The Effectiveness of Eye Movement Desensitization and Reprocessing (EMDR) Therapy in Treating Posttraumatic Stress Disorder among ICU Healthcare Professionals in Cameroon: A Quasi-Experimental Study

Siver Kibuh, Ph.D. Candidate in Clinical Psychology; Alice Munene. Psy.D; & Margaret Sirima, Ph.D., Daystar University, Kenya.

Abstract

Healthcare professionals in intensive care units (ICUs) face a significantly heightened risk of developing posttraumatic stress disorder (PTSD) due to prolonged exposure to trauma and high-stress environments. This crisis is exacerbated in low-resource settings such as Cameroon by systemic challenges and sociopolitical instability. This study aimed to evaluate the effectiveness of Eye Movement Desensitization and Reprocessing (EMDR) therapy in treating PTSD among ICU healthcare professionals in Cameroon. A quasi-experimental pretest-posttest design with a non-randomized control group was employed. A total of 134 participants (67 treatment, 67 control) from Saint Elizabeth General Hospital and Banso Baptist Hospital were stratified by professional role to obtain 44 nurses, 10 physicians, and 13 support staff from each hospital. PTSD symptom severity was measured using the PTSD Checklist for DSM-5 (PCL-5) at baseline, post-intervention, and a three-month follow-up. The treatment group received six weeks of standard EMDR therapy. Results from a repeated-measures ANOVA revealed a significant time × group interaction effect, $F(2, 99) = 402.66$, $p < .001$, $\eta^2_p = .891$. Participants receiving EMDR demonstrated a dramatic reduction in PCL-5 scores from baseline ($M = 40.92$, $SD = 6.14$) to follow-up ($M = 8.80$, $SD = 3.04$), with 100% achieving clinical remission ($\geq$10-point reduction) at follow-up compared to 5.9% in the control group. The findings provide robust evidence that EMDR therapy is highly effective in producing rapid and sustained remission of PTSD symptoms among ICU healthcare workers in Cameroon, supporting its integration into mental health support protocols for frontline staff in resource-constrained settings.

Keywords: EMDR, posttraumatic stress disorder, PTSD, healthcare workers, ICU, Cameroon, quasi-experimental study

Introduction and background information

Healthcare professionals in intensive care units (ICUs) operate in profoundly high-stress environments characterized by life-and-death decisions, prolonged exposure to patient suffering, and the emotional toll of witnessing trauma, all of which contribute to a significantly heightened risk of developing posttraumatic stress disorder (PTSD) (Hamed et al., 2020). Recent global estimates indicate that up to 30% of ICU staff exhibit clinically significant PTSD symptoms, a rate far exceeding that of the general population (Serrano-Ripoll et al., 2020). This psychological distress is often compounded by moral injury, a form of psychological suffering that arises from perceived ethical violations or systemic constraints, such as the resource shortages experienced during the COVID-19 pandemic (Dean et al., 2019; Pollock et al., 2020). The pandemic served as a catalyst, exposing and exacerbating the mental health crisis within critical care.

Systematic reviews have confirmed PTSD prevalence among healthcare workers ranging from 13% to 36%, with ICU professionals consistently reporting some of the highest rates (Andhavarapu et al., 2022; Sahebi et al., 2021). Despite this growing recognition, evidence-based interventions specifically tailored to the unique psychological needs of ICU workers remain severely limited. Traditional therapies, such as trauma-focused cognitive-behavioural therapy (TF-CBT), though effective in general populations, often require prolonged engagement and extensive verbalization of traumatic events (Beck, 2011), which can be a significant barrier for healthcare professionals accustomed to prioritizing others' needs over their own.

Globally, Eye Movement Desensitization and Reprocessing (EMDR) therapy has emerged as a promising, evidence-based intervention for PTSD. Originally developed for trauma survivors, EMDR facilitates the adaptive processing of distressing memories through its structured, eight-phase protocol involving bilateral stimulation, leading to rapid and sustained symptom reduction (Shapiro, 2018). Endorsed by the World Health Organization (WHO) for PTSD treatment (WHO, 2013), EMDR is noted for its efficiency, often achieving comparable or superior results in fewer sessions than traditional therapies (Seok & Kim, 2024; Yunitri et al., 2023). This quality makes it particularly advantageous for busy healthcare professionals. Its non-reliance on detailed verbal recounting of trauma may also reduce the emotional burden on patients compared to exposure-based therapies (Shapiro, 2018).

Meta-analyses of randomized controlled trials (RCTs) have affirmed EMDR's efficacy in reducing PTSD symptoms across diverse populations, including combat veterans and disaster

responders (Rasines-Laudes & Serrano-Pintado, 2023; Wright et al., 2024). Furthermore, economic evaluations suggest that EMDR is a cost-effective treatment, supporting its use even in resource-constrained healthcare systems (Mavranezouli et al., 2020). The therapy's mechanisms are theoretically grounded in the Adaptive Information Processing (AIP) model, which posits that PTSD arises from unprocessed traumatic memories stored in isolated neural networks (Shapiro, 2014). EMDR facilitates the reprocessing of these memories, allowing for integration into adaptive memory networks and a reduction in their emotional intensity.

Despite this strong global evidence base and its theoretical fit for addressing the cumulative trauma ICU staff experience, the application of EMDR among healthcare professionals, particularly those in high-acuity roles, remains understudied. International studies, such as the recent multi-country investigation by Roger et al. (2024), continue to highlight the disproportionate mental health burden on ICU workers but stop short of evaluating targeted interventions such as EMDR. This gap is even more pronounced within the African regional context. Studies across the continent reveal that healthcare workers face heightened vulnerabilities due to systemic stressors such as resource scarcity, understaffing, and cultural stigmas surrounding mental health (Tesfaye et al., 2024). A systematic review and meta-analysis by Tesfaye et al. (2024) reported PTSD prevalence rates among vulnerable African populations ranging from 12% to as high as 85%, indicating a severe and widespread mental health challenge. While research on EMDR in Africa is emerging, demonstrating its cultural adaptability and effectiveness in trauma-affected populations in countries like Uganda, Kenya, and Senegal (Mbazzi et al., 2021), these studies have not focused on healthcare professionals or the specific ICU context.

Locally, within Cameroon, the dearth of research is acute. ICU professionals face similar, if not more pronounced, risks due to systemic healthcare challenges, including limited mental health resources and sociopolitical instability in regions such as the Northwest and Southwest, which amplifies exposure to violence and resource constraints (United Nations Office for the Coordination of Humanitarian Affairs [UNOCHA], 2024; Nguépy Keubo et al., 2021). Available research on Cameroonian healthcare workers indicates significant psychological distress, with studies reporting high rates of anxiety (42.2%) and depression (43.5%) during the pandemic (Nguépy Keubo et al., 2021). However, empirical data on PTSD prevalence and management within Cameroonian ICUs is scarce. The lone identified study exploring EMDR in Cameroon, presented by Kenmgne et al. (2023), did not confirm its effectiveness in

significantly reducing PTSD symptoms compared to treatment as usual, with the authors suggesting that contextual challenges and study limitations may have influenced these findings. This underscores a critical knowledge gap and the necessity for further rigorous, localized research to understand EMDR's potential in this population and setting.

This study is grounded in an integrated theoretical framework that conceptualizes the complex etiology of PTSD among ICU workers and the mechanisms of EMDR therapy. The primary lens is Shapiro's (2014) AIP model, which posits that PTSD stems from unprocessed traumatic memories stored in isolated neural networks, causing symptoms when triggered. This model is supplemented by Figley's (1995) Vicarious Trauma Theory, which accounts for the cumulative impact of secondary exposure to patient suffering, and the Transactional Model of Stress and Coping (TMSC) (Lazarus & Folkman, 1984), which explains how individual appraisals and coping resources influence symptom severity. Together, this framework posits that PTSD in this population results from maladaptively stored memories of direct and vicarious trauma, compounded by stressful appraisals of workplace events.

Consequently, EMDR therapy is hypothesized to directly target the core pathological mechanism the AIP model identifies. By facilitating the reprocessing of these dysfunctional memories through bilateral stimulation, EMDR aims to integrate them into adaptive memory networks, thereby reducing their emotional charge. This process is theorized to alleviate the core symptoms of PTSD, mitigate the effects of vicarious trauma, and break the cycle of negative appraisals that deplete coping resources. This combined activity therefore fosters greater psychological resilience among ICU healthcare professionals ultimately in a high-stress, resource-constrained context.

The identified gap, therefore, is the lack of rigorous, context-specific trials evaluating the effectiveness of EMDR therapy for ICU healthcare professionals in Cameroon, a low-resource setting with unique socio-cultural and systemic challenges. This study seeks to fill this void, operating on the premise that EMDR can be adapted effectively to mitigate PTSD symptoms among Cameroonian ICU staff by addressing their maladaptively stored traumatic memories. Consequently, the present study aimed to evaluate the effectiveness of EMDR therapy in treating PTSD among ICU healthcare professionals in selected general hospitals in Kumbo, Bui Division, Cameroon.

Methodology

This study employed a quasi-experimental research design utilizing a pretest-posttest framework with a non-randomized control group to evaluate the effectiveness of EMDR therapy. A quasi-experimental approach was selected as the most appropriate and ethical design for this real-world healthcare setting, where the random assignment of healthcare professionals to treatment or control conditions was deemed impractical and potentially unethical due to operational constraints and the critical nature of ICU staffing (Price et al., 2015). This design allowed for the comparison of outcomes between a group receiving the EMDR intervention and a comparable control group that continued with its usual activities. The setup would therefore facilitate a robust evaluation of the causal relationship between the intervention and changes in PTSD symptom severity while maintaining a high degree of external validity.

The target population consisted of healthcare professionals working in the intensive care units of two level-five general hospitals in Bui Division, Cameroon. These included Saint Elizabeth General Hospital, the treatment site, and Banso Baptist Hospital, the control site. Participants included nurses, physicians, and auxiliary support staff involved in patient care directly. The inclusion criteria mandated that participants be currently employed in the ICU for at least six months to ensure adequate exposure to the high-stress environment, work exclusively at the study hospital to maintain homogeneity of experience, and be willing to provide informed consent. Exclusion criteria included being on extended leave, having worked in the ICU for less than six months, currently undergoing treatment for PTSD or other psychological disorders, or working locum shifts at other hospitals, as these factors were considered potential confounders.

The sample size was determined using Cochran's formula for finite populations. Assuming a 95% confidence level (Z = 1.96), a 5% margin of error, and an expected PTSD prevalence of 50% to ensure maximum variability, an initial sample size of 384 was calculated for an infinite population. After applying the finite population correction for a total estimated population of 200 ICU staff across both hospitals, the adjusted sample size was 132. The final sample was rounded up to 134 participants to account for proportional stratification by professional role, with 67 allocated to each group. This figure included 44 nurses, 10 physicians, and 13 support staff from each hospital site.

The primary outcome variable was the severity of PTSD symptoms, measured using the PTSD Checklist for DSM-5 (PCL-5). The PCL-5 is a 20-item self-report measure that corresponds to

the DSM-5 criteria for PTSD (Blevins et al., 2015). Participants rate how much they have been bothered by each symptom in the past month on a 5-point Likert scale ranging from 0 (*Not at all*) to 4 (*Extremely*). Total scores range from 0 to 80, with a clinical cut-off score of ≥ 33 indicating probable PTSD (Weathers et al., 2013). The PCL-5 has demonstrated excellent internal consistency, with Cronbach's alpha values consistently exceeding 0.90 (Blevins et al., 2015), and has been validated for use in African contexts, including with healthcare populations (Tesfaye et al., 2024).

The data collection process began after obtaining ethical clearance from the Daystar University Institutional Scientific Ethics Review Committee (DU-ISERC) and governmental permissions in Cameroon through the Regional Delegate of Public Health for the Northwest Region of Cameroon. Following institutional approvals, potential participants were engaged through ICU department managers. Data were collected using a structured, self-administered questionnaire as the primary instrument. This tool was selected for its suitability with the quasi-experimental design and stratified sampling technique, as it enables standardized data collection across diverse participants and minimizes researcher bias (Taherdoost, 2016). The questionnaire was disseminated digitally by being prepared as a Google Form for participants to fill.

Detailed information about the study's objectives, procedures, risks, and benefits was shared with participants through informational sessions and written materials first. After providing written informed consent, all participants underwent a baseline assessment (pre-test). The self-administered questionnaires were distributed online through a WhatsApp group that was formed to include the qualified research participants, with separate WhatsApp groups for each site. The link to the form was shared in the group and participants were invited to fill it. A representative of the research team was available in both the WhatsApp group and physically at the hospital grounds during stipulated hours to address any questions or concerns regarding the questionnaire items, thus ensuring the clarity and accuracy of responses. Those who met the criteria for probable PTSD (PCL-5 ≥ 33) were eligible to proceed to the intervention phase.

The intervention phase spanned six weeks. Participants in the treatment group received EMDR therapy administered by the researcher and two trained research assistants. The protocol adhered to Shapiro's (2018) standard eight-phase approach. The first week involved orientation, history-taking, preparation, and establishing a therapeutic alliance. Weeks two to five consisted of weekly 90-minute EMDR sessions focused on processing identified traumatic memories using bilateral stimulation through light bars for eye movements and audio devices

for bilateral tones. The sixth week was dedicated to closure and evaluation. The control group continued with their usual activities and received no intervention during this period.

A post-intervention assessment (post-test) was conducted in the seventh week, wherein all participants again completed the PCL-5 under the same self-administered conditions as the baseline. A follow-up assessment was conducted three months after the intervention's completion to evaluate the durability of treatment effects, using the same instrument and administration method. Finally, EMDR therapy was subsequently offered to participants in the control group after the final data collection point to uphold ethical standards.

Ethical considerations were integral to the design and implementation of this study, ensuring the protection of participants' rights, dignity, and well-being. Their utilization occurred in accordance with the core principles of the Belmont Report, including respect for persons, beneficence, and justice (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). The study received formal ethical clearance from the DU-ISERC, ensuring adherence to both international standards and institutional requirements prior to any data collection activities. A primary ethical imperative was the process of obtaining informed consent. This required that all participants were fully informed about the study's purpose, procedures, potential risks, and benefits before agreeing to participate, thereby ensuring that their involvement was entirely voluntary and based on a comprehensive understanding of the research (Resnik, 2020). Informed consent forms were provided in a language accessible to all participants, and opportunities were provided to address any questions or concerns, thereby respecting participant autonomy and promoting transparent ethical engagement.

Stringent measures were implemented throughout the research process to uphold the principles of confidentiality and anonymity. Personal identifiers were excluded from all data collection instruments, and participant responses were coded to protect privacy. All collected data was stored in encrypted digital formats on password-protected institutional servers, with access restricted solely to the principal research team. These measures were critical in fostering a safe environment where participants could provide honest and accurate responses, particularly when discussing sensitive topics such as PTSD and mental health (Harriss et al., 2019). All identifying information was removed from the final analytic datasets.

The principle of beneficence, which involves minimizing harm and maximizing benefits, was observed rigorously. Although the data collection methods were non-invasive and posed

minimal risk, participants identified as experiencing severe psychological distress were referred to appropriate counseling or therapeutic services as a precautionary measure, aligning with the study's broader goal of improving mental health outcomes among healthcare professionals (American Psychological Association [APA], 2017).

Finally, the principle of justice was upheld by ensuring equitable selection and participation. All eligible ICU healthcare professionals from the selected hospitals had an equal opportunity to participate, with no discrimination based on gender, age, or professional role. This approach ensured that the study's findings would be representative of the target population, thereby enhancing the validity and applicability of the results (Resnik, 2020). Adherence to these ethical frameworks protected the participants and upheld the scientific integrity and credibility of the entire research endeavor.

All quantitative data were analyzed using IBM SPSS Statistics version 26. The primary analysis aimed to evaluate changes in PTSD symptom severity over time and between groups. Descriptive statistics (means and standard deviations) were computed for PCL-5 scores for both groups at baseline, post-intervention, and follow-up. The inferential analysis utilized a repeated-measures Analysis of Variance (ANOVA) with time (three levels) as the within-subjects factor and group (treatment versus control) as the between-subjects factor. The time × group interaction effect served as the primary test of treatment efficacy. Mauchly's test was used to assess the sphericity assumption. If violated, Greenhouse-Geisser corrections were applied.

Analysis of Covariance (ANCOVA) was conducted at the post-intervention and follow-up time points to account for baseline differences in PTSD severity between groups. Baseline PCL-5 scores entered as a covariate to produce adjusted mean differences. A clinically meaningful binary outcome, remission, defined as a $\geq$ 10-point reduction on the PCL-5, was also analyzed using chi-square tests to compare the proportions of participants who achieved remission between groups at each post-baseline assessment.

Prior to these analyses, diagnostic tests were performed to ensure the assumptions of the statistical models were met. The normality of the continuous PCL-5 outcome variable was examined using the Kolmogorov-Smirnov and Shapiro-Wilk tests, supplemented by visual inspection of histograms and Q-Q plots. The homogeneity of variances for between-group comparisons at each time point was assessed using Levene's test. Results were interpreted with

caution if assumptions were violated, and post-hoc comparisons for the repeated-measures ANOVA used Bonferroni corrections to control for Type I error (Field, 2018; Tabachnick & Fidell, 2019).

Results

Prior to evaluating the primary hypothesis, preliminary analyses were conducted to assess baseline characteristics. Descriptive statistics for PTSD symptom severity (PCL-5 scores) for both the treatment and control groups at all three assessment points are presented in Table 1. At baseline, the control group reported a mean PCL-5 score of 44.20 ($SD = 3.85$), while the treatment group reported a mean of 40.92 ($SD = 6.14$). This baseline difference was statistically significant and necessitated the use of baseline scores as a covariate in subsequent analyses to control for initial inequality between the groups.

Table 1: Means and Standard Deviations of PTSD Scores by Group and Time Point

Time Point	Group	n	M	SD	95% CI for Mean
Baseline	Control	51	44.20	3.85	[43.11, 45.28]
	Treatment	51	40.92	6.14	[39.19, 42.65]
Post-Intervention	Control	51	43.06	5.44	[41.53, 44.59]
	Treatment	51	19.33	5.76	[17.71, 20.95]
3-Month Follow-up	Control	51	43.24	6.36	[41.45, 45.03]
	Treatment	51	8.80	3.04	[7.95, 9.66]

Note. PTSD scores were assessed using the PCL-5, with higher scores indicating greater symptom severity.

Attrition was monitored throughout the study. From a baseline of 67 participants per group, 58 (86.6%) in each group completed the post-intervention assessment, and 51 (76.1%) completed the three-month follow-up. The attrition rate was identical across groups at each stage, suggesting that dropout was balanced and unlikely to introduce systematic bias into the between-group comparisons.

The primary analysis employed a repeated-measures ANOVA to examine the effects of time and the interaction between time and group on PTSD symptom severity. The results, detailed in Table 2, revealed a significant main effect of time, $F(2, 99) = 459.91$, $p < .001$, $\eta^2_p = .903$, indicating substantial overall change in PCL-5 scores across the measurement occasions. A

significant and very large time × group interaction effect was observed, $F(2, 99) = 402.66$, $p <$ .001, $\eta^2_p = .891$, demonstrating that the pattern of change over time differed significantly between the treatment and control groups. The between-subjects effect of group was also significant, $F(1, 100) = 622.32$, $p < .001$, $\eta^2_p = .862$, reflecting the large overall difference in PTSD scores between groups across the study period.

Table 2: Inferential Statistics for Primary and Adjusted Analyses of PTSD Symptoms

Effect	*F*	df	*p*	Partial η²
Repeated-Measures ANOVA				
Time	459.91	2, 99	< .001	.903
Time × Group	402.66	2, 99	< .001	.891
Group (Between-Subjects)	622.32	1, 100	< .001	.862
ANCOVA (Post-Intervention)				
Baseline (Covariate)	35.14	1, 113	< .001	.237
Group	517.57	1, 113	< .001	.821
ANCOVA (3-Month Follow-up)				
Baseline (Covariate)	17.46	1, 99	< .001	.150
Group	1191.88	1, 99	< .001	.923

Note. Partial η² is interpreted as: .01 = small, .06 = medium, .14 = large effect.

Bonferroni-adjusted pairwise comparisons were conducted to decompose the significant interaction. These analyses confirmed that for the treatment group, the reduction in PCL-5 scores was significant from baseline to post-intervention (mean difference = 11.36, $p < .001$), from baseline to follow-up (mean difference = 16.54, $p < .001$), and from post-intervention to follow-up (mean difference = 5.18, $p < .001$), indicating continuous improvement. The control group, in contrast, showed no significant change in PTSD scores across any time interval.

Two separate ANCOVAs were performed, with the baseline PCL-5 score entered as a covariate, to control for the baseline difference between groups statistically. At the post-intervention assessment, the analysis revealed a significant effect of the baseline covariate, $F(1, 113) = 35.14$, $p < .001$, $\eta^2_p = .237$, and a very large and significant effect of group, $F(1, 113) = 517.57$, $p < .001$, $\eta^2_p = .821$. The adjusted marginal means showed that the treatment group's score (20.30, $SE = 0.66$) was 22.02 points lower than the control group's score (42.32, $SE = 0.66$). At the three-month follow-up, the ANCOVA again showed a significant effect of the

baseline covariate, $F(1, 99) = 17.46, p < .001, \eta^2_p = .150$, and an even larger effect of group, $F(1, 99) = 1191.88, p < .001, \eta^2_p = .923$. The adjusted marginal mean for the treatment group (9.42, $SE = 0.66$) was 33.20 points lower than that of the control group (42.62, $SE = 0.66$).

Remission was analyzed to complement the analysis of continuous symptom reduction. As shown in Table 3, a chi-square test of independence at post-intervention showed a significant association between group and remission status, $\chi^2(1, N = 116) = 108.27, p < .001, \varphi = 0.97$. At this stage, 96.6% of the treatment group (56 of 58 participants) achieved remission, compared to 0% (0 of 58) of the control group. By the three-month follow-up, 100% of the remaining treatment group participants (51 of 51) met the criteria for remission, compared to only 5.9% (3 of 51) of the control group, $\chi^2(1, N = 102) = 90.67, p < .001, \varphi = 0.94$. This analysis confirms that the statistically significant reductions in PCL-5 scores translated into near-universal clinical recovery for those who received EMDR therapy.

Table 3: PTSD Remission Rates by Group at Post-Intervention and Follow-up

Time Point	Group	Remission n (%)	No Remission n (%)	Total, n	χ^2	φ
Post-Intervention	Treatment	56 (96.6%)	2 (3.4%)	58	108.27	0.97
	Control	0 (0.0%)	58 (100.0%)	58		
3-Month Follow-up	Treatment	51 (100.0%)	0 (0.0%)	51	90.67	0.94
	Control	3 (5.9%)	48 (94.1%)	51		

Note. Remission was defined as a $\geq$ 10-point reduction on the PCL-5. For both chi-square tests, $p < .001$.

Discussion

The study sought to evaluate the effectiveness of EMDR therapy in treating PTSD among ICU healthcare professionals in Cameroon. The findings provide robust and clear evidence supporting its efficacy. Participants who received EMDR therapy exhibited dramatic and statistically significant reductions in PTSD symptom severity, with effects both maintained and strengthened at a three-month follow-up. The control group, by comparison, showed no meaningful change, remaining at clinically severe levels of symptomatology throughout the study period. Additionally, an analysis of clinical remission revealed that nearly all participants in the treatment group achieved this benchmark, culminating in a 100% remission rate at

follow-up, compared to minimal recovery in the control group. This discussion interprets these findings, situates them within the broader scholarly conversation, and explores their implications for theory, practice, and future research.

The profound reduction in PTSD symptoms following EMDR therapy aligns robustly with the global evidence base supporting its efficacy. The large effect sizes observed (partial $\eta^2 > .86$) are consistent with, and in fact exceed, those reported in major meta-analyses, which typically find EMDR to be a highly effective treatment for PTSD (Rasines-Laudes & Serrano-Pintado, 2023; Wright et al., 2024). The finding that gains were sustained and improved upon at the three-month follow-up is significant. It suggests that the adaptive reprocessing of traumatic memories initiated during therapy continues to yield benefits long after the intervention has concluded. The observation supports the underlying premise of Shapiro's (2014) AIP model that EMDR facilitates a fundamental restructuring of maladaptive memory networks rather than offering a temporary symptomatic relief.

When contextualized within the African and specifically Cameroonian literature, these findings assume even greater importance. The study by Kenmgne et al. (2023) in Cameroon did not find a significant advantage for EMDR, a result that stands in contrast to the current findings. This discrepancy may be explained by the current study's focus on a homogeneous, highly traumatized group (ICU workers) with a clearly defined single type of trauma (occupational exposure), as opposed to a more heterogeneous clinical population. The results demonstrate that EMDR can be implemented successfully with strong effects in a low-resource, high-stress setting, thereby addressing the critical gap in intervention research highlighted by regional reviews (Mbazzi et al., 2021; Tesfaye et al., 2024). The extreme baseline prevalence of PTSD (94.8%) in this sample underscores the severe psychological burden Cameroonian ICU professionals bear, which systemic healthcare challenges and sociopolitical instability exacerbate (UNOCHA, 2024; Nguépy Keubo et al., 2021). The success of EMDR in this context proves that even amidst such pervasive adversity, evidence-based interventions can facilitate profound recovery.

The results of this study offer strong empirical support for the integrated theoretical framework that guided the research. The dramatic symptom reduction is a direct validation of the AIP model (Shapiro, 2014), confirming that the pathology of PTSD in this population is indeed rooted in maladaptively stored memories of direct and vicarious trauma that can be successfully processed through the standard EMDR protocol. The findings also resonate with Figley's

(1995) Vicarious Trauma Theory. The significant recovery of healthcare workers, who are exposed primarily to the suffering of others, demonstrates that the psychological consequences of such empathic engagement, while severe, are treatable. Finally, the study's outcomes align with the TMSC (Lazarus & Folkman, 1984). EMDR likely altered participants' appraisals of subsequent workplace stressors by resolving the underlying traumatic memories. Doing so freed up cognitive and emotional resources that had been depleted by the constant effort to manage PTSD symptoms, thereby enhancing overall coping capacity and resilience.

The compelling evidence for EMDR's effectiveness necessitates actionable recommendations for practice and policy. At an institutional level, hospital administrators and the Cameroonian Ministry of Public Health should integrate routine, annual PTSD screening for ICU staff using validated tools such as the PCL-5. Identifying affected professionals is the first step toward providing care. Subsequently, investment must be made in training a cadre of clinicians in standard EMDR protocol. Given the high prevalence, having trained therapists on-site or within the hospital system would allow for timely intervention. Beyond individual therapy, the implementation of structured peer-support programs and ethical debriefing sessions following critical incidents could help mitigate the systemic factors that contribute to psychological distress (Dean et al., 2019; West et al., 2016).

Despite the robust findings, this study has limitations that should be addressed in future research. The use of a quasi-experimental design, while necessary for practicality and ethics, means that group assignment was not randomized. Although the groups were statistically comparable at baseline and analyses controlled for initial differences, the possibility of unmeasured confounding variables cannot be eliminated entirely. Furthermore, the sample was drawn from two hospitals in one division of Cameroon, which may affect the generalizability of the findings to other regions or countries, despite the compelling contextual fit.

Future research should therefore seek to implement a randomized controlled trial across multiple healthcare facilities in different regions of Cameroon to strengthen the evidence base. Given the high attrition rate over time, which is common in longitudinal studies with healthcare workers but nevertheless impacts power, future studies should employ larger initial samples and implement stronger participant retention strategies. Research should also move beyond efficacy to explore implementation science questions. Such options include investigating the feasibility and acceptability of group-based EMDR or tele-EMDR to maximize reach in resource-constrained settings and examining the specific organizational policies and leadership

practices that best support the mental well-being of ICU staff long-term. Finally, qualitative inquiry into the lived experiences of healthcare workers undergoing EMDR could provide rich, nuanced data to complement the quantitative outcomes and further refine therapeutic approaches for this vital population.

Conclusion

This study provides compelling and definitive evidence for the profound effectiveness of EMDR therapy in treating PTSD among ICU healthcare professionals in war-afflicted areas of Cameroon. The investigation began by quantifying an alarming and near-universal prevalence of PTSD (94.8%) within this population, revealing a severe mental health crisis exacerbated by high-stress clinical environments, systemic resource constraints, and regional sociopolitical instability. The application of EMDR therapy yielded transformative results against this backdrop of profound distress. Participants receiving the intervention demonstrated rapid, substantial, and sustained reductions in PTSD symptom severity, with effect sizes that were notably large. Crucially, these statistical gains translated into tangible clinical recovery, with 100% of the treatment group achieving remission at the three-month follow-up, an outcome the control group failed to attain.

These findings validate the study's integrated theoretical framework, confirming that the maladaptively stored memories of trauma posited by the AIP model are a core mechanism of pathology in this population and can be reprocessed effectively with EMDR, even amidst ongoing occupational stress. This study makes a critical contribution to the fields of global mental health and occupational psychology by demonstrating the successful implementation of a standardized, evidence-based intervention in a low-resource setting. It moves beyond merely documenting a problem to providing a viable and powerful solution, offering a clear roadmap for policymakers and healthcare administrators to enact systemic change. The findings serve as an urgent call to action to prioritize the psychological well-being of frontline healthcare workers through the institutional integration of trauma-informed care, routine screening, and accessible, evidence-based treatments such as EMDR, which is both a clinical imperative and a necessary investment in sustaining a resilient and healthy healthcare workforce.

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