic details are given, as well as a hyperlink and/or URL to the original metadata page. The content must not be changed in any way. Full items must not be sold commercially in any format or medium without formal permission of the copyright holder. The full policy is available online: <http://nrl.northumbria.ac.uk/policies.html>

This document may differ from the final, published version of the research and has been made available online in accordance with publisher policies. To read and/or cite from the published version of the research, please visit the publisher's website (a subscription may be required.)

Eye Movement Desensitisation Reprocessing as a Treatment for PTSD in Conflict Affected Areas

Abstract

Objective: One recommended psychological intervention for trauma treatment in Western countries, including Post-Traumatic Stress Disorder (PTSD), is Eye Movement Desensitisation Reprocessing (EMDR). However, there is a paucity of data regarding treatment interventions in low-to-middle income countries. This study examined the efficacy of EMDR for treating post-traumatic stress (PTS), Anxiety and Depression among a cohort of individuals with low-socio economic status in a conflict-affected middle-income country as well as a smaller refugee cohort. **Methods:** 268 adults residing in Lebanon (Male=65, Female=203, $SD_{gender}=0.43$; $\mu_{age}=30.5$, $SD_{age}=10.49$; 85% Lebanese, 15% refugees (9.3% from Syria, and 5.7% from Iraq, Palestine, Philippines or other) received EMDR Therapy. Measures of PTS, Anxiety and Depression were taken at three points: Before Treatment (T0); Post-Treatment (T1); 6-Month Follow-Up (T2). **Results:** Reduction in PTS symptoms from T0 to T1 ($F_{(1,208)}=412.3$, $p<0.01$) and T1 to T2 ($F_{(1,46)}=136.1$, $p<0.01$). Reduction in Anxiety symptoms from T0 to T1 ($F_{(1,208)}=387.0$, $p<0.01$), and T1 to T2 ($F_{(1,46)}=153.7$, $p<0.01$). Similarly, for Depression, a reduction of symptoms from T0 to T1 ($F_{(1,207)}=309.5$, $p<0.01$) and T0 to T2 ($F_{(1,46)}=96.0$, $p<0.01$). **Conclusion:** EMDR is an effective treatment for reducing PTS, Depression and Anxiety symptoms in individuals with low socio-economic status and refugees, thus contributing to the research base for populations that are under researched. Mental health services, especially in conflict affected settings, would benefit from using EMDR therapy to target these pathologies in these populations.

Keywords: Posttraumatic stress, Anxiety, Depression, EMDR, Low-middle income country

Clinical Impact Statement:

The findings of this study can inform future work and, critically, can educate stakeholders such as governments, mental health funding bodies, and charities that EMDR can be used with vulnerable populations with good success rates. Given the cost and duration of EMDR, it should be considered in support of populations experiencing psychological trauma.

There is an increasing body of research exploring the suffering, illness, and mental health needs of populations that are dealing with ‘humanitarian crises’; an umbrella term for emergencies caused by technological, natural, industrial casualties, and armed conflict (Tol et al., 2020; Tol, 2011). Additionally, humanitarian crises occur when the safety of a population is in danger and/or distress and is often accompanied by significant material destruction, forced displacement, or an institutional weakness of managing and handling the situation (Purgato et al., 2018). Populations that are most commonly affected are low to middle income countries; LMIC (Guha-Sapir, 2014; Themner & Wallensteen, 2014). In these countries, local capacity is often insufficient to cover the population’s need for basic services as a result of such emergencies. Living in a country dealing with humanitarian crises can also have a wide range of impacts on individuals’ mental health (WHO, 2019; Charlson et al., 2019). Research in humanitarian aid settings has focussed on disorders and conditions specifically associated with exposure to stressors, such as PTSD (Purgato et al., 2018).

According to the WHO (2019), one in five individuals (22%) living in an area affected by conflict is estimated to have depression, anxiety, post-traumatic stress disorder, bipolar disorder or schizophrenia. Available resources to deal with these issues can vary significantly and are highly dependent on support from local, national and international humanitarian agencies. Considering the high prevalence of mental disorders in these populations, it is important to offer, and implement, treatments with known efficacy that have the potential to improve individual functioning while strengthening wellbeing and economic productivity (Morina et al., 2018; Rathod et al., 2017; Roberts et al., 2008).

EMDR is one of the main recommended psychological interventions for the treatment of trauma, particularly as an early intervention, by national and international governing bodies (NICE, 2018; WHO, 2013; ISTSS, 2019; APA, 2017; Shapiro, 2001). Previous research has also reported EMDR to be effective as a brief treatment approach, where as little as three

sessions were sufficient in alleviating PTSD symptoms (e.g., Shapiro, 2014; Fernandez, 2008; Ironson, 2002), signifying this treatment to be both cost and time effective. Although previous research has shown EMDR to be effective in treating PTSD, most studies have either focussed on westernised countries or worked with small sample sizes (e.g., De Jongh et al., 2019; Chen et al., 2014; Chen et al., 2015; Turrini et al., 2019; Morina et al., 2017). Thus, there is a demand for further investigation to elucidate the efficacy and appropriateness for PTSD, anxiety and depression treatment in non-western, conflict affected low to middle income countries.

Accordingly, the current research is the first to explore the application of EMDR in a large cohort of individuals with low-economic status in a conflict-affected middle-income country, which included a small refugee component. The aim was to examine the efficacy of EMDR on a population with PTS to determine if treatment could improve symptoms of PTS, anxiety and depression. This research took place over a two-year period (July 2017- June 2019) in Lebanon, which is classed as a middle income eastern Mediterranean country with (according to the World Bank in 2019) a population of around 6.8 million people. Approximately 1.4 million individuals within this population are refugees of a different nationality, many of whom have been exposed to traumatic events in the region over a number of years (e.g., ongoing war with Israel/conflict with Syria) and impose an enormous strain on mental health services.

Methods

Participants

Participants were randomly assigned to trained psychotherapists, who were funded and trained by Trauma Aid Germany and EMDR Lebanon Association. Participants were mainly comprised of Lebanese individuals with low socio-economic status as well as a smaller refugee cohort residing in Lebanon. It is worth noting that socio-economic, residency and/or refugee status were self-reported when establishing demographic details. Participants seeking treatment presented with a range of problems which are summarised in Table 2. Therapists assessed

participants at three time points: pre-treatment (T0), post-treatment (T1), and at 6-month follow-up (T2). Patients were service users that voluntarily participated in trauma treatment with each informed about the possibility to withdraw their participation at any point – in accordance with ethical approval guidelines. Following research ethics approval (University of Worcester, UK and Saint Joseph University, Lebanon), written, informed consent was collected from all participants prior to the pre-treatment assessment, in line with the Declaration of Helsinki and EMDR Lebanon Association Standards Committee. A total of 278 individuals consented to participate in EMDR treatment; however, 10 participants did not undergo the treatment process and have thus been excluded from this study.

Trained psychotherapists were recruited via the EMDR Lebanon website. Eligible therapists had to satisfy the following inclusion criteria: a Master's degree or higher in psychology, counselling, or psychiatry; a minimum of 2 years' experience working as a therapist after the Master's degree; be currently working as a practitioner; and pass the interview led by the EMDR Lebanon Association Standards Committee. The recruitment team advertised the project to psychotherapist therapists to volunteer to provide EMDR. treatment. The recruitment process to recruit psychotherapists used Facebook and email networks to non-governmental organisations, counselling centres, and universities. The psychotherapists who then volunteered, received training in EMDR if needed, both before and during the start of the project, and worked with cases on a *pro bono* basis.

Intervention

EMDR Therapy was used to treat the cohort. Therapy was conducted in the most appropriate language for participants, which was predominately Arabic. Briefly, the treatment is based on the notion that negative thoughts, feelings and behaviours are the result of unprocessed memories. Treatment involves simultaneously focusing on (a) spontaneous associations of traumatic images, thoughts, emotions and bodily sensations, and (b) bilateral

stimulation that is most commonly in the form of repeated eye movements (WHO, 2013). Treatment consists of eight main phases: History Taking; Preparation; Assessment; Desensitisation; Installation; Body Scan; Closure; and Re-evaluation. The EMDR course of therapy is typically provided over 8 to 12 sessions (NICE, 2018), although good results have been achieved in as little as three to six sessions (e.g. Marcus, Marquis & Sakai, 1997, 2004).

According to EMDR treatment protocol, in order to assess changes in emotion and cognition, two measures are utilised: namely, validity of cognition (VOC) and subjective units of distress (SUD). The VOC measures a person's positive beliefs using a Likert scale from 1 (completely false) to 7 (completely true). SUD measures a person's disturbance, using a Likert scale from 0 (no disturbance) to 10 (the worst feeling they ever had).

Measurements

Assessments were scheduled at three aforementioned time points. Pre-treatment measurements included descriptive characteristics, such as country of origin, as well as a description of traumatic events. Furthermore, participant subjective responses to a traumatic event were measured at all three time points. For all the measurements, a validated Arabic version has been used for this study.

Impact of Events Scale-Revised (IES-R).

The IES-R (Weiss & Marmar, 1997) is a 22-item self-reported measure of PTSD, ranging from 0 (not at all) to 4 (extremely), with the total score ranging from 0 to 88. Participants were asked to identify a specific stressful life event and how often they have been bothered by certain difficulties over the last 7 days. The scale measures the subjective response to a traumatic event, thus including three subscales (intrusion, avoidance, and hyperarousal). Scores of 24 or higher indicate that PTSD might be of clinical concern; scores ranging from 33-36 are seen as the point for a probable PTSD diagnosis; and scores of 37 and above indicate the possibility of suppressed functioning of the immune system due to PTSD.

Generalized Anxiety Disorder Scale (GAD-7).

The GAD-7 (Spitzer et al., 2006) is a 7-item self-report measure, ranging from 0 (not at all sure) to 3 (nearly every day). Participants were asked how often they have been concerned by the items over the last 2 weeks. The scale measures the signs for, and severity of, generalised anxiety disorders. Total scores of 5-9 indicate mild symptoms, followed by moderate symptoms (score of 10-15), and severe anxiety symptoms with a score above 15.

Patient Health Questionnaire (PHQ-9).

The PHQ-9 (Kroenke, Spitzer and Williams, 2001) is a 9-item self-report questionnaire, ranging from 0 (not at all) to 3 (nearly every day), with the total score ranging from 0 to 27. Participants were asked how often they have been concerned by the items over the last 2 weeks. It is designed to screen, diagnose, monitor and measure the severity of depression. Total scores of 5-9 indicate minimal symptoms, followed by minor depression (score of 10-14), moderately severe major depression (score of 15-19), and severe major depression with a score of 20 and above.

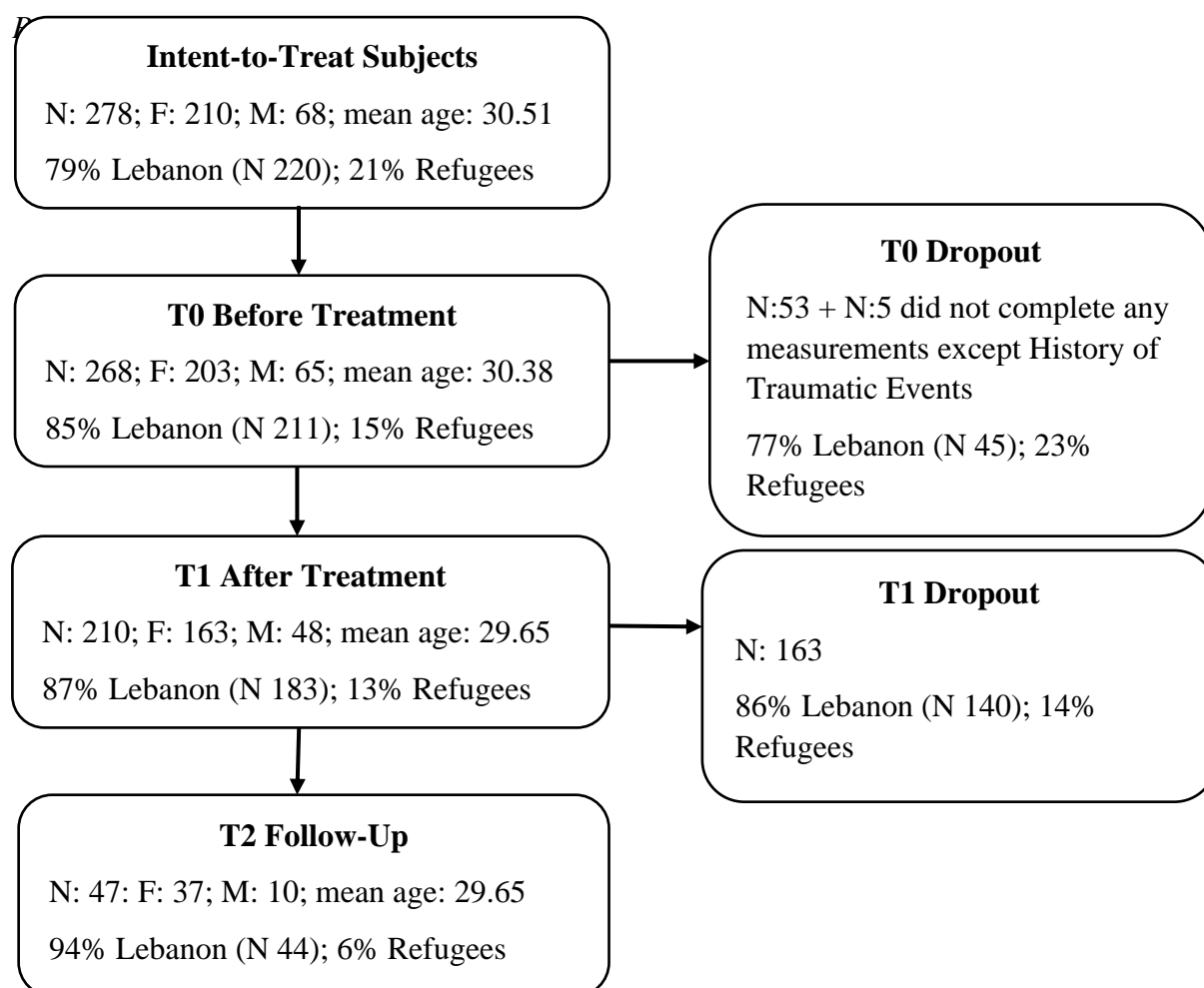
Data Analysis

The demographic, diagnostic and treatment data of 268 participants were documented and subsequently analysed. Dependent measures were collected over a two-year period and analysed retrospectively. All analyses were conducted using IBM SPSS Statistics Version 25 for Windows, including descriptive statistics. Effect sizes were examined using Cohen's *d* and ANOVA was used for categorical and continuous variables. Linear mixed-effects regression models were used to compare participants on continuous measures, including IES-R scores.

Results

Baseline Characteristics

Of the 278 participants who consented to be assessed, 10 participants did not participate in the treatment process and have thus been excluded from this study. At T0, of the 268 adult participants 203 were female and 65 were male (mean age: 30.38, SD=10.48). The majority of participants (85%) were Lebanese with low socio-economic status. 15% of participants were refugees mainly coming from Syria, followed by refugees from Iraq, Palestine, Philippines and Other (see Figure 1). At T1, 163 of the 210 participants were female and 48 were male (mean age: 29.65, SD=10.09). At T2, of the 47 remaining participants 37 were female and 10 were male (mean age: 28.79, SD=8.86). Missing data has been reviewed for each measurement as, for example, some participants did not complete one of three assessments. The combined number of participants that remained across measurements at T0 were 261-263 participants, for T1 there were 210-211 participants and at T2 there were 47 participants remaining. In total, 19 therapists, treated 6-22 adult participants (mean= 13.1, SD= 3.4). On average, each participant received 7.3 treatment sessions (ranging from 0-30 sessions, SD=5.25).

Figure 1

Note: N: number of participants; F: female; M: male; The category “Refugees” comprises of Syria, Iraq, Palestine, Philippines and Other.

Psychological Symptom Remission Over Time

The means and standard deviations and within-treatment effect sizes (Cohen’s *d*) of the measurements are presented in Table 1. A one-way repeated measures ANOVA indicated a reduction in PTS scores from T0 to T1 ($\lambda=.33$, $F_{(1,208)}=412.3$, $p<0.01$, $\eta^2=.665$), a reduction from T1 to T2 ($\lambda=.88$, $F_{(1,46)}=6.4$, $p<0.05$, $\eta^2=.122$) and a reduction from T0 to T2 ($\lambda=.25$, $F_{(1,46)}=136.1$, $p<0.01$, $\eta^2=.75$). Similarly, there was a reduction in anxiety scores from T0 to T1 ($\lambda=.35$, $F_{(1,208)}=387.0$, $p<0.01$, $\eta^2=.65$), a non-significant reduction from T1 to T2 ($\lambda=.97$, $F_{(1,46)}=1.5$, $p=0.23$, $\eta^2=.03$) and a reduction between T0 and T2 6 months after EMDR intervention ($\lambda=.23$, $F_{(1,46)}=153.7$, $p<0.01$, $\eta^2=.77$). Finally, there was a reduction in depression scores from T0 to

T1 ($\lambda=.40$, $F_{(1,207)}=309.4$, $p<0.01$, $\eta^2=.599$), from T1 to T2 ($\lambda=.90$, $F_{(1,46)}= 5.3$, $p<0.05$, $\eta^2=.103$) and from T0 to T2 6 months after EMDR intervention ($\lambda=.324$, $F_{(1,46)}= 96.0$, $p<0.01$, $\eta^2=.676$) (see Figure 2).

EMDR Protocol: SUD and VOC Scores

The total VOC and SUD scores are found in Table 1. Both VOC ($\lambda=.139$, $F_{(1,239)}=1476.1$, $p<0.01$, $\eta^2=.861$) and SUD ($\lambda=.111$, $F_{(1,247)}= 1985.9$, $p<0.01$, $\eta^2=.889$) scores were found to have positively changed between T0 and T1.

Table 1

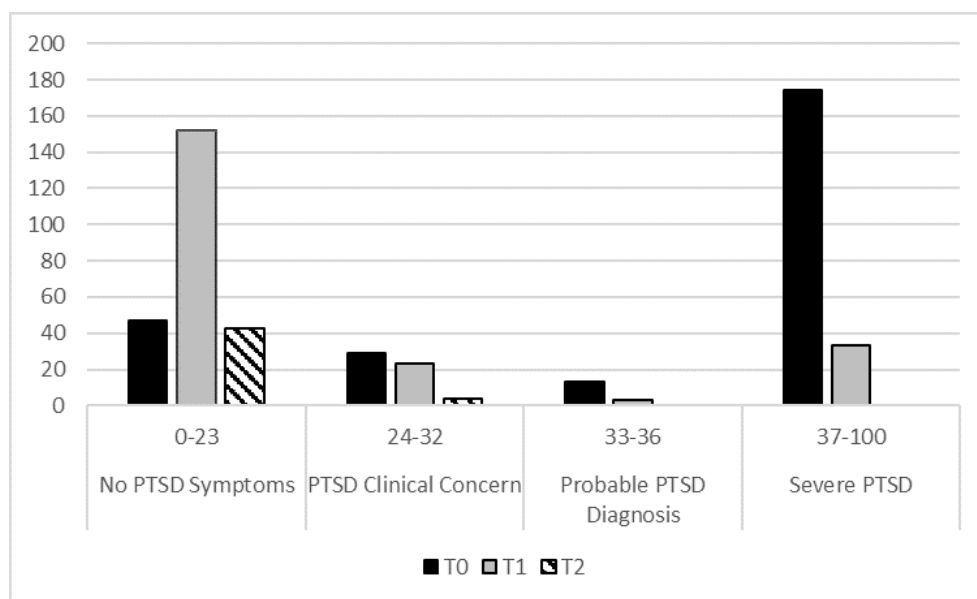
Summary of Means (SDs) and Effect Sizes (Cohen's d) of all Measurements taken Before, Immediately After, and 6 months after EMDR Treatment in low socio-economic volunteers and a smaller cohort of refugees

Measurements	T0	T1	T2	Cohen's d	
				T0-T1	T0-T2
IES-R	45.74 (19.59)	15.92 (18.67)	8.43 (8.99)	1.55	2.03
GAD	11.67 (5.00)	4.23 (4.72)	2.27 (2.35)	1.53	2.00
PHQ-9	12.31 (6.48)	4.7 (5.12)	2.00 (2.19)	1.29	1.71
VOC	2.92 (1.56)	6.75 (0.73)	-	-3.11	-
SUD	7.72 (2.18)	0.49 (1.5)	-	3.85	-

Note: IES-R: Impact of Event Scale-Revised; GAD: Generalized Anxiety Disorder; PHQ-9: Patient Health Questionnaire; VOC: Validity of Cognition Scale; SUD: Subjective Units of Disturbance Scale; T0: Before Treatment; T1: After Treatment; T2: 6 month follow up

Table 2*Ranking of traumatic events experienced by service users*

Ranking	Description of Traumatic Event	% of N
1	Family Problems	65.2%
2	Relational Problems	63.2%
3	Domestic Violence	42%
4	Death of Relatives	30.8%
5	Sexual Abuse	29.6%
6	Economic or financial Problems	29.2%
7	War/Combat/Civil Conflict	27.2%
8	Accident	24.4%
9	Refugee	21.2%
10	Other	19.2%
11	Illness	18%
12	Abandoned Child	9.6%
13	Trafficking	4.8%
14	Natural Disaster	0.4%

Figure 2*IES-R score categories taken Before (T0), Immediately After (T1), and 6 months after EMDR**Treatment (T2) in Refugees and low socio-economic volunteers*

Refugee Sample Sub-analysis

Psychological Symptom Remission Over Time

The means and standard deviations and within-treatment effect sizes (Cohen's *d*) of the measurements are presented in Table 3. A one-way repeated measures ANOVA indicated a reduction in PTS scores from T0 to T1 ($\lambda=.205$, $F_{(1,26)}=100.57$, $p<0.00$, $\eta^2=.795$). Similarly, there was a reduction in anxiety scores from T0 to T1 ($\lambda=.22$, $F_{(1,26)}=89.88$, $p<0.00$, $\eta^2=.77$). Finally, there was a reduction in depression scores from T0 to T1 ($\lambda=.268$, $F_{(1,25)}=68.38$, $p<0.00$, $\eta^2=.732$).

EMDR Protocol: SUD and VOC Scores

The total VOC and SUD scores are presented in Table 3. Both VOC ($\lambda=.133$, $F_{(1,32)}=209.3$, $p<0.00$, $\eta^2=.867$) and SUD ($\lambda=.228$, $F_{(1,37)}=124.98$, $p<0.00$, $\eta^2=.772$) scores were found to have positively changed between T0 and T1.

Table 3

Summary of Means (SDs) and Effect Sizes (Cohen's d) of all Measurements taken Before, Immediately After, and 6 months after EMDR Treatment in a refugee cohort

Measurements	T0	T1	Cohen's d T0-T1
IES-R	55.28 (16.1)	13.26 (16.21)	2.6
GAD	12.51 (5.32)	3.89 (4.82)	1.68
PHQ-9	14.37 (6.95)	5.3 (6.3)	1.36
VOC	2.78 (1.81)	6.88 (0.55)	-2.99
SUD	7.62 (2.72)	1.21 (2.72)	2.41

Note: IES-R: Impact of Event Scale-Revised; GAD: Generalized Anxiety Disorder; PHQ-9: Patient Health Questionnaire; VOC: Validity of Cognition Scale; SUD: Subjective Units of Disturbance Scale; T0: Before Treatment; T1: After Treatment

Discussion

This is the first study to examine the efficacy of EMDR as a treatment protocol among a large cohort of individuals with low-economic status in a conflict-affected middle-income country as well as a smaller refugee cohort. The present study found EMDR to be highly effective in reducing PTS, anxiety and depression symptoms among these individuals residing in Lebanon. Importantly, the intervention was found to significantly decrease all associated symptoms of PTS, anxiety and depression from before to after the treatment. These results held at a six-month, post-treatment follow-up, but due to the high loss of contact with participants (82% unavailable), the long-term results must be considered less well established. This study thus provides additional evidence that EMDR is efficacious in treating PTS, anxiety and depression symptoms. This study is an important addition to current literature on reporting the efficacy of EMDR in alleviating these mental health problems in this vulnerable population, and is consistent with previous reports, including those in refugee populations (e.g., Van der Kolk et al., 2007; Brady et al., 2000; Natha & Daiches, 2014).

Conflict affected populations were found to display high rates of somatization, which corresponds with current literature frequently considering it as a main therapeutic target when working with individuals exhibiting PTSD (e.g., Comellas et al., 2015; Morina et al., 2018b). Since a key element of EMDR is somatic awareness, this may explain why EMDR is so effective for conflict affected populations' characteristics of traumatic symptoms (Schubert et al., 2016; Solomon & Shapiro, 2008). Furthermore, seeing as EMDR does not require the completion of homework tasks (which is common practice for CBT models), this treatment approach becomes more applicable for conflict affected populations which might not have access to culturally and/or language adapted assignments, as it reduces potential language barriers and struggles to complete the assignment (e.g., Kazantzis et al., 2005).

Regarding the course of EMDR treatment, results suggested that an average number of 7.5 sessions per individual was needed, which is on the lower end of international treatment guidelines that suggest 8-12 treatment sessions (NICE, 2018; WHO, 2013). The duration of EMDR is therefore immediately impactful to general cost-effectiveness, since EMDR can require a smaller number of sessions (although this depends on the number of presenting problems the service user wishes to focus on), compared to other interventions (e.g., CBT), while at the same time continuing its clinical effectiveness. However, the evidence base for EMDR is still limited regarding the differentiation between single and multiple trauma and its effect on treatment duration (e.g. Maxfield & Hyer, 2002). Similarly, recent health economic evaluations show, relative to other trauma focussed interventions, EMDR is considered to be the most cost-effective treatment for treating PTSD in adults (Mavranouzouli, et al., 2020; De Bont, et al., 2019).

Most research on treating PTSD and co-morbidity has been conducted in high income countries, while studies conducted in low-middle income countries are small in number and cohort size. Previous research has called for additional work beyond high income countries and that employs larger cohorts (e.g., Morina et al., 2017; De Jong et al., 2001; Priebe et al., 2010; Steel et al., 2009). As such, the current study directly addresses these previous criticisms by utilising a large cohort of Lebanese individuals with low socio-economic status as well as a smaller cohort of refugees. Consequently, the data demonstrate the efficacy and applicability of EMDR therapy in this cohort.

Study Limitations and Future Directions

Although the results suggest a good level of alleviation of psychological symptoms, several influencing factors need to be acknowledged. One factor to consider was the high dropout rate of participants; however, the dropout rates are very likely to be influenced by the fluidity of the cohort, particularly refugees, and hence people can be displaced very quickly and

without warning. These challenges are inevitable in an environment of this nature. It is also possible, that this level of trauma work might be too intense for many in this population, leading to higher dropout rates (e.g., Hembree et al, 2003). Recent meta-analysis found the pooled average dropout rate for evidence-based treatments (EBT) to be between 16% (Lewis et al, 2020) and 20.9% (Varker et al., 2021). However, these studies included a wide range of interventions and did not distinguish between HIC and LMIC as they predominately included HIC and/or Western countries. Since there is a general deficiency of systematic reviews targeting LMICs, it is unclear whether there might be distinct mediating factors associated with dropout rates as well as whether dropout rates differ from Western countries. There are some studies that looked specifically at participant dropout for military trauma vs civilian trauma reporting a higher pooled average for military trauma, including a pooled average of 34.4-36% (Goetter et al., 2015; Varker et al., 2021). The dropout rates for this study (at T1) falls in line with other EBT studies, with a dropout rate of 22%.

Bearing this in mind, future research with low-income and/or transient populations could benefit from a more thorough way of contacting participants for follow-up appointments. This could be achieved during the informed consent process by including a section about alternative ways of contacting the participant, such as through their support network (e.g., relatives or friends) which might have their current contact information.

Furthermore, this study did not compare EMDR against other treatments, which does not, however, take away from this study's advance over others, as it is distinct in using a large sample size and evidence-based measurements.

Other factors include the treatment setting that has not been standardised and the fact that participants were allocated to different therapists and would receive their treatment based on their therapist's location. This latter point could present transport challenges and lead to

higher dropout rates. Seeing as this study has been conducted in a naturalistic way, rather than in a controlled research environment, these kinds of difficulties are difficult to avoid.

One final limitation could be the lack of a formal PTSD diagnosis of the research population as PTSD symptoms have only been assessed through self-report instruments. However, previous research suggests that even without having clinically significant PTSD symptoms, 68% of people exposed to a traumatic event are more likely to develop delayed onset PTSD (Andrews et al., 2007).

Conclusion

Mental health services, especially in conflict affected settings, need to be fostered further with an emphasis on evidence-based treatments. These interventions have the potential to ease distress and insecurity for individuals facing extreme disruptions of extended conflict and displacement. EMDR was found to be an effective treatment for reducing symptoms of PTS, anxiety and depression symptoms in a Lebanese cohort with low SES as well as refugees residing in Lebanon. For countries such as Lebanon, who have limited resources such as health care professionals, money, or a high number of refugees with a risk of developing post-traumatic stress, it is essential to work towards an accessible provision of evidence-based inventions. The data demonstrates the potential efficacy of EMDR therapy as well as its efficacy relating to cost and time to positively impact the mental health and wellbeing of these populations.

References

- Acarturk, C., Konuk, E., Cetinkaya, M., Senay, I., Sijbrandij, M., Cuijpers, P., & Aker, T. (2015). EMDR for Syrian refugees with posttraumatic stress disorder symptoms: results of a pilot randomized controlled trial. *European journal of Psychotraumatology*, 6, 27414. <https://doi.org/10.3402/ejpt.v6.27414>
- Acarturk, C., Konuk, E., Cetinkaya, M., et al. (2016). The efficacy of eye movement desensitization and reprocessing for post-traumatic stress disorder and depression among Syrian refugees: results of a randomized control trial. *Psychological Medicine*, 46, 2583-93. <http://dx.doi.org/10.1017/S0033291716001070>.
- American Psychological Association (APA). (2017). *Clinical practice guideline for the treatment of posttraumatic stress disorder (PTSD) in adults*. Washington, DC: Author.
- Andrews, B., Brewin, C. R., Philpott, R., & Stewart, L. (2007). Delayed-onset posttraumatic stress disorder: A systematic review of the evidence. *The American Journal of Psychiatry*, 164(9), 1319–1326. <http://dx.doi.org/10.1176/appi.ajp.2007.06091491>
- Brady, K. T., Killeen, T. K., Brewerton, T., & Lucerini, S. (2000). Comorbidity of psychiatric disorders and posttraumatic stress disorder. *The Journal of Clinical Psychiatry*, 61(Suppl. 7), 22–32.
- Charlson, F., Van Ommeren, M., Flaxman, A., Cornett, J., Whiteford, H., Saxena, S. (2019). New WHO prevalence estimates of mental disorders in conflict settings: a systematic review and meta-analysis. *The Lancet*, 394 (10194), 240-248.
- Chen, Y. R., Hung, K. W., Tsai, J. C., Chu, H., Chung, M. H., Chen, S. R., et al. (2014). Efficacy of eye-movement desensitization and reprocessing for patients with posttraumatic-stress disorder: a meta-analysis of randomized controlled trials. *PLoS ONE*, 9(e0103676).

- Chen, L., Zhang, G., Hu, M., and Liang, X. (2015). Eye movement desensitization and reprocessing versus cognitive-behavioral therapy for adult posttraumatic stress disorder: systematic review and meta-analysis. *J. Nervous Mental Dis.* 203, 443–451.
- Comellas, R. M., Makhshvili, N., Chikovani, I., Patel, V., McKee, M., Bisson, J., & Roberts, B. (2015). Patterns of somatic distress among conflict-affected persons in the Republic of Georgia. *Journal of Psychosomatic Research*, 78(5), 466-471.
- De Bont, P. A. J. M., Van der Vleugel, B. M., Van den Berg, D. P. G., De Roos, C., Smit, F., de Jongh, A., Van der Gaag, M., & Van Minnen, A. (2019). Cost-effectiveness of prolonged exposure versus EMDR versus waiting list for the treatment of PTSD in patients with psychotic disorders. Health-economic benefits of treating trauma in psychosis. *European Journal of Psychotraumatology*, 10, 11565032.
- De Jong, J. T., Komproe, I. H., Van Ommeren, M., El Masri, M., Araya, M., Khaled, N., & Somasundaram, D. (2001). Lifetime events and posttraumatic stress disorder in 4 postconflict settings. *JAMA*, 286(5), 555–562.
- De Jong, A., Amann, B.L., Hoffmann, A., Farrell, D., & Lee, C.W. (2019). The Status of EMDR Therapy in the Treatment of Posttraumatic Stress Disorder 30 Years After Its Introduction. *Journal of EMDR Practice and Research*, 13(4), 261-269.
- Fernandez, I. (2008). EMDR after a critical incident: Treatment of a tsunami survivor with acute posttraumatic stress disorder. *Journal of EMDR Practice and Research*, 2(2), 156-159.
- Goetter, E. M., Bui, E., Ojserkis, R. A., Zakarian, R. J., Brendel, R. W., & Simon, N. M. (2015). A Systematic Review of Dropout From Psychotherapy for Posttraumatic Stress Disorder Among Iraq and Afghanistan Combat Veterans. *Journal of Traumatic Stress*, 28(5), 401-409. doi:<https://doi.org/10.1002/jts.22038>

- Guha-Sapir, D., Hoyois, P., & Below, R. (2014). Annual Disaster Statistical Review 2013: the numbers and trends.
- Hembree, E. A., Foa, E. B., Dorfan, N. M., Street, G. P., Kowalski, J., & Tu, X. (2003). Do patients drop out prematurely from exposure therapy for PTSD? *J Trauma Stress, 16*(6), 555-562. doi:10.1023/B:JOTS.00000004078.93012.7d
- Ho, M. S. K., & Lee, C. W. (2012). Cognitive behaviour therapy versus eye movement desensitization and reprocessing for post-traumatic disorder—Is it all in the homework then? *European Review of Applied Psychology / Revue Européenne de Psychologie Appliquée, 62*(4), 253–260.
- International Society for Traumatic Stress Studies (ISTSS) (2019). Posttraumatic Stress Disorder Prevention and Treatment Guidelines: Methodology and Recommendations. Retrieved from: <https://istss.org/clinical-resources/treating-trauma/new-istss-prevention-and-treatment-guidelines>.
- Ironson, G., Freund, B., Strauss, J.L., & Williams, J. (2002). Comparison of two treatments for traumatic stress: a community-based study of EMDR and prolonged exposure. *Journal of Clinical Psychology, 58*(1), 113-28. doi: 10.1002/jclp.1132. PMID: 11748600.
- Kazantzis, N., Lampropoulos, G. K., & Deane, F. P. (2005). A national survey of practicing psychologists' use and attitudes toward homework in psychotherapy. *J Consult Clin Psychol, 73*(4), 742-748. doi:10.1037/0022-006x.73.4.742.
- Lewis, C., Roberts, N. P., Gibson, S., & Bisson, J. I. (2020). Dropout from psychological therapies for post-traumatic stress disorder (PTSD) in adults: systematic review and meta-analysis. *European journal of psychotraumatology, 11*(1), 1709709-1709709. doi:10.1080/20008198.2019.1709709.

- Marcus, S. V., Marquis, P., & Sakai, C. (1997). Controlled study of treatment of PTSD using EMDR in an HMO setting. *Psychotherapy: Theory, Research, Practice, Training*, 34(3), 307–315. doi:10.1037/h0087791
- Marcus, S., Marquis, P., & Sakai, C. (2004). Three- and 6-Month Follow-Up of EMDR Treatment of PTSD in an HMO Setting. *International Journal of Stress Management*, 11(3), 195–208. doi:10.1037/1072-5245.11.3.195
- Mavranzouli, I., Megnin-Viggars, O., Grey, N., Bhutani, G., Leach, J., Daly, C., Dias, S., Welton, N. J., Katona, C., El-Leithy, S., Greenberg, N., Stockton, S., & Pilling, S. (2020). Cost-effectiveness of psychological treatments for post-traumatic stress disorder in adults. *PloS one*, 15(4), e0232245.
- Maxfield, L. and Hyer, L. (2002), The relationship between efficacy and methodology in studies investigating EMDR treatment of PTSD. *J. Clin. Psychol.*, 58: 23-41. <https://doi.org/10.1002/jclp.1127>
- Morina, N., Malek, N., Nickerson, A., & Bryant, R.A. (2017). Meta-analysis of interventions for posttraumatic stress disorder and depression in adult survivors of mass violence in low- and middle-income countries. *Depression and Anxiety*, 34, 679-691.
- Morina, N., Stam, K., Pollet, T. V., & Priebe, S. (2018, 2018/10/15/). Prevalence of depression and posttraumatic stress disorder in adult civilian survivors of war who stay in war-afflicted regions. A systematic review and meta-analysis of epidemiological studies. *Journal of Affective Disorders*, 239, 328-338
- Morina, N., Schnyder, U., Klaghofer, R. *et al.* Trauma exposure and the mediating role of posttraumatic stress on somatic symptoms in civilian war victims. *BMC Psychiatry* 18, 92 (2018). <https://doi.org/10.1186/s12888-018-1680-4>

- Natha, F., & Daiches, A. (2014). The effectiveness of EMDR in reducing psychological distress in survivors of natural disasters: A review. *Journal of EMDR Practice and Research*, 8(3), 157–170. <https://doi.org/10.1891/1933-3196.8.3.157>.
- National Institute for Clinical Excellence (NICE) (2018). Post-traumatic stress disorder. www.nice.org.uk/guidance/ng116.
- Priebe, S., Bogic, M., Ajdukovic, D., Franciskovic, T., Galeazzi, G. M., Kucukalic, A., et al. (2010). Mental disorders following war in the Balkans A study in 5 countries. *Archives of General Psychiatry*, 67(5), 518–528.
- Purgato, M., Gastaldon, C., Papola, D., Van Ommeren, M., Barbui, C., & Tol, W.A. (2018). Psychological therapies for the treatment of mental disorders in low-and middle income countries affected by humanitarian crises. *Cochrane Database of Systematic Reviews*, 7.
- Rathod, S., Pinninti, N., Irfan, M., Gorczynski, P., Rathod, P., Gega, L., & Naeem, F. (2017). Mental Health Service Provision in Low- and Middle-Income Countries. *Health services insights*, 10, 1178632917694350-1178632917694350.
- Roberts, B., Ocaika, K. F., Browne, J., Oyok, T., & Sondorp, E. (2008). Factors associated with post-traumatic stress disorder and depression amongst internally displaced persons in northern Uganda. *BMC Psychiatry*, 8(1), 38.
- Schubert, S. J., Lee, C. W., de Araujo, G., Butler, S. R., Taylor, G., & Drummond, P. D. (2016). The Effectiveness of Eye Movement Desensitization and Reprocessing Therapy to Treat Symptoms Following Trauma in Timor Leste. *Journal of traumatic stress*, 29(2), 141–148.
- Shapiro, F. (2001). *Eye movement desensitization and reprocessing (EMDR): basic principles, protocols and procedures* (Vol. 2nd ed.). New York, NY: The Guilford Press.

- Shapiro, F. (2014). The role of eye movement desensitization and reprocessing (EMDR) therapy in medicine: addressing the psychological and physical symptoms stemming from adverse life experiences. *The Permanente journal*, 18(1), 71–77. <https://doi.org/10.7812/TPP/13-098>
- Solomon, R.M. & Shapiro, F. (2008). EMDR and the adaptive information processing model potential mechanisms of change. *Journal of EMDR practice and Research*, 2(4), 315-325.
- Steel, Z., Chey, T., Silove, D., Marnane, C., Bryant, R. A., & Van Ommeren, M. (2009). Association of torture and other potentially traumatic events with mental health outcomes among populations exposed to mass conflict and displacement: A systematic review and meta-analysis. *JAMA*, 302(5), 537–549.
- Themner, L., & Wallensteen, P. (2014). Armed conflicts, 1946-2013. *Journal of Peace Research*, 51(4), 541–54.
- The World Bank (2019). Retrieved from: <https://data.worldbank.org/country/LB>
- The World Bank (2019). Refugee population by country or territory of asylum – Lebanon. Retrieved from: <https://data.worldbank.org/indicator/SM.POP.REFG?locations=LB>
- Tol, W.A., Barbui, C., Galappatti, A., Silove, D., Betancourt, T.S., Souza, R., Golaz, A., & Van Ommeren, M. (2011). Mental health and psychosocial support in humanitarian settings: linking practice and research. *Lancet*, 378(9802), 1581-1591.
- Tol, W.A., Ager, A., Bizouerne, C. et al. (2020). Improving mental health and psychosocial wellbeing in humanitarian settings: reflections on research funded through R2HC. *Conflict and Health*, 14 (71). <https://doi.org/10.1186/s13031-020-00317-6>
- Turrini, G., Purgato, M., Acarturk, C., Anttila, M., Au, T., Ballette, F., . . . Barbui, C. (2019). Efficacy and acceptability of psychosocial interventions in asylum seekers and refugees:

Systematic review and meta-analysis. *Epidemiology and Psychiatric Sciences*, 28(4), 376-388.

United Nations High Commissioner for Refugees (UNHCR) (n.d.). Research and Evaluation. <https://www.unhcr.org/uk/evaluation-and-research.html>

Van der Kolk, B. A., Spinazzola, J., Blaustein, M. E., Hopper, J. W., Hopper, E. K., Korn, D. L., et al. (2007). A randomized clinical trial of eye movement desensitization and reprocessing (EMDR), fluoxetine, and pill placebo in the treatment of posttraumatic stress disorder: Treatment effects and long-term maintenance. *Journal of Clinical Psychiatry*, 68(1), 37-46. <https://doi.org/10.4088/JCP.v68n0105>.

Varker, T., Jones, K. A., Arjmand, H.-A., Hinton, M., Hiles, S. A., Freijah, I., . . . O'Donnell, M. (2021). Dropout from guideline-recommended psychological treatments for posttraumatic stress disorder: A systematic review and meta-analysis. *Journal of Affective Disorders Reports*, 4, 100093. doi:<https://doi.org/10.1016/j.jadr.2021.100093>

Weiss, D.S., & Marmar, C.R. (1997). The impact of event scale – revised. In: Wilson JP, Keane TM, editors. *Assessing psychological trauma and PTSD* (pp. 399–411). New York: Guilford Press.

World Health Organization (WHO) (2013). *Guidelines for the management of conditions that are specifically related to stress*. Geneva: WHO.

World Health Organization (WHO) (2019). *Mental Health in Emergencies*. <https://www.who.int/news-room/fact-sheets/detail/mental-health-in-emergencies>

Yurtsever, A., Konuk, E., Akyüz, T., Zat, Z., Tükel, F., Çetinkaya, M., et al. (2018). An Eye Movement Desensitization and Reprocessing (EMDR) Group Intervention for Syrian Refugees with Post-Traumatic Stress Symptoms: Results of a Randomized Controlled Trial. *Frontiers in psychology*, 9, 493. <https://doi.org/10.3389/fpsyg.2018.00493>