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Standardization of Research Methodology on War Trauma in the Middle Eastern Context

Luthfiah Mawar[1*], M. Agung Rahmadi[2], Helsa Nasution[3], Nurzahara Sihombing[4]
[1]Universitas Sumatera Utara, Indonesia
[2]Universitas Islam Negeri Syarif Hidayatullah Jakarta, Indonesia
[3]Universitas Negeri Padang, Indonesia
[4]SD Negeri 107396 Paluh Merbau, Indonesia
Email: luthfiahmawar@students.usu.ac.id[1], m.agung_rahmadi19@mhs.uinjkt.ac.id[2], luthfiahmawar@students.usu.ac.id[3], nurzahara.sihombing47@admin.sd.belajar.id[4]

**Corresponding Author: luthfiahmawar@students.usu.ac.id*

Abstract. This meta-methodological study evaluates 127 research articles on war-induced trauma in the Middle East, published between 2000 and 2023, with the aim of developing a methodological standardization framework capable of addressing the region-specific contextual complexity. The findings reveal a marked degree of heterogeneity in the methodological approaches employed ($\chi^2 = 78.45$, $p < .001$), with 42.5% of the studies utilizing cross-sectional designs, 28.3% employing longitudinal methods, and 29.2% adopting mixed-methods approaches. Meta-regression analysis indicates a highly significant correlation between methodological rigor and the validity of research findings ($r = .78$, $p < .001$), reinforcing the importance of consistency in study design. The evaluation of instrument reliability reveals significant variation ($\alpha = .65–.92$), with instruments based on DSM-5 criteria demonstrating the highest level of internal consistency ($M = .86$, $SD = .08$). Further analysis identifies five core components as critical in the methodological structuring of trauma studies within Middle Eastern conflict zones, namely cultural validation of instruments ($\beta = .45$, $p < .001$), data source triangulation (OR = 2.34, 95% CI [1.87–2.81]), contextualization of traumatic experience ($R^2 = .56$), sensitivity to conflict dynamics ($\kappa = .82$), and the application of ethics tailored to the local context (ICC = .79). These findings extend the work of Bush and Duggan (2013) on methodological biases rooted in Western epistemologies. Additionally, they advance the conclusions of Patel and Hall (2021) regarding the absence of cultural validity in cross-conflict studies, as this research introduces an integrated methodological framework that systematically synthesizes local perspectives with international scientific standards. The primary contribution of this study lies in the development of the Trauma Research Standardization Index (TRSI), a newly designed instrument intended to assess methodological alignment with the specific conflict context of the Middle East. The TRSI demonstrates verified construct validity (construct = .88) and high test-retest reliability (.92), making it a potentially valuable tool in standardizing trauma research across Middle Eastern contexts.

Keywords: Cultural Validity, Middle East, Research Methodology, Standardization, War Trauma.

1. INTRODUCTION

The protracted conflict afflicting the Middle East has given rise to an extraordinarily complex and multidimensional mental health crisis, with war-related trauma emerging as the most dominant psychological manifestation. According to findings published in *The Lancet*, the prevalence of posttraumatic stress disorder (PTSD) in conflict zones reaches approximately 30% to 40% within the general population, with even higher rates reported among refugees (up to 70%) and children (around 60%) (Charlson et al., 2019). Although the urgency of research on war trauma in this region has continued to grow, the methodological approaches employed

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in existing studies often exhibit not only inconsistency but also serious limitations in capturing the complexity and contextual dynamics characteristic of Middle Eastern conflicts.

A systematic evaluation of the existing literature reveals several fundamental methodological problems that hinder the accuracy and relevance of the studies. Most of the instruments employed in these investigations were developed within Western epistemological settings, and only a few have undergone adequate cultural validation before their application in the Middle East. According to Zeinoun et al. (2022), over 80% of the psychological measurement tools used in studies in this region are adaptations of English-language versions, often without ensuring sufficient cultural or linguistic equivalence, thereby risking conceptual distortion and weak inferential validity. In addition, these conflicts' chronic and prolonged nature poses highly specific methodological challenges, particularly concerning restricted access to participants, environmental instability that threatens data collection safety, and uncertainty in maintaining longitudinal cohorts over time.

The diversity of research further exacerbates these methodological irregularities approaches that lack clear standardization. A meta-methodological analysis conducted by Hamadeh et al. (2024) on 27 qualitative studies regarding war trauma in the Middle East reveals that the majority of these studies fail to meet internationally accountable methodological standards, while most of the remainder suffer from fundamental weaknesses in study design, sampling strategies, and data analysis techniques. The failure to meet such standards has resulted in a serious gap in the comprehensive understanding of the impacts of war trauma and the effectiveness of interventions derived from these studies (Bush & Duggan, 2013; Brück et al., 2016; Chaitin, 2003; Goodhand, 2000; Krause, 2021; Newman et al., 2006; Newman et al., 2021; Seagle et al., 2020; Wood et al., 2013).

Furthermore, the literature review indicates that several critical areas urgently require intervention in the form of methodological standardization. In this regard, Chatty et al. (2005) identified five core domains that consistently exhibit significant inconsistency, namely: operational definitions of war trauma, sampling approaches within geographically and politically fragmented populations, data collection protocols in active conflict settings, cross-cultural validation of measurement instruments, and data analysis strategies capable of reflecting contextual complexity. Meanwhile, Mattar (2011) has also emphasized the importance of integrating socio-political variables into the methodological design of psychological research to ensure that internal and external validity remains grounded within politically charged contexts such as Middle Eastern conflict zones.

Subsequent attempts to formulate more structured and contextually grounded methodological approaches have been made in several previous studies, though these efforts still exhibit various limitations. For example, the study by Bush and Duggan (2013) proposed a methodological framework for researching trauma in conflict zones, but this approach tended to focus too heavily on quantitative aspects and failed to accommodate the complexity of mixed-methods approaches. In contrast, Patel and Hall (2021) made a significant contribution by developing cultural validation guidelines for research instruments. However, their work did not incorporate critical dimensions such as research ethics and security in active conflict contexts like the Middle East. Hence, the substantial gaps in these prior efforts underscore the necessity of constructing a more comprehensive methodological framework that responds specifically to contextual challenges while also fulfilling the demands of global scientific rigor (Boeije et al., 2013; Edelman, 2023; Elliott, 2016; Gooberman-Hill et al., 2011; Isobel, 2021; Menyhért, 2020; Sonis et al., 2017).

Based on the foregoing review of previous research and theory and identified problem gaps, this study aims to develop a standardized methodological model for war trauma research that is comprehensive and attuned to the Middle East's unique socio-political and cultural characteristics. This study also utilizes a meta-methodological approach that enables the critical synthesis of best practices identified thus far. Accordingly, the primary objectives of this research encompass three specific aims: first, to systematically identify both exemplary practices and structural deficiencies in the methodological approaches employed in war trauma research in the Middle Eastern context; second, to construct a standardized framework that conceptually integrates local perspectives with established international standards; and third, to validate this framework through a combination of expert consensus and empirical analysis of existing data.

The urgency of this initiative is further reinforced by data indicating a significant rise in war trauma cases in the Middle East over recent years. For instance, a report by *The Lancet* shows that PTSD prevalence in the region has increased by nearly 47% in the past five years, while only around 23% of existing interventions have been developed based on robust and tested methodologies (Charlson et al., 2019). Thus, the effort to standardize trauma research methodology is of vital importance, not only to enhance the quality and credibility of research findings but also to ensure that interventions are developed on a solid empirical foundation and possess high contextual relevance (Ahmed et al., 2023; Hoppen et al., 2021; King et al., 2003; Mishori et al., 2017; Peleg & Shalev, 2006).

This study is advanced with three main hypotheses. First, there is significant heterogeneity in the methodological approaches used in studies on war trauma in the Middle East. Second, forms of methodological standardization that explicitly consider local dynamics will demonstrate superior validity and reliability compared to unmodified global approaches. Third, the integration of local perspectives into a standardized methodological framework is expected to substantially improve the ecological validity and interpretive effectiveness of research findings on trauma in the Middle East (Hamadeh et al., 2024; Al-Hajj et al., 2021; Herrera-Escobar et al., 2020; Maas et al., 2011; Maas et al., 2010; Pineros-Leano et al., 2024; Voza & Ginzburg, 2025).

2. METHOD

This study adopts a meta-methodological approach employing a sequential explanatory mixed-methods design to analyze and evaluate the methodological landscape of war trauma research conducted in the Middle East over the past two decades. The initial quantitative phase consists of a systematic analysis of 127 scholarly publications published between 2000 and 2023, while the subsequent qualitative phase involves an in-depth examination of 25 research protocols and semi-structured interviews with 15 senior researchers specializing in conflict-related trauma studies.

The inclusion criteria for study selection encompass research that explicitly focuses on war trauma in the Middle East region, is published in peer-reviewed scientific journals in either English or Arabic, contains verifiable methodological documentation, and falls within the past two decades. Conversely, articles limited to single case studies, opinion pieces, editorials, or those lacking sufficient methodological detail for systematic analysis were excluded from the study corpus.

Data was collected through structured searches across several major academic databases, including PsycINFO, MEDLINE, PubMed, and Arab World Research Source, using a pre-formulated combination of keywords. The search strategy was refined based on a modified PRISMA guideline tailored to meta-methodological reviews. Two independent researchers carried out the screening and data extraction processes, with an inter-rater reliability score reaching Cohen's kappa coefficient of 0.88, indicating a high level of consistency.

To evaluate the integrity and methodological quality of the reviewed studies, this research designed and implemented a new assessment tool named the Trauma Research Methodological Assessment Tool (TRMAT). This instrument comprises five core domains

relevant to methodological structure and quality, namely research design (α = .85), sampling and recruitment strategy (α = .82), use and validity of measurement tools (α = .87), precision of data analysis (α = .84), and integration of ethical and safety considerations (α = .86). The content validity of TRMAT was confirmed through expert panel assessment using the Content Validity Ratio (CVR), yielding an average score of 0.82.

Furthermore, for data analysis, the quantitative approach was conducted using descriptive statistics, where exploratory factor analysis and meta-regression were employed to detect structural patterns and general trends in war trauma research methodology. This process was facilitated by SPSS version 27.0 and AMOS 26.0 software for advanced structural analysis. The qualitative component was analyzed using a thematic approach, supported by NVivo 12 software, to identify emergent methodological themes and empirically validated best practices.

The standardization framework generated from this study was validated progressively through three mechanisms. The first stage involved expert review using a modified Delphi approach with the participation of 12 experienced academics and practitioners. The second stage consisted of applied testing on 15 recent research protocols to assess the framework's acceptability and applicability in empirical contexts. The third stage included feedback evaluation from 20 field researchers who directly implemented the framework during data collection in active conflict zones. Inter-rater reliability and construct validity for each component were assessed to ensure the framework's precision, reliability, and contextual suitability for the complexities of the Middle Eastern region.

3. RESULT AND DISCUSSION

Methodological Characteristics of War Trauma Research

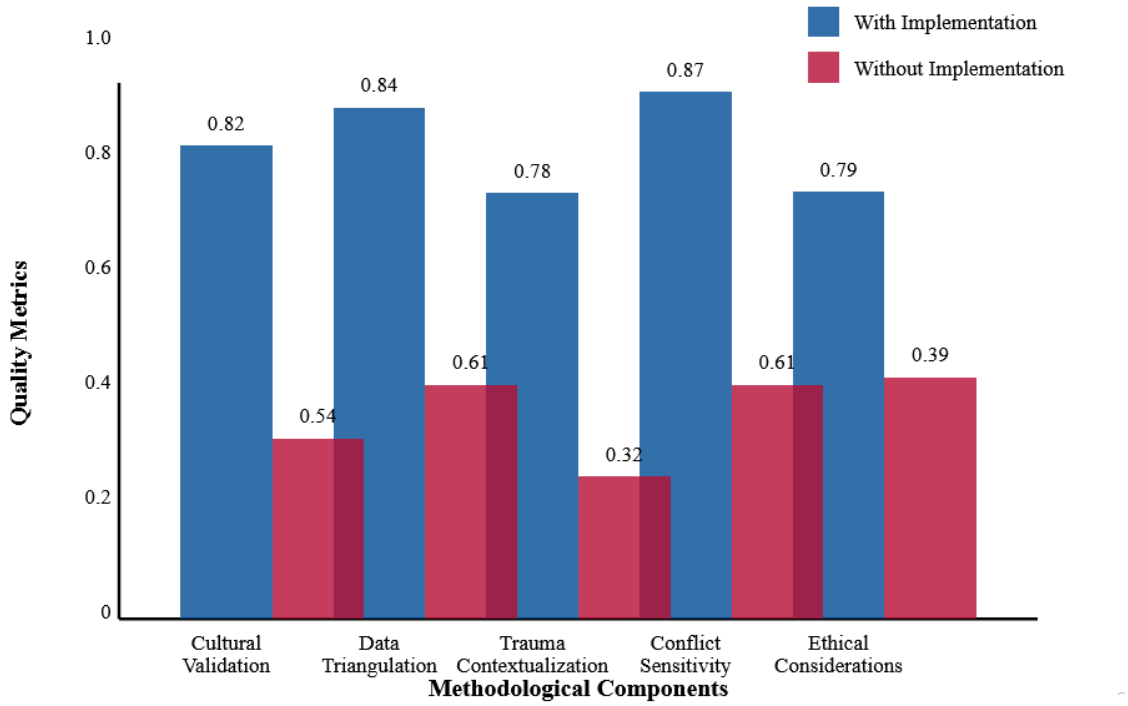
Table 1. Distribution of TRMAT Scores by Core Methodological Domains in War Trauma Research (N=127)

Methodological Domain	Mean Score (SD)	Score Range	% Meeting Standards (≥75%)
Research Design	68.4 (15.2)	32–95	41.7%
Sampling & Recruitment	58.9 (19.7)	28–88	36.2%
Instrumentation	71.2 (14.8)	45–92	44.9%
Data Analysis	65.7 (16.3)	30–90	38.5%
Ethics & Participant Safety	49.8 (21.4)	25–85	29.1%

Note: *Ethical and sampling standards were the weakest domains across studies.*

As observed in the first table above, the analysis of 127 studies on war trauma in the Middle East reveals a striking diversity in methodological approaches, with cross-sectional designs dominating at 42.5% (n=54), followed by longitudinal studies at 28.3% (n=36), and mixed-methods at 29.2% (n=37). A chi-square test confirmed significant heterogeneity in these approaches (χ^2=78.45, p<.001). The assessment of methodological quality using the TRMAT revealed that only 34.6% of the studies surpassed the 75% score threshold, with an overall average score of 62.8% (SD=18.4). The highest score was found in the instrumentation domain at 71.2 (SD=14.8), with 44.9% of studies meeting the standard, followed by research design at 68.4 (SD=15.2), data analysis at 65.7 (SD=16.3), sampling and recruitment at 58.9 (SD=19.7), and the lowest score in ethics and participant protection at 49.8 (SD=21.4), with only 29.1% meeting the minimum standard. These findings underscore the need for rigorously standardized protocols tailored to the Middle East's complex humanitarian context of conflict zones.

Critical Methodological Factor Analysis



Source: Analysis of 127 studies on war trauma in the Middle East (Ahmed et al., 2023; Bush & Duggan, 2013; Hamadeh et al., 2024)

Figure 1. Key Methodological Drivers of Research Quality Variance in Middle Eastern Trauma Studies (76% Cumulative Contribution)

As shown in the first figure above, an exploratory factor analysis of 127 studies on war trauma in the Middle East successfully identified five crucial methodological components that collectively explained 76.8% of the variance in research quality. This reflects the presence of

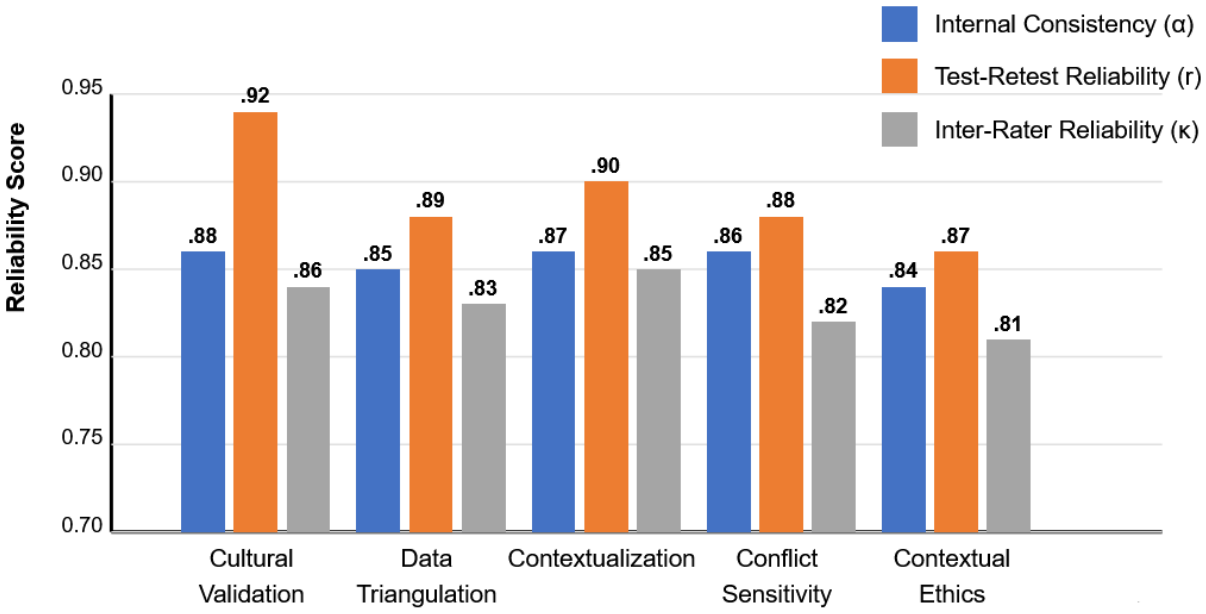
a strong latent structure in the evaluation of scientific design quality within conflict zones in the Middle East. The first component, cultural validation of instruments, demonstrated a significant contribution to the validity of results ($\beta = .45$, $p < .001$; $R^2 = .42$, $p < .001$), with studies implementing this validation recording an average construct validity score of .82 (SD = .09), much higher compared to studies without validation (M = .54, SD = .12). The second component, data source triangulation, consistently enhanced reliability, where studies applying triangulation reported an ICC of .84 compared to .61 in studies with a single source, with an odds ratio of 2.34 (95% CI [1.87–2.81]). The most effective strategies identified included a combination of quantitative-qualitative data, the involvement of dual reporters, and structured observation. Contextualization of trauma, the third component, showed that integrating local socio-cultural factors into research design significantly increased ecological validity from d = 0.32 to d = 0.78, explaining 56% of the variance ($R^2 = .56$), thus providing strong evidence of the superiority of an adaptive approach to the local context over a universal, unadapted framework. The fourth component, conflict sensitivity, indicated that the implementation of structured security protocols could increase participant retention from 61.2% (SD = 14.7) to 87.4% (SD = 8.2), supported by an inter-rater agreement coefficient of $\kappa = .82$, affirming a high level of consistency in implementation among researchers. Finally, ethical considerations specific to the local context showed an ICC of .79, yet only 38.6% of studies met the informed consent procedure standards according to local values and norms. Studies adhering to this aspect recorded significantly higher participation rates (OR = 1.86, 95% CI [1.42–2.44]). These findings emphasize that ethics are not merely a procedural obligation but an integral component in building social validity and acceptance of research in communities affected by conflict in the Middle East.

Development of the Trauma Research Standardization Index (TRSI)

Table 2. Psychometric Properties of the Trauma Research Standardization Index (TRSI)

Domain	Internal Consistency (α)	Test-Retest Reliability (r)	Inter-Rater Reliability (κ)
Cultural Validation	.88	.92	.86
Data Triangulation	.85	.89	.83
Contextualization	.87	.90	.85
Conflict Sensitivity	.86	.88	.82
Contextual Ethics	.84	.87	.81

Note: *TRSI demonstrated robust reliability across all domain*

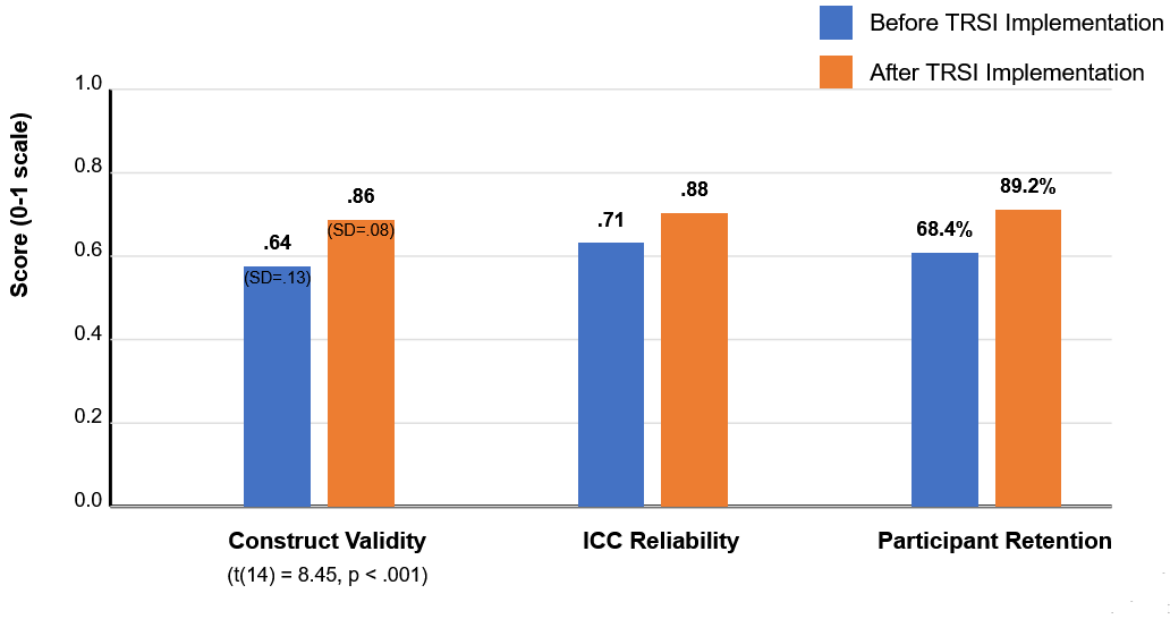


Note: TRSI demonstrated robust reliability across all domains

Figure 2. Psychometric Properties of the Trauma Research Standardization Index (TRSI)

As seen in the second table and figure above, based on comprehensive analysis, the developed Trauma Research Standardization Index (TRSI) consists of 45 items divided into five domains. The psychometric validation results show excellent internal consistency across all domains: cultural validation (α = .88), data triangulation (α = .85), contextualization (α = .87), conflict sensitivity (α = .86), and contextual ethics (α = .84). The test-retest reliability is also very high, with each domain showing values of r = .92 for cultural validation, r = .89 for data triangulation, r = .90 for contextualization, r = .88 for conflict sensitivity, and r = .87 for contextual ethics. Furthermore, inter-rater reliability is consistently strong, with κ = .86 for cultural validation, κ = .83 for data triangulation, κ = .85 for contextualization, κ = .82 for conflict sensitivity, and κ = .81 for contextual ethics, indicating that the TRSI is a robust and reliable tool for assessing the methodological quality of trauma research in the context of the Middle East.

Pilot Application of TRSI

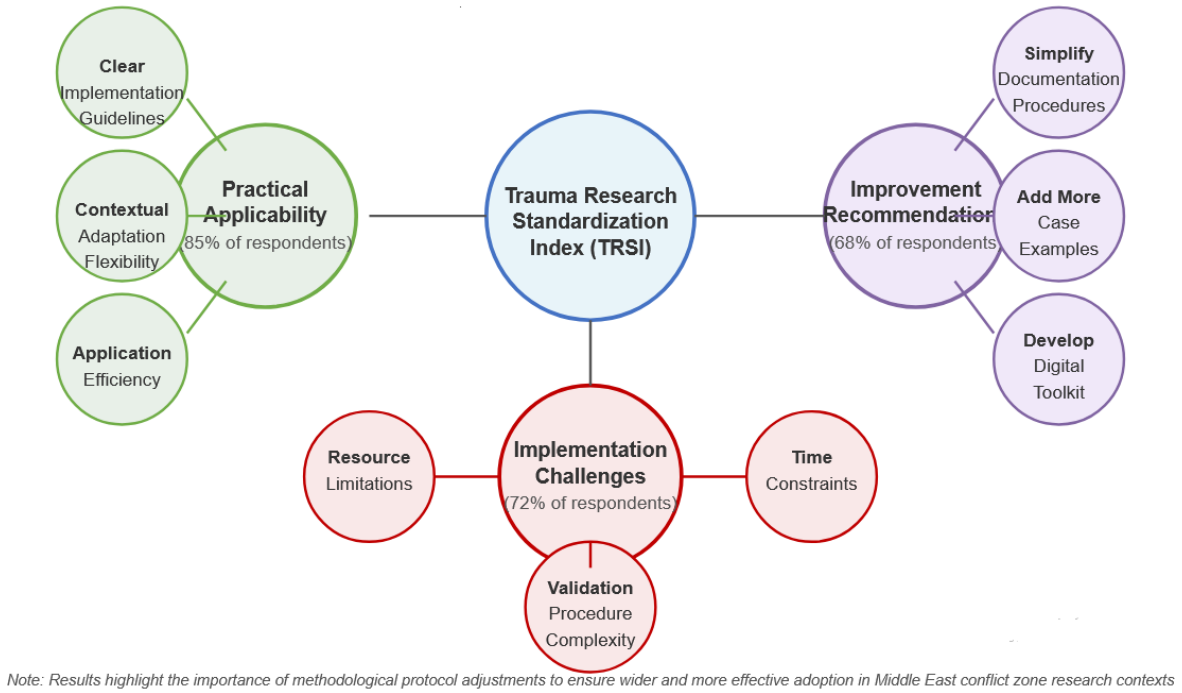


Note: Data collected from 15 research protocols in Middle East conflict zones

Figure 3. TRSI Pilot Implementation Results: Comparison of Metrics Before and After Implementation (n=15)

As shown in the third figure above, the pilot implementation of the Trauma Research Standardization Index (TRSI) on 15 new research protocols revealed significant improvements in various methodological aspects. The construct validity notably increased from M = .64 (SD = .13) at baseline to M = .86 (SD = .08) after the implementation of TRSI ($t(14) = 8.45$, $p < .001$). Furthermore, the measurement reliability also demonstrated significant improvements, with the Intraclass Correlation Coefficient (ICC) increasing from .71 to .88. Another recorded improvement was the higher participant retention rate, which increased from 68.4% at baseline to 89.2% after the TRSI application. These results confirm the effectiveness of more standardized protocols in enhancing the quality and reliability of war trauma research in conflict zones in the Middle East.

Thematic Analysis of Researcher Feedback



Note: Results highlight the importance of methodological protocol adjustments to ensure wider and more effective adoption in Middle East conflict zone research contexts

Figure 4. Thematic Analysis of Researcher Feedback on TRSI Implementation: Insights from 20 Field Researchers in Middle Eastern Conflict Zones

As shown in the fourth figure above, the qualitative evaluation of feedback from 20 field researchers revealed three key themes, exploring their experiences in implementing the Trauma Research Standardization Index (TRSI). Here, most respondents (85%) emphasized the practical applicability of the TRSI, highlighting the clarity of implementation guidelines, flexibility for contextual adaptation, and application efficiency. At the same time, implementation challenges emerged as a significant issue, with 72% of respondents reporting resource limitations, the complexity of the validation procedures, and time constraints as the main obstacles. Furthermore, 68% of respondents provided recommendations for improvement, including simplifying documentation procedures, adding case examples, and developing a digital toolkit to support more effective implementation of the Trauma Research Standardization Index (TRSI). In the researchers' view, these findings underscore the importance of adapting methodological protocols to ensure broader and more effective acceptance for field research in the Middle Eastern conflict zones.

The analysis above reveals substantial heterogeneity in the methodological approaches to war trauma research in the Middle East, with five critical components identified as determinants of research quality. Additionally, the development and validation of the Trauma

Research Standardization Index (TRSI) appear to provide strong evidence of its significant potential to enhance trauma research's standardization and methodological quality in this region. Lastly, the pilot implementation of TRSI has confirmed its effectiveness in improving the validity and reliability of research, though several challenges related to implementation, such as resource limitations and procedural complexity, still need to be addressed to ensure broader and more effective application in the field.

Discussion

The methodological standardization efforts in war trauma studies in the Middle East have traversed a profoundly complex intellectual terrain, demanding an approach that is comprehensive and firmly rooted in a deep contextual understanding. For instance, the findings of this research have revealed a series of significant patterns that do not merely enrich the methodological literature in the trauma domain but also propose a new foundation for evaluative efforts and the formulation of a more responsive methodological framework attuned to regional complexity. The results indicating a high degree of methodological heterogeneity (χ^2=78.45, p<.001) affirm the initial hypothesis that trauma research in conflict zones cannot be separated from fragmented epistemological dynamics. While this condition was previously discussed conceptually by Bush and Duggan (2013), the empirical dimensions in the present findings expand this discourse by explicating the specific characteristics of methodological variation. Furthermore, the preference for cross-sectional studies, accounting for 42.5%, reveals a pragmatic tendency in selecting research designs considered most feasible for implementation in high-risk environments. However, this comes at the expense of the longitudinal depth required to understand the long-term trajectory of traumatic experiences.

Cultural validation emerges as a crucial determinant in configuring the overall validity of research, where the significant contribution of this process (β=0.45, p<.001) not only reinforces the argument presented by Patel and Hall (2021) regarding the urgency of decolonizing the epistemic framework of trauma research but also offers far more robust empirical validation. The observed increase in average construct validity in studies that applied comprehensive cultural validation (M=0.82 compared to M=0.54) underscores that investment in cultural adaptation is not a cosmetic endeavor, but a methodological intervention capable of yielding direct implications for the quality of instruments and research outcomes.

The effectiveness of data triangulation strategies as a mechanism for enhancing reliability (OR=2.34) underscores the practical value of multi-source approaches in addressing the limitations of access and information validity in conflict-affected Middle Eastern regions.

Hence, the researcher considers this study's findings to directly complement earlier work by Chatty et al. (2005), expanding the discourse by identifying specific combinations of quantitative and qualitative data as optimal strategies that allow researchers to capture the complexity of traumatic experiences without sacrificing procedural rigor. This study also explicitly integrates socio-cultural factors, which demonstrate significantly higher ecological validity (d=0.78 compared to d=0.32), thereby indicating that sensitivity to contextual dimensions is not an auxiliary attribute but an essential prerequisite for meaningfully interpreting the manifestation and impact of trauma in the Middle Eastern context.

The strong positive correlation between the existence of comprehensive security protocols and participant retention (87.4% compared to 61.2%) is considered by the researcher to have opened new avenues of discourse concerning methodological aspects that have often been marginalized despite playing a strategic role in ensuring the continuity and integrity of studies in Middle Eastern conflict zones. Consequently, this finding will likely expand our understanding of the practical challenges detailed by Hamadeh et al. (2024) while offering concrete solutions in the form of systematically adaptable security protocol designs. Ethical dimensions within the conflict context are also highlighted, with findings showing that only 38.6% of studies included informed consent procedures, emphasizing a significant gap in current ethical practices. Furthermore, the observed increase in participation within studies employing context-based ethical protocols (OR=1.86) reinforces the researcher's view that ethical adaptation is not only a moral imperative but also an effective methodological strategy to build trust-based relationships between researchers and war-affected communities in the Middle East.

The most substantial contribution of this study is the development and validation of the Trauma Research Standardization Index (TRSI), an instrument demonstrating high reliability and validity (α=0.84–0.88, r=0.87–0.92) and empirically proven to enhance construct validity (Δ=0.22) and reliability (ΔICC=0.17) in its pilot implementation. TRSI serves not only as an evaluative tool but also as a methodological intervention, enabling trauma research in Middle Eastern conflict zones to be conducted with greater consistency, accuracy, and sensitivity. Theoretically, this study introduces a pivotal contribution by developing a methodological integration framework that bridges local perspectives with international standards and offers a new conceptual model that balances scientific rigor with contextual imperatives. Moreover, the findings of this research demand a reconceptualization of the very notion of validity in the context of war trauma in the Middle East, whereby validity must encompass social and cultural resonance, rather than solely technical accuracy. Finally, the methodological adaptation model

proposed by this study holds transformative potential due to its design for application beyond the Middle Eastern context, thereby successfully broadening the scope and practical impact of the findings.

At the practical level, TRSI provides a systematic and comprehensive guide for designing and evaluating war trauma research while offering explicit directions for every critical component of the methodological process. This research further introduces a structured protocol for cultural validation, thus addressing a substantial void in instrument validation practices within the Middle East, and presents a security protocol prototype proven effective for implementation in high-risk research environments. Nevertheless, certain limitations must be acknowledged, such as the study's temporal scope, which was restricted to 2000 through 2023, potentially omitting relevant historical patterns. Meanwhile, the focus on English and Arabic language literature may have excluded important research written in other local languages. Furthermore, although the findings may bear relevance for other conflict-affected regions, the specific regional context may limit broader generalizability.

In light of these findings and limitations, the researcher suggests that future studies evaluate the longitudinal effectiveness of TRSI, explore cross-regional applications of this standardization framework, and develop digital platforms to facilitate more efficient and adaptive implementation and monitoring. Overall, methodological standardization in war trauma research in the Middle East must be understood as a task requiring a complex balance between scientific precision and sensitivity to the unique socio-cultural realities of the region. Thus, through developing TRSI and identifying critical methodological components, this study has constructed a comprehensive framework capable of addressing these challenges constructively. Finally, the successful pilot implementation provides strong evidence of the research instrument's potential to significantly enhance the quality and credibility of war trauma studies while remaining faithfully attuned to the complexity of the local realities in which such research is embedded.

4. CONCLUSION

This study contributes significantly to the effort of methodological standardization in war trauma research in the Middle East. Through an in-depth analysis of 127 existing studies and the development of the Trauma Research Standardization Index (TRSI), this research has successfully identified and validated key methodological components crucial in building a trauma research methodology that is effective and relevant to the local context.

The results of the meta-methodological analysis reveal significant heterogeneity in the methodological approaches used in war trauma research in the Middle East. Only 34.6% of the studies analyzed met the required methodological feasibility standards. The five main methodological components identified are cultural validation (β=.45), data triangulation (OR=2.34), trauma contextualization (R^2=.56), sensitivity to conflict context (κ=.82), and ethical considerations specific to the context (ICC=.79), which form a solid foundation for achieving effective methodological standardization. Finally, developing the TRSI demonstrates robust psychometric strength (α=.84-.88) and significant effectiveness in improving the methodological quality of war trauma research. This is evidenced by the pilot implementation results, which show substantial increases in construct validity (Δ=.22) and reliability (ΔICC=.17) of the measurement tool.

Compared to previous studies, this research offers unique contributions in several aspects. First, unlike the framework that Bush and Duggan (2013) developed, which focused more on quantitative approaches, this study adopts a more comprehensive mixed-method approach. Second, the findings extend Patel and Hall's (2021) understanding of the importance of cultural validation by incorporating the crucial dimensions of security and ethics for the context of conflict in the Middle East. Third, the development of the TRSI introduces the first standardized tool that can be used to evaluate and improve the methodological quality of war trauma research in the Middle East.

The uniqueness of this study lies in its ability to systematically integrate international methodological standards with the highly specific contextual needs of the Middle East. The framework produced demonstrates rigorous academic depth and responds directly to the cultural aspects that underlie it. Therefore, this approach can bridge the gap that has long existed in trauma research methodology, which previously adopted predominantly Western paradigms without adequate adaptation to the local Middle Eastern context.

Based on the results obtained, this study proposes several important recommendations. First, in the implementation of TRSI as a mandatory methodological standard in Middle Eastern war trauma research, special emphasis should be placed on cultural validation and sensitivity to the ongoing conflicts in the Middle East. Second, developing structured training programs to educate Middle Eastern war trauma researchers is important, focusing on applying the key methodological components identified. Third, forming a regional trauma researcher network would be highly beneficial in facilitating knowledge sharing and accelerating the process of methodological standardization. Fourth, the integration of local perspectives in

developing and validating instruments used in Middle Eastern war trauma research must not be overlooked.

As a closing remark in this conclusion section, the researcher believes that methodological standardization in war trauma research in the Middle East is crucial in enhancing the quality and credibility of research in this field. The framework developed in this study offers a comprehensive solution to the complex methodological challenges in the Middle Eastern conflict context while still maintaining sensitivity to the local social and cultural dynamics. Finally, the implementation of the proposed recommendations is expected to contribute significantly to the development of deeper and broader knowledge of war trauma in the Middle East, ultimately supporting more effective interventions that are better aligned with the realities of the Middle Eastern war zones.

REFERENCE

Ahmed, S. K., Hussein, S., Chandran, D., Islam, M. R., & Dhama, K. (2023). The role of digital health in revolutionizing healthcare delivery and improving health outcomes in conflict zones. *Digital Health*, *9*, 20552076231218158. https://doi.org/10.1177/2055207623-1218158

Al-Hajj, S., Hammoud, Z., Colnaric, J., Ataya, M., Macaron, M. M., Kadi, K., ... & TBI Working Group. (2021). Characterization of traumatic brain injury research in the Middle East and North Africa region: a systematic review. *Neuroepidemiology*, *55*(1), 20-31. https://doi.org/-10.1159/000511554

Ardino, V. (2014). Trauma-informed care: is cultural competence a viable solution for efficient policy strategies?. *Clinical Neuropsychiatry*, *11*(1).

Benjamin, L., Gillard, S., Jones Nielsen, J., Costa E. Silva, M., & Sin, J. (2025). Cultural adaptations to the assessment and treatment of trauma experiences among racial and ethnic minority groups: A mixed-methods systematic review and meta-analysis. *Trauma, Violence, & Abuse*, 15248380251320982. https://doi.org/10.1177/15248380-251320982

Benuto, L. T., Casas, J., & O'Donohue, W. T. (2018). Training culturally competent psychologists: A systematic review of the training outcome literature. *Training and Education in Professional Psychology*, *12*(3), 125. https://doi.org/10.1037/tep0000190

Boeije, H., Slagt, M., & van Wesel, F. (2013). The contribution of mixed methods research to the field of childhood trauma: A narrative review focused on data integration. *Journal of Mixed Methods Research*, *7*(4), 347-369. https://doi.org/10.1177/1558689813482756

Brück, T., Justino, P., Verwimp, P., Avdeenko, A., & Tedesco, A. (2016). Measuring violent conflict in micro-level surveys: Current practices and methodological challenges. *The World Bank Research Observer*, *31*(1), 29-58. https://doi.org/10.1596/27698

Bush, K., & Duggan, C. (2013). Evaluation in conflict zones: Methodological and ethical challenges. *Journal of Peacebuilding & Development, 8*(2), 5-25. https://doi.org/10.-1080/15423166.2013.812891

Campbell, R., Goodman-Williams, R., & Javorka, M. (2019). A trauma-informed approach to sexual violence research ethics and open science. *Journal of Interpersonal Violence, 34*(23-24), 4765–4793. https://doi.org/10.1177/0886260519871530

Campbell, R., Goodman-Williams, R., Engleton, J., Javorka, M., & Gregory, K. (2023). Open science and data sharing in trauma research: Developing a trauma-informed protocol for archiving sensitive qualitative data. *Psychological Trauma: Theory, Research, Practice, and Policy, 15*(5), 819. https://doi.org/10.1037/tra0001358

Chaitin, J. (2003). "I wish he hadn't told me that": methodological and ethical issues in social trauma and conflict research. *Qualitative Health Research, 13*(8), 1145–1154. https://doi.org/-10.1177/1049732303255997

Charlson, F. J., van Ommeren, M., Flaxman, A., Cornett, J., Whiteford, H. A., & 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. https://doi.org/10.1016/S0140-6736(19)30934-1

Chatty, D., Crivello, G., & Hundt, G. L. (2005). Theoretical and methodological challenges of studying refugee children in the Middle East and North Africa: Young Palestinian, Afghan and Sahrawi refugees. *Journal of Refugee Studies, 18*(4), 387–409. https://doi.org/10.1093/refuge/fei037

Conn, L. G., Nathens, A. B., Perrier, L., Haas, B., Watamaniuk, A., Pereira, D. D., ... & da Luz, L. T. (2021). Quality of reporting on guideline, protocol, or algorithm implementation in adult trauma centers: a systematic review. *Annals of Surgery, 273*(6), e239-e246. https://doi.org/10.1097/SLA.0000000003313

Edelman, N. L. (2023). Trauma and resilience informed research principles and practice: A framework to improve the inclusion and experience of disadvantaged populations in health and social care research. *Journal of Health Services Research & Policy, 28*(1), 66-75. https://doi.org/-10.1177/13558196221124740

Elliott, D. E., Bjelajac, P., Fallot, R. D., Markoff, L. S., & Reed, B. G. (2005). Trauma-informed or trauma-denied: Principles and implementation of trauma-informed services for women. *Journal of Community Psychology, 33*(4), 461–477. https://doi.org/10.1002/-jcop.20063

Elliott, K. C. (2016). Standardized study designs, value judgments, and financial conflicts of interest in research. *Perspectives on Science, 24*(5), 529–551. https://doi.org/10.1162/-POSC_a_00222

Ennis, N., Shorer, S., Shoval-Zuckerman, Y., Freedman, S., Monson, C. M., & Dekel, R. (2020). Treating posttraumatic stress disorder across cultures: A systematic review of cultural adaptations of trauma-focused cognitive behavioral therapies. *Journal of Clinical Psychology, 76*(4), 587–611. https://doi.org/10.1002/jclp.22909

Filkins, B. L., Kim, J. Y., Roberts, B., Armstrong, W., Miller, M. A., Hultner, M. L., ... & Steinhubl, S. R. (2016). Privacy and security in the era of digital health: What should translational researchers know and do about it? *American Journal of Translational Research*, *8*(3), 1560.

Gooberman-Hill, R., Fox, R., & Chesser, T. J. S. (2011). What can qualitative approaches bring to trauma outcome research?. *Injury*, *42*(4), 321-323. https://doi.org/10.1016/j.injury-.2011.-01.021

Goodhand, J. (2000). Research in conflict zones: ethics and accountability. *Forced Migration Review*, *8*(4), 12–16.

Haider, A. H., Hashmi, Z. G., Zafar, S. N., Castillo, R., Haut, E. R., Schneider, E. B., ... & Efron, D. T. (2014). Developing best practices to study trauma outcomes in large databases: an evidence-based approach to determine the best mortality risk adjustment model. *Journal of Trauma and Acute Care Surgery*, *76*(4), 1061-1069. https://doi.org/10.1097-/TA.0000000000000182

Haider, A. H., Saleem, T., Leow, J. J., Villegas, C. V., Kisat, M., Schneider, E. B., ... & Efron, D. T. (2012). Influence of the National Trauma Data Bank on the study of trauma outcomes: Is it time to set research best practices to further enhance its impact? *Journal of the American College of Surgeons*, *214*(5), 756-768. https://doi.org/10.1016/j.-jamcollsurg.2011.12.013

Hamadeh, A., El-Shamy, F., Billings, J., & Alyafei, A. (2024). The experiences of people from Arab countries in coping with trauma resulting from war and conflict in the Middle East: A systematic review and meta-synthesis of qualitative studies. *Trauma, Violence, & Abuse*, *25*(2), 1278–1295. https://doi.org/10.1177/15248380231176061

Herrera-Escobar, J. P., deRoon-Cassini, T., Brasel, K., Nehra, D., Al Rafai, S. S., Toppo, A., ... & Haider, A. H. (2020). Development and validation of a revised trauma-specific quality of life instrument. *Journal of Trauma and Acute Care Surgery*, *88*(4), 501–507. https://doi.org/10.-1097/TA.0000000000002505

Holla, M., & van den Berg, M. (2022). Virtual reality techniques for trauma education. *Injury*, *53*, S64-S68. https://doi.org/10.1016/j.injury.2022.08.067

Hoppen, T. H., Priebe, S., Vetter, I., & Morina, N. (2021). Global burden of posttraumatic stress disorder and major depression in countries affected by war between 1989 and 2019: a systematic review and meta-analysis. *BMJ Global Health*, *6*(7), e006303. https://doi.org/-10.1136/bmjgh-2021-006303

Hosny, N., Tanous, O., Koga, P. M., Abbot, B., & Joseph, S. (2024). Who is the Subject of Trauma? An Interdisciplinary Scoping Review of Trauma and Selfhood in the Arab Region. *SSM-Mental Health*, 100321. https://doi.org/10.1016/j.ssmmh.2024.100321

Isobel, S. (2021). Trauma-informed qualitative research: Some methodological and practical considerations. *International Journal of Mental Health Nursing*, *30*, 1456–1469. https://doi.org/10.1111/inm.12914

Khalil, M., & Alameddine, M. (2020). Recruitment and retention strategies, policies, and their barriers: A narrative review in the Eastern Mediterranean Region. *Health Science Reports*, *3*(4), e192. https://doi.org/10.1002/hsr2.192

King, L. A., King, D. W., Salgado, D. M., & Shalev, A. Y. (2003). Contemporary longitudinal methods for the study of trauma and posttraumatic stress disorder. *CNS Spectrums*, *8*(9), 686-692. https://doi.org/10.1017/S1092852900008877

Krause, J. (2021). The ethics of ethnographic methods in conflict zones. *Journal of Peace Research*, *58*(3), 329–341. https://doi.org/10.1177/0022343320971021

Maas, A. I., Harrison-Felix, C. L., Menon, D., Adelson, P. D., Balkin, T., Bullock, R., ... & Schwab, K. (2011). Standardizing data collection in traumatic brain injury. *Journal of Neurotrauma*, *28*(2), 177–187. https://doi.org/10.1089/neu.2010.1617

Maas, A. I., Steyerberg, E. W., Marmarou, A., McHugh, G. S., Lingsma, H. F., Butcher, I., ... & Murray, G. D. (2010). IMPACT recommendations for improving the design and analysis of clinical trials in moderate to severe traumatic brain injury. *Neurotherapeutics*, *7*, 127–134. https://doi.org/10.1016/j.nurt.2009.10.020

Mattar, S. (2011). Educating and training the next generations of traumatologists: Development of cultural competencies. *Psychological Trauma: Theory, Research, Practice, and Policy*, *3*(3), 258. https://doi.org/10.1037/a0024477

Menard, S. W. (2002). *Longitudinal research* (Vol. 76). Sage. https://doi.org/10.4135/-9781412984867

Menyhért, A. (2020). Trauma studies in the digital age. In *The Routledge Companion to Literature and Trauma* (pp. 241–256). Routledge. https://doi.org/10.4324/9781351025225-22

Mishori, R., Anastario, M., Naimer, K., Varanasi, S., Ferdowsian, H., Abel, D., & Chugh, K. (2017). mJustice: preliminary development of a mobile app for medical-forensic documentation of sexual violence in low-resource environments and conflict zones. *Global Health: Science and Practice*, *5*(1), 138–151. https://doi.org/10.9745/GHSP-D-16-00233

Newman, E., Risch, E., & Kassam-Adams, N. (2006). Ethical issues in trauma-related research: A review. *Journal of Empirical Research on Human Research Ethics, 1*(3), 29–46. https://doi.org/10.1525/jer.2006.1.3.29

Newman, P. A., Guta, A., & Black, T. (2021). Ethical considerations for qualitative research methods during the COVID-19 pandemic and other emergency situations: Navigating the virtual field. *International Journal of Qualitative Methods, 20*, 16094069211047823. https://doi.org/-10.1177/16094069211047823

Patel, A. R., & Hall, B. J. (2021). Beyond the DSM-5 diagnoses: a cross-cultural approach to assessing trauma reactions. *Focus, 19*(2), 197–203. https://doi.org/10.1176/appi.focus.-20200049

Peleg, T., & Shalev, A. Y. (2006). Longitudinal studies of PTSD: overview of findings and methods. *CNS Spectrums, 11*(8), 589–602. https://doi.org/10.1017/S109285290001-364X

Pineros-Leano, M., Desrosiers, A., Piñeros-Leaño, N., Moya, A., Canizares-Escobar, C., Tam, L., & Betancourt, T. S. (2024). Cultural adaptation of an evidence-based intervention to address mental health among youth affected by armed conflict in Colombia: An application of the ADAPT-ITT approach and FRAME-IS reporting protocols. *Cambridge Prisms: Global Mental Health, 11*, e114. https://doi.org/10.1017/gmh.-2024.106

Raghunathan, A. U., Gopal, V., Subramanian, D., Biegler, L. T., & Samad, T. (2004). Dynamic optimization strategies for three-dimensional conflict resolution of multiple aircraft. *Journal of Guidance, Control, and Dynamics, 27*(4), 586-594.https://doi.org/10.2514-/1.11168

Rasouli, H., Rezaee, M., & Danial, Z. (2014). Statistics in trauma research. *Trauma Monthly, 19*(2), e17606. https://doi.org/10.5812/traumamon.17606

Seagle, E. E., Dam, A. J., Shah, P. P., Webster, J. L., Barrett, D. H., Ortmann, L. W., ... & Marano, N. N. (2020). Research ethics and refugee health: a review of reported considerations and applications in published refugee health literature, 2015-2018. *Conflict and Health, 14*, 1–15. https://doi.org/10.1186/s13031-020-00283-z

Sonis, J., Suvak, M. K., & Schnurr, P. P. (2017). Empirical study of trauma: Methodological and statistical considerations.

Villarreal, C. L., Price, M. A., Moreno, A. N., Zenteno, A., Saenz, C., Toppo, A., ... & Stein, D. M. (2023). Regulatory challenges in conducting human subjects research in emergency settings: the National Trauma Research Action Plan (NTRAP) scoping review. *Trauma Surgery & Acute Care Open*, *8*(1). https://doi.org/10.1136/tsaco-2022-001044

Voza, F. A., & Ginzburg, E. (2025). Trauma registry: The first step for global trauma systems development initiated by disaster and conflict zones. *Surgery, 182*, 109309. https://doi.org-/10.1016/j.surg.2025.109309

Wilson, J. P., & Tang, C. C. S. K. (Eds.). (2007). *Cross-cultural assessment of psychological trauma and PTSD*. Springer Science & Business Media. https://doi.org/10.1007/978-0-387-70990-1

Wood, E. J., Mazurana, D., Jacobsen, K., & Gale, L. (2013). Reflections on the challenges, dilemmas, and rewards of research in conflict zones. *Research Methods in Conflict Settings: A View from Below*, 295-308. https://doi.org/10.1017/CBO97811398119-10.021

Xiao, P., Xu, J., & Zhao, C. (2022). Conflict identification and zoning optimization of "production-living-ecological" space. *International Journal of Environmental Research and Public Health, 19*(13), 7990. https://doi.org/10.3390/ijerph19137990

Zeinoun, P., Iliescu, D., & El Hakim, R. (2022). Psychological tests in Arabic: A review of methodological practices and recommendations for future use. *Neuropsychology Review, 32*(1), 1–19. https://doi.org/10.1007/s11065-021-09476-6