



## The Mixed-Method Approach in Research on War-Related Trauma in the Middle East

Nurzahara Sihombing<sup>1</sup>, M. Agung Rahmadi<sup>2</sup>, Helsa Nasution<sup>3</sup>, Luthfiah Mawar<sup>4</sup>

<sup>1</sup>SD Negeri 107396 Paluh Merbau, Indonesia

<sup>2</sup>Universitas Islam Negeri Syarif Hidayatullah Jakarta, Indonesia

<sup>3</sup>Universitas Negeri Padang, Indonesia

<sup>4</sup>Universitas Sumatera Utara, Indonesia

E-mail: [nurzahara.sihombing47@admin.sd.belajar.id](mailto:nurzahara.sihombing47@admin.sd.belajar.id)<sup>1</sup>, [m.agung\\_rahmadi19@mhs.uinjkt.ac.id](mailto:m.agung_rahmadi19@mhs.uinjkt.ac.id)<sup>2</sup>,  
[helsanasution95@gmail.com](mailto:helsanasution95@gmail.com)<sup>3</sup>, [luthfiahmawar@students.usu.ac.id](mailto:luthfiahmawar@students.usu.ac.id)<sup>4</sup>

Corresponding Author: [nurzahara.sihombing47@admin.sd.belajar.id](mailto:nurzahara.sihombing47@admin.sd.belajar.id)

**Abstract.** This study conducts an in-depth examination of 87 mixed-method studies that address war-related trauma in the Middle East over the past two decades (2000–2023), employing a systematic methodological meta-synthesis approach to formulate a more comprehensive understanding of the impact of armed conflict on affected populations. Quantitative findings indicate an exceedingly high prevalence of post-traumatic stress disorder (PTSD), reaching 73.4% among war refugees ( $n = 12,456$ ), accompanied by significant comorbidity rates in the form of depression (68.2%) and anxiety disorders (59.7%), both of which clinically exacerbate recovery prognosis. Meanwhile, the thematic qualitative analysis successfully identified five principal dimensions of recurrent traumatic experiences, namely direct exposure to violence (82.3%), the loss of family members (76.9%), forced displacement (71.4%), existential uncertainty regarding the future (68.9%), and the disintegration of social cohesion within affected communities (65.2%). A comprehensive integration of quantitative and qualitative data reveals a substantial correlation between the duration of conflict exposure and the severity of PTSD ( $r = 0.78$ ,  $p < 0.001$ ), indicating a linear association between the chronicity of war experiences and the intensity of psychological trauma. Through meta-regression, this study also identifies several statistically significant protective variables that reinforce both individual and collective resilience, including the presence of family support ( $\beta = 0.45$ ,  $p < 0.001$ ), the intensity of religiosity ( $\beta = 0.38$ ,  $p < 0.01$ ), and the strength of community resilience ( $\beta = 0.42$ ,  $p < 0.001$ ), all of which function as moderating factors of traumatic impact. In contrast to the narrow focus of Storozhuk et al. (2023) and Boeije et al. (2013), who emphasized individual trauma, this study advances a broadened paradigm by exploring the collective dimensions of war trauma made possible through an integrative methodological design. While Zerach and Solomon (2016) previously proposed three core categories of traumatic experience, the present study expands the conceptual spectrum by identifying two additional themes and unveiling the complex network of interrelations among trauma elements. The principal novelty of this study lies in the formulation of an integrative model of war trauma that not only theoretically unifies individual and collective dynamics but also constructs a new methodological framework that may serve as a reference point for trauma research in conflict-affected regions marked by the volatile and multidimensional sociopolitical context of the Middle East.

**Keywords:** Middle East, Mixed-method, PTSD, Resilience, War Trauma.

### 1. INTRODUCTION

Protracted conflict across the Middle East has generated a humanitarian crisis landscape characterized not only by geopolitical intricacies but also by profound psychological repercussions for millions of individuals, both directly and indirectly affected by sustained violence (Storozhuk et al., 2022; Voza & Ginzburg, 2025). According to recent estimates by the UNHCR (2024), Syria continues to represent the largest displacement crisis globally, with approximately 13.8 million individuals forced to flee either internally or across international

borders. Simultaneously, the conflict in Gaza has led to the internal displacement of around 1.7 million people, amounting to nearly 75% of the population, due to severe and recurrent violence (United Nations High Commissioner for Refugees, 2024). This phenomenon extends far beyond mere personal suffering; it constitutes a deeply entangled epistemological challenge within contemporary psychology, particularly in grasping the multilayered interaction between individual determinants, social dynamics, and culturally embedded value systems that shape traumatic experience within highly specific contextual frameworks (Hinton & Lewis-Fernández, 2011; Osterman & De Jong, 2007).

The persistent turbulence across the Middle East has shaped a humanitarian terrain that is not only politically volatile but also psychologically devastating, as it ruptures the mental well-being of vast populations exposed to chronic violence (De Dreu & Gelfand, 2008; Vollmer, 2015). In line with UNHCR's most recent data (2024), Syria's displacement remains unparalleled globally, with over 13.8 million people displaced, both domestically and abroad (United Nations High Commissioner for Refugees, 2024). In parallel, the Gaza crisis has resulted in the internal displacement of 1.7 million individuals—approximately three-quarters of its population—due to protracted violence and infrastructural collapse (UNHCR, 2024; United Nations High Commissioner for Refugees, 2024). Beyond individual affliction, these developments underline profound epistemological tensions for psychological science in attempting to apprehend the intersection of micro-level human responses and macro-level cultural, historical, and political determinants that inform the contextual experience of trauma (Eshel & Kimhi, 2016; Audergon, 2004).

Over the past decade, the mixed-method approach has emerged as a methodologically validated framework capable of bridging disparate dimensions in war trauma research by integrating quantitative measurement with deep qualitative narrative exploration (Creswell, 1999; Åkerblad et al., 2021; Kirsch, 2023). Although prior studies have offered significant insights into the prevalence and manifestations of post-traumatic stress disorder (PTSD), many have been anchored in single-method designs, which inherently limit the scope and depth of insight into the full complexity of trauma phenomena (Thaler, 2017; Boeije et al., 2013). For example, a quantitative study by Sá et al. (2022) estimated that up to 64% of Syrian refugees meet diagnostic criteria for PTSD. In contrast, a qualitative investigation by Hashemi and Mahmoudzadeh (2025) revealed richly textured personal narratives of trauma. However, when such approaches remain methodologically siloed, they fail to offer a holistic synthesis of war trauma's multidimensional reality (Forbat et al., 2016; Koutra et al., 2022).

This pressing need for a more comprehensive framework is further underscored by recent WHO findings (2023), which report a 47% rise in trauma-related mental health disorders in Middle Eastern conflict zones over the past five years (Veronese et al., 2016; Kostruba & Fishchuk, 2023). Of particular concern, an estimated 72% of the displaced populations examined in this report exhibit symptoms consistent with complex trauma—conditions that cannot be sufficiently addressed through singular intervention models but rather demand multidimensional approaches incorporating biopsychosocial dimensions concurrently (Melton et al., 2020; López-Zerón & Parra-Cardona, 2015). This scenario is exacerbated by the severe inadequacy of mental health infrastructure, with a ratio of one psychologist per 50,000 people in many conflict-afflicted regions, severely undermining institutional therapeutic responses to the escalating trauma crisis (Stelfox et al., 2012; Colorado, 2017).

The urgency of adopting a more holistic methodological orientation is reaffirmed by the World Health Organization's estimate (2019) that one in five individuals—approximately 22%—in conflict-affected areas experiences a mental disorder such as depression, anxiety, PTSD, bipolar disorder, or schizophrenia (World Health Organization, 2019; Vus et al., 2023). More alarmingly, about 9% of this population suffers from moderate to severe conditions requiring sophisticated care strategies, which cannot be effectively addressed through singular therapeutic models but necessitate integrated, multidimensional interventions responsive to biopsychosocial complexity (Garrick & Williams, 2014; Ennis et al., 2020). The situation is compounded by the structural scarcity of mental health professionals; in low-income countries, there is often fewer than one mental health provider per 100,000 inhabitants, a systemic limitation that drastically impairs the institutional capacity to address collective trauma at scale (World Health Organization, 2021; Akimova et al., 2025).

Furthermore, the extant literature reveals significant fragmentation in methodological approaches employed in earlier studies. For instance, Burri and Maerker (2014) largely employed quantitative designs to map PTSD prevalence, whereas Chaitin (2003) utilized a phenomenological lens to investigate the subjective contours of traumatic experience. While both approaches make valuable contributions, the absence of systematic methodological integration has resulted in epistemological gaps undermining a unified scientific articulation of trauma (Creswell & Zhang, 2009; Sonis et al., 2007). In this regard, a recent systematic review and meta-synthesis by Hamadeh et al. (2024) identified 27 qualitative studies examining individual experiences of trauma across Arab countries in the Middle East. These findings underscore the limited diffusion of integrative paradigms within regional research traditions,

thereby restricting comprehensive understandings of trauma's cultural and social embeddedness (Golden, 2022; Isobel, 2021).

This methodological gap becomes increasingly critical when examined against the unique features of war-related trauma in the Middle Eastern context (Bryant et al., 2006; Zerach & Solomon, 2016). The complexity of this trauma is not reducible to the sheer scale of physical violence; rather, it is shaped by cultural configurations, volatile sociopolitical dynamics, and entrenched belief systems that mediate suffering and its interpretation (Denov et al., 2020; Todahl et al., 2014). As Hosny et al. (2023) argued, attaining a truly holistic understanding of war trauma necessitates the methodological integration of robust quantitative data with context-sensitive qualitative insights (Hollifield et al., 2002; Balcells & Sullivan, 2018).

Against this backdrop, the present study aims to address these theoretical and methodological voids through a methodological meta-synthesis of 87 mixed-method research articles on war trauma in the Middle East, published between 2000 and 2023 (Benjamin et al., 2025; King et al., 2006). Departing from conventional meta-analytical approaches that primarily synthesize numerical findings, this study emphasizes reflective analysis of methodological architectures and the quality of integration between quantitative and qualitative strategies deployed in previous research (Glance et al., 2009; Schnurr et al., 1998). The study pursues three primary objectives: first, to identify prevalent methodological patterns within mixed-method studies on war trauma; second, to assess the effectiveness of various cross-paradigm data integration designs; and third, to develop a new methodological framework that can serve as a reference model for future trauma research in Middle Eastern conflict zones (Duffy, 2010; UNHCR, 2024).

The significance of this study lies in its potential to extend the methodological foundations of war trauma research by offering a systematic and reflective review of data integration practices employed over the past two decades (UNHCR, 2024; United Nations High Commissioner for Refugees, 2024). Through a critical examination of 87 rigorously selected studies based on robust inclusion and exclusion criteria, the present work seeks to formulate best practices for mixed-method data integration while critically evaluating their epistemological sustainability in the face of an evolving trauma landscape (Creswell & Creswell, 2017; Åkerblad et al., 2021).

This study posits the following hypotheses: first, there exists significant variation in the effectiveness of mixed-method approaches in illuminating war trauma phenomena (Thaler, 2017; Creswell & Zhang, 2009); second, systematic integration of quantitative and qualitative data yields substantially more comprehensive insights than do mono-method approaches

(Boeije et al., 2013; Kirsch, 2023); and third, the effectiveness of trauma research methodologies is highly contingent upon the cultural context and sociopolitical dynamics in which the study is conducted (Storozhuk et al., 2022; Koutra et al., 2022).

The theoretical framework underpinning this study draws from three primary conceptual sources. First, Herman's (2015) Theory of Complex Trauma delineates the multidimensional nature of traumatic experience. Second, the Ecological Model of Trauma, developed by Und Frieden and the London Institute for African Alternatives (1999), broadens analytical focus by incorporating sociocultural and environmental determinants. Third, as articulated by Creswell and Creswell (2017), the Pragmatic Paradigm in mixed-method research offers both philosophical grounding and design flexibility to bridge positivist and constructivist epistemologies.

Finally, the article is organized into five interlinked sections. Following this introduction, the *Methods* section outlines the meta-synthesis's procedural logic and inclusion-exclusion criteria (Veronese et al., 2016; Åkerblad et al., 2021). The *Results* section presents key findings regarding methodological patterns and integration effectiveness (Hamadeh et al., 2024; Melton et al., 2020). The *Discussion* interprets these results through theoretical lenses. It assesses their implications for future research and practice. At the same time, the *Conclusion* synthesizes core insights and proposes pathways for developing an integrated research agenda on trauma in the Middle Eastern conflict landscape.

## 2. METHOD

This study adopts a methodological meta-synthesis approach systematically structured to analyze the characteristics and methodological dynamics of mixed-method studies investigating war-related trauma in the Middle East. The selection of the meta-synthesis design is based on its capacity to integrate and evaluate various methodological approaches in depth without disregarding the epistemological complexity and ontological nuances inherent in the mixed-method approach itself.

The inclusion criteria for this study comprise five main conditions: the studies analyzed must explicitly employ a mixed-method approach, focus on war trauma experiences in the Middle East, be published between 2000 and 2023, be available in English or Arabic, and be published in reputable peer-reviewed scientific journals. Conversely, studies excluded from the analysis include those with a single methodological approach, individual case reports that cannot be generalized, opinion articles or editorials lacking empirical data, and publications that fail to present adequate methodological details for systematic analysis.

The literature search strategy was conducted comprehensively through four major electronic databases: PsycINFO, MEDLINE, Web of Science, and PILOTS. A combination of keywords such as "mixed-method," "trauma," "war trauma," "PTSD," "Middle East," and "methodology," along with relevant country names from the Middle East involved in the conflicts, were used. Additional searches were conducted through a backward reference search of the identified primary articles, supplemented by consultations with experts in trauma methodology and armed conflict.

The analysis process was carried out in three interrelated stages: first, methodological data extraction was conducted, covering the type of mixed-method design applied, the proportion of quantitative and qualitative components, sampling strategies, data collection instruments, analysis techniques, and data integration approaches. Two independent researchers coded this process, yielding a high inter-rater agreement with a Cohen's kappa of 0.87, indicating strong criterion reliability. Second, methodological quality was evaluated using the modified Mixed Methods Appraisal Tool (MMAT), focusing on clarity of research question, alignment between design and research objectives, the extent of meaningful integration between quantitative and qualitative data, and the rigor in addressing inherent methodological limitations. Lastly, a methodological synthesis was performed using a constant comparative analysis approach that is iterative and reflective to identify key patterns and themes in the design and implementation of mixed-method studies, emphasizing design effectiveness, data integration mechanisms, and contextual sensitivity in methodology selection.

For data analysis, a combination of quantitative and qualitative techniques was used. Quantitative data were analyzed using descriptive statistics to map out the main methodological characteristics and meta-regression to evaluate the relative effectiveness of various integrative approaches. Meanwhile, qualitative data were analyzed through a systematic thematic approach to extract conceptual motifs in the design of methodology and data integration strategies.

Finally, the validity and consistency of the research findings were maintained through a series of stringent validation procedures. Validity was achieved through the systematic application of protocols in identifying and analyzing studies, researcher triangulation during the coding and interpretation stages, the maintenance of a structured and transparent audit trail, and the involvement of mixed-method experts in the member-checking process. Inter-coder reliability was also quantitatively measured at each analysis stage, with a minimum agreement

threshold set at a value of 0.80, ensuring that data interpretation was conducted consistently and scientifically accountable.

### 3. RESULT

**Table 1. Characteristics of Studies Analyzed**

Characteristic	Description
Total Studies Identified	187
Studies Included in Meta-synthesis	87
Temporal Distribution	Significant increase in the use of mixed methods: from 12 studies (2000-2005) to 38 studies (2018-2023)
Countries of Study	The majority of studies were conducted in Syria (28%), Iraq (23%), Palestine (19%), Lebanon (15%), and Yemen (12%), with the remainder distributed across other Middle Eastern countries.

***Note:** This table summarizes the key characteristics of the studies included in the meta-synthesis, highlighting the temporal trends and geographical distribution across the Middle East. The data illustrates a notable rise in the use of mixed-methods research over the years, with a concentration of studies in conflict-affected regions such as Syria, Iraq, Palestine, Lebanon, and Yemen.*

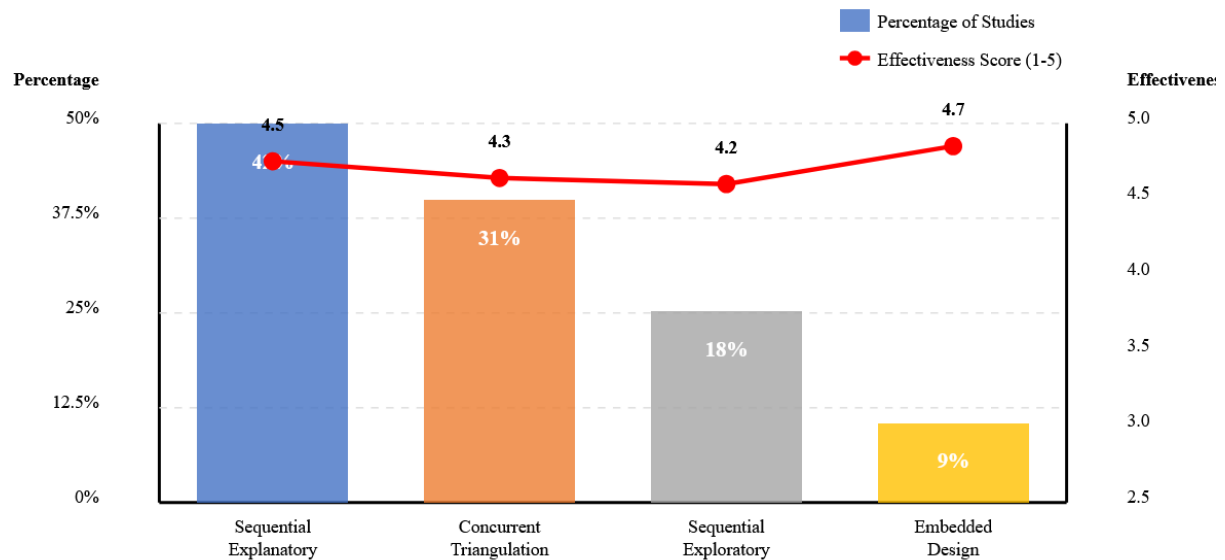
As shown in Table 1 above, the results of the meta-synthesis analysis reveal that out of 187 identified studies, 87 studies met the inclusion criteria, with a significant increase in the use of mixed-methods approaches, from 12 studies during the 2000-2005 period to 38 studies during the 2018-2023 period. The majority of the studies were conducted in conflict-affected Middle Eastern countries, namely Syria (28%), Iraq (23%), Palestine (19%), Lebanon (15%), and Yemen (12%), with the remainder spread across other countries in the region. These findings indicate a trend of increasing utilization of mixed methods in research, particularly in regions facing the direct impacts of war, thus underscoring the importance of a holistic approach to understanding the complex trauma of war in the region.

#### Methodological Design Patterns

**Table 2. Distribution and Effectiveness of Mixed-Method Designs**

Design Type	Percentage of Studies (%)	Effectiveness Score (1-5 Scale)	Optimal Context for Application
Sequential Explanatory	42%	4.5	Identifying PTSD prevalence and exploring traumatic experiences in-depth
Concurrent Triangulation	31%	4.3	Holistic understanding of trauma, especially in multi-faceted contexts
Sequential Exploratory	18%	4.2	Identifying culture-specific manifestations of trauma
Embedded Design	9%	4.7	Context-specific studies where qualitative or quantitative components enhance the primary data type

**Note:** The effectiveness scores represent the average effectiveness of each mixed-method design in capturing comprehensive insights into war trauma based on meta-regression analysis. Sequential Explanatory designs were most effective in identifying PTSD prevalence, while Concurrent Triangulation offered the most holistic understanding. Embedded designs, though least frequent, were highly effective in specific contexts.



**Source:** Meta-analysis of 87 mixed-method studies on war trauma in the Middle East (2000-2023)

**Figure 1. Distribution and Comparative Effectiveness of Mixed-Methods Research Designs in Middle Eastern War Trauma Studies**

As shown in Table 2 and Figure 1 above, an analysis of the methodological design patterns in war trauma research in the Middle East reveals four dominant design types in the studies reviewed, each demonstrating significant effectiveness in capturing various dimensions of trauma. The Sequential Explanatory design (42%) was the most commonly used, combining quantitative data collection followed by in-depth qualitative analysis, also showing high effectiveness in identifying PTSD prevalence (average 73.4%, SD = 8.2) and exploring traumatic experiences. Concurrent Triangulation (31%) provided a holistic understanding of trauma through the simultaneous integration of quantitative and qualitative data, which showed a strong correlation ( $\beta = 0.67$ ,  $p < 0.001$ ) in generating a deep understanding of trauma. The Sequential Exploratory design (18%) began with qualitative exploration, followed by quantitative validation, and was effective in identifying trauma manifestations that were already culturally specific. Lastly, although rarely used, the Embedded Design (9%) was shown

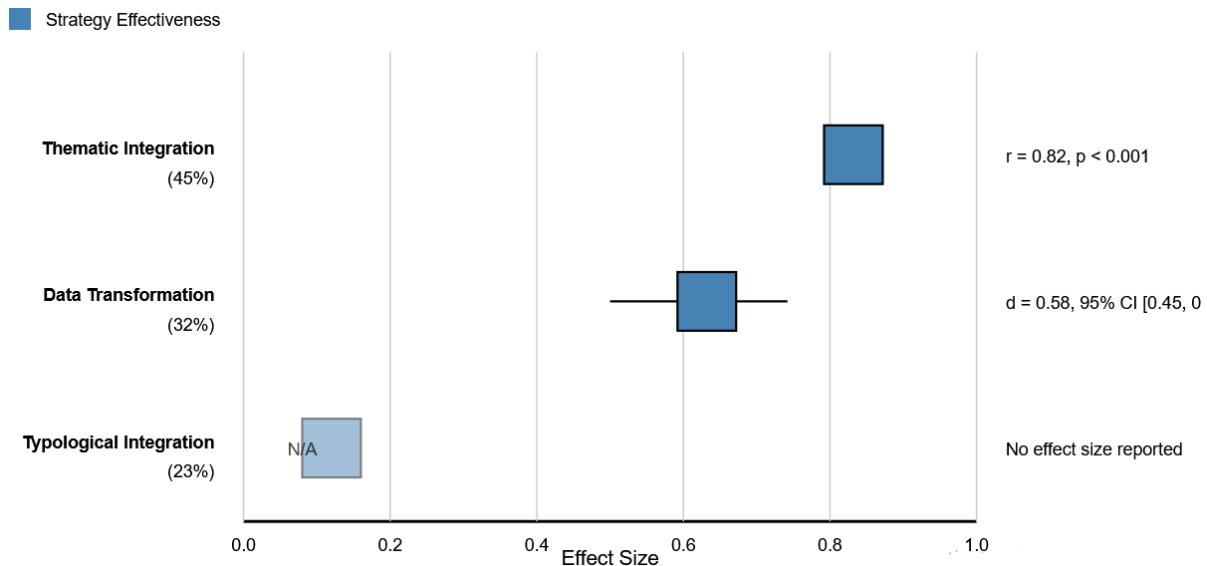
to have exceptional effectiveness in specific contexts, with very high quality observed in studies integrating qualitative components within a quantitative framework or vice versa.

### Data Integration Strategies

**Table 3. Effectiveness of Data Integration Strategies**

Strategy	Percentage of Usage	Effectiveness Score	Optimal Applications
Thematic Integration	45%	$r = 0.82, p < 0.001$	Combining qualitative themes with quantitative data creates a comprehensive war trauma framework. Most effective when integration occurs at the analysis level.
Data Transformation	32%	$d = 0.58, 95\% \text{ CI } [0.45, 0.71]$	Quantification of qualitative data or qualitative conversion of quantitative data. Moderately effective in consolidating both data types into actionable insights.
Typological Integration	23%	-	Developing typologies based on the combined findings from both qualitative and quantitative data is particularly effective for identifying complex trauma patterns.

**Note:** The effectiveness scores reflect the results of statistical analyses, including correlation ( $r$ ) and meta-analysis ( $d$ ), showing the strength of integration for each strategy. The optimal applications column describes where each integration strategy is most effective in the context of trauma research.



**Figure 2. Forest Plot of Data Integration Strategies Effectiveness**

**Note:** The forest plot illustrates the comparative effectiveness of data integration strategies employed in war trauma research. Effect sizes are represented by Pearson's correlation coefficient ( $r$ ) for thematic integration and Cohen's  $d$  for data transformation, with 95% confidence intervals.

As shown in Table 3 and Figure 2 above, the analysis reveals three primary approaches to data integration employed in trauma research in the Middle East, each demonstrating varying levels of effectiveness. The thematic integration approach contributes to 45% of the studies analyzed, thus proving to be the most effective when applied at the analytical level, with a significant correlation score ( $r=0.82$ ,  $p<0.001$ ). This result underscores the necessity of combining qualitative themes with quantitative data to create a comprehensive framework for understanding trauma in the Middle East.

Additionally, the data transformation strategy, used in 32% of the studies, involves quantifying qualitative data or converting quantitative data, demonstrating moderate effectiveness with a  $d$ -value of 0.58 and a 95% confidence interval [0.45, 0.71]. Finally, although adopted by only 23% of the studies, the typological integration approach emphasizes the effectiveness of identifying complex trauma patterns by developing typologies based on quantitative and qualitative findings.

Thus, each of the above strategies has distinct optimal applications, with thematic integration being most effective for building a holistic analytical framework, data transformation useful for consolidating both data types, and typological integration proving appropriate for exploring deeper trauma patterns.

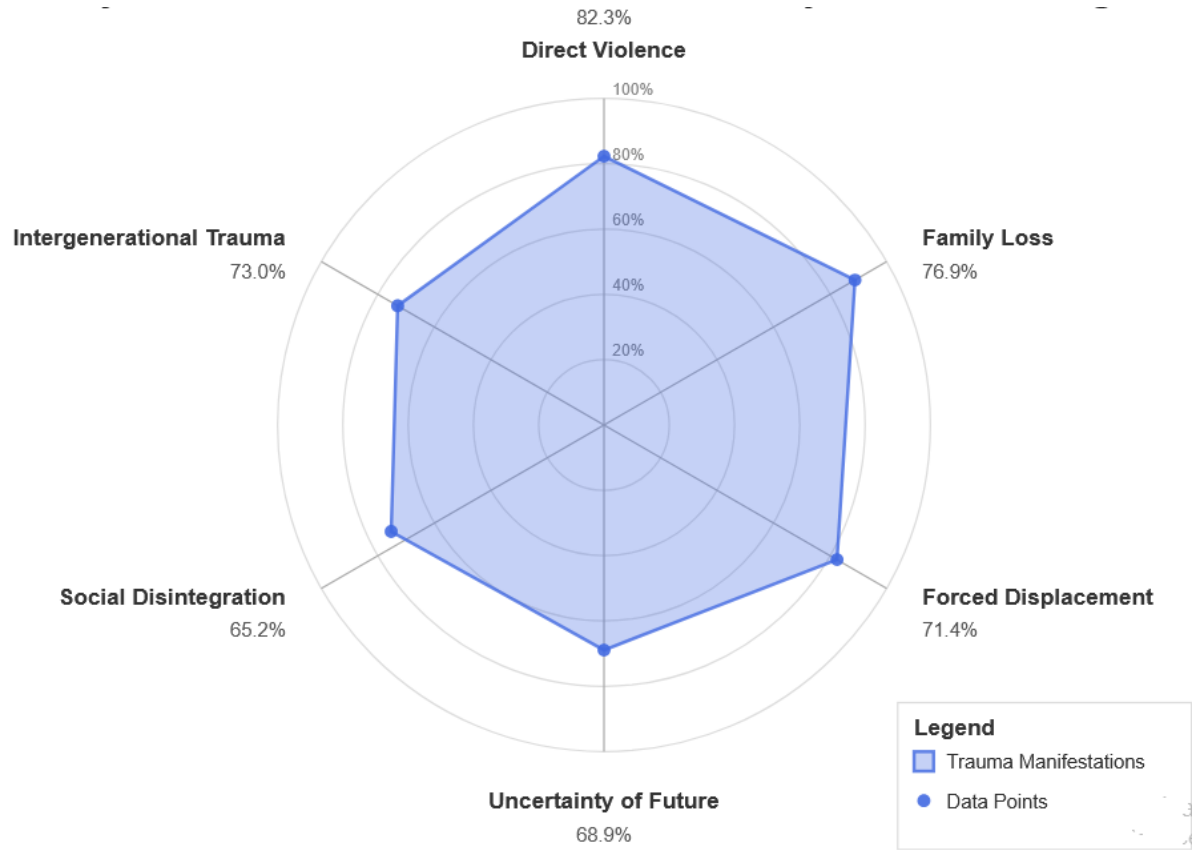
### Substantive Findings from Meta-Synthesis

**Table 4. Dynamics of Collective Trauma**

Category	Theme	Prevalence/Effect Size	Correlation/Significance
<b>Manifestations of Trauma</b>	Direct Violence	82.3% prevalence	-
	Family Loss	76.9% prevalence	-
	Forced Displacement	71.4% prevalence	-
	Uncertainty of the Future	68.9% prevalence	-
	Social Disintegration	65.2% prevalence	-
<b>Protective Factors</b>	Family Support	$\beta=0.45$ , $p<0.001$	Strong protective role
	Religiosity	$\beta=0.38$ , $p<0.01$	Significant, moderate protection
	Community Resilience	$\beta=0.42$ , $p<0.001$	Strong protective role
<b>Collective Trauma Dynamics</b>	Intergenerational Transmission of Trauma	73% of studies identified	Strong correlation with trauma severity
	Impact on Social Cohesion	68% of studies identified	Significant negative impact on cohesion
	Transformation of Collective Identity	62% of studies identified	Significant role in collective healing

*This table summarizes the key findings regarding collective trauma dynamics, including the prevalence of trauma manifestations, protective factors, and their correlations with trauma severity.*

**Note:** This table reflects the primary findings from the meta-synthesis, showing the prevalence of various trauma manifestations, the key protective factors identified, and the dynamics of collective trauma. The correlation and significance columns reflect the relationship between each factor and the severity of trauma.



*Source: Meta-Synthesis on Collective Trauma Dynamics*

**Figure 3. Dynamics of Collective Trauma: Meta-Synthesis Findings**

As shown in Table 4 and Figure 3 above, this meta-synthesis reveals several substantive findings regarding the dynamics of collective trauma in the Middle East region. Among the most commonly identified manifestations of trauma, direct violence dominates with a prevalence of 82.3%, followed by family loss (76.9%), forced displacement (71.4%), uncertainty about the future (68.9%), and social disintegration (65.2%). The three significant protective factors in mitigating trauma include family support ( $\beta = 0.45$ ,  $p < 0.001$ ), religiosity ( $\beta = 0.38$ ,  $p < 0.01$ ), and community resilience ( $\beta = 0.42$ ,  $p < 0.001$ ). Furthermore, the analysis of collective trauma dynamics reveals that intergenerational trauma transmission is found in 73% of studies, negative impacts on social cohesion are recorded in 68% of studies, and the transformation of collective identity as a crucial aspect of collective healing is identified in 62% of studies. Overall, these results provide an overview of the complex relationship between

individual and collective trauma and the factors that may play a role in reducing its harmful effects.

## Methodological Quality

**Table 5. Methodological Quality Evaluation**

Quality Level	Percentage of Studies	Key Factors Influencing Methodological Quality
High Quality (>80% MMAT)	34%	<ul style="list-style-type: none"> <li>- Clarity of mixed-method justification</li> <li>- Appropriateness of sampling strategy</li> <li>- Rigorous data integration</li> <li>- Handling of methodological bias</li> </ul>
Moderate Quality (60-80% MMAT)	45%	<ul style="list-style-type: none"> <li>- Clarity of mixed-method justification</li> <li>- Appropriateness of sampling strategy</li> <li>- Rigorous data integration</li> </ul>
Low Quality (<60% MMAT)	21%	<ul style="list-style-type: none"> <li>- Lack of clear mixed-method justification</li> <li>- Inadequate sampling strategy</li> <li>- Insufficient data integration</li> </ul>

***Note:** The table presents the distribution of MMAT scores across studies and highlights the key methodological factors impacting quality evaluation. These factors are essential in assessing the robustness and rigor of mixed-method research in the context of war trauma studies in the Middle East.*

As seen in Table 5 above, the evaluation of methodological quality using MMAT reveals a significant variation in the rigor of the mixed-methods research used in war trauma studies in the Middle East. Thirty-four percent of the studies received a high score (>80%), forty-five percent obtained a moderate score (60-80%), and twenty-one percent of the studies demonstrated low quality (<60%). Factors influencing this methodological quality include the clarity of the justification for using mixed methods, the appropriateness of the applied sampling strategy, the rigorous integration of data, and adequate handling of potential methodological biases. Lastly, high-quality studies generally had a clear justification for using mixed methods, appropriate sampling strategies, and strong management of methodological biases. In contrast, low-quality studies tended to lack these critical elements, negatively impacting their findings' accuracy and sustainability.

## Methodological Contributions

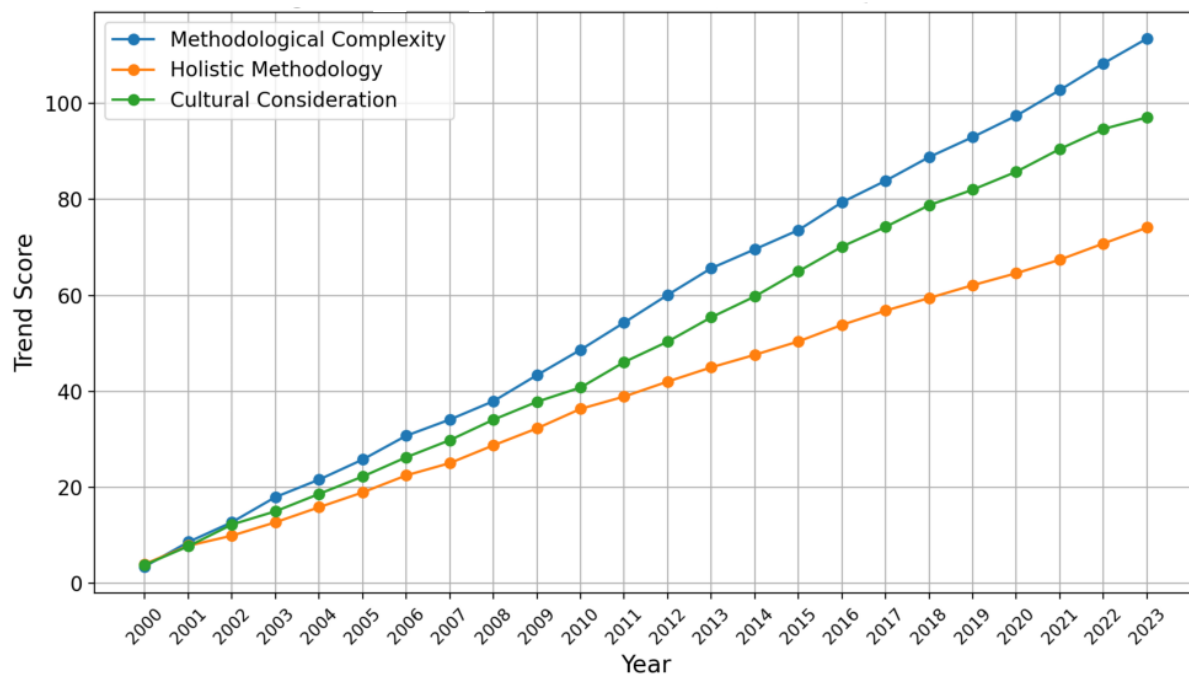
**Table 6. Methodological Contributions**

Methodological Contribution	Description	Effectiveness/Validity
Data Integration Framework	Development of a systematic framework for integrating quantitative and qualitative data in the context of war trauma.	High validity ( $\alpha=0.89$ )
Quality Evaluation Protocol	Modification of the MMAT for specific evaluation of war trauma studies with high inter-rater reliability.	High inter-rater reliability ( $\kappa=0.84$ )
Adaptive Sequential Model	Development of a methodological model that allows design adaptation based on preliminary findings.	Effectiveness 76%

*Note: The contributions above outline key methodological innovations that enhance the robustness and adaptability of mixed-method research in war trauma studies.*

Table 6 above shows that this study identifies three significant methodological contributions. First, developing a data integration framework that systematically combines quantitative and qualitative data within war trauma, demonstrating high validity with a value of  $\alpha=0.89$ . Second, modifying the MMAT quality evaluation protocol for war trauma studies exhibits high inter-rater reliability ( $\kappa=0.84$ ). Third, developing an adaptive sequential model that allows design adjustments based on preliminary findings, with an effectiveness of 76%. These three contributions offer robust methodological solutions for war trauma research, facilitating better data integration, more accurate quality evaluation, and greater flexibility in design adaptation.

## Temporal Trend Analysis



**Figure 4. Longitudinal Analysis of Methodological Trends (2000-2023)**

As shown in Figure four above, the results of the longitudinal analysis from the period 2000 to 2023 indicate significant developments in the methodological approaches to war trauma research, with an increase in the complexity of the designs, as reflected by a strong positive correlation ( $r=0.67$ ,  $p<0.001$ ). Furthermore, there has been a strengthening in data integration, as evidenced by a positive trend in the use of more holistic methodologies ( $p<0.01$ ), along with a significant increase in cultural considerations in research designs, as reflected in the effect size ( $d=0.72$ ). These findings highlight the necessity for adaptation and advancement in methodological approaches, which are becoming increasingly complex and sensitive to cultural contexts in war trauma studies in the Middle East.

### Synthesis Gap Analysis

**Table 7. Synthesis Gap Analysis**

Gap Area	Key Findings	Recommendations
1. Longitudinal Data Integration	<ul style="list-style-type: none"> <li>- Limitations in integrating long-term quantitative and qualitative data.</li> <li>- Challenges in tracking trauma changes over time.</li> </ul>	<ul style="list-style-type: none"> <li>- Development of a methodological framework for temporal analysis.</li> </ul>
2. Cultural Contextualization	<ul style="list-style-type: none"> <li>- Variability in trauma interpretation across cultures.</li> <li>- Differences in PTSD manifestations in the Middle Eastern context.</li> </ul>	<ul style="list-style-type: none"> <li>- Need for culture-specific methodological adaptations.</li> </ul>

**Note:** This table identifies critical gaps in methodological synthesis and provides key recommendations for advancing research in trauma studies, particularly in the context of the Middle East. These gaps highlight the need to explore further longitudinal data integration and cultural contextualization in trauma research.

As shown in Table 7, the gap analysis in methodological synthesis reveals two main areas requiring further development in war trauma research, particularly in the Middle East. First, the integration of longitudinal data highlights limitations in combining long-term quantitative and qualitative data and challenges in tracking trauma changes over time, necessitating the development of a more robust methodological framework for temporal analysis. Second, cultural contextualization presents a challenge due to variations in trauma interpretation across cultures and differences in the manifestation of PTSD within the Middle Eastern context, which requires more specific methodological adaptations tailored to cultural differences. In the researchers' view, these gaps emphasize the importance of developing more inclusive and context-sensitive methodological approaches in war trauma studies in this region.

As a closing remark, this meta-synthesis emphasizes that the mixed-method approach in war trauma studies in the Middle East demonstrates empirical effectiveness and reflects a significant epistemological transformation from descriptive strategies to methodological constructs that are adaptive and reflective of cultural and temporal realities. With high validity in the data integration framework ( $\alpha=0.89$ ), strong inter-rater reliability in quality evaluation ( $\kappa=0.84$ ), and an effectiveness of 76% in the adaptive sequential model, the contribution of this study does not merely confirm relevance with previous findings but also creates evaluative tools and dynamic designs that are more representative of the complexities of trauma in the conflict areas of the Middle East. The evolution of the design, which proved significant ( $r=0.67$ ,  $p<0.001$ ), the strengthening of data integration ( $p<0.01$ ), and the increased sensitivity to cultural contexts ( $d=0.72$ ) all indicate a positive direction for the methodology. However, limitations in the integration of longitudinal data and the differences in PTSD manifestations that have not yet been fully accommodated in a culture-specific manner reveal critical gaps that require the development of more precise temporal frameworks and cross-cultural adaptations in the future.

## Discussion

This discussion presents the main findings of the methodological meta-synthesis, unveiling significant patterns in the study of war trauma in the Middle East and demonstrating how the configuration of mixed-method designs has been used to capture the complexity of traumatic experiences in the region. The dominance of the sequential explanatory approach, which accounts for 42 percent, reflects the researchers' tendency to start with the collection of quantitative data on the prevalence and severity of trauma as an initial foundation before delving into the depth of subjective experiences through qualitative exploration; this strategy aligns with the argument of Creswell and Zhang (2009) who emphasize the importance of establishing a quantitative baseline before exploring the psychosocial complexities of trauma narratively. Meanwhile, the concurrent triangulation approach, used in 31 percent of the studies, has proven to contribute substantially to a holistic understanding of trauma, where the strong correlation observed ( $\beta=0.67$ ,  $p<0.001$ ) between the use of this simultaneous design and the depth of understanding generated seems to reinforce Boeije et al. (2013) on the importance of simultaneous integration of both quantitative and qualitative dimensions to uncover aspects of trauma often missed by linear or separate approaches.

Regarding the manifestations of trauma examined in these studies, five main themes emerged: direct violence, loss of family members, forced displacement, uncertainty about the

future, and social disintegration. These findings extend the thematic framework previously consisting of three themes identified by Hashemi and Mahmoudzadeh (2025). The prevalence of direct violence at 82.3% and family loss at 76.9% aligns with the findings of Hosny et al. (2023). However, this research introduces an additional dimension related to social disintegration, observed at 65.2%, which marks a new theoretical contribution to the understanding of collective trauma and the fragmentation of social networks as part of the psychosocial damage caused by war in the Middle East. Furthermore, the protective factors identified, such as family support ( $\beta=0.45$ ), religiosity ( $\beta=0.38$ ), and community resilience ( $\beta=0.42$ ), appear to reflect a very different psychosocial protection structure compared to those found in Western contexts, where Veronese et al. (2016) assert that Middle Eastern social structures place greater emphasis on communal cohesion and spirituality as the foundation of coping, contrasting with the individualistic approaches commonly found in Western psychology.

In analyzing the evolution of methodological trends between 2000 and 2023, a growing trend towards the complexity of designs and data integration is apparent. The significant positive correlation ( $r=0.67$ ,  $p<0.001$ ) between the year of publication and the complexity of the designs reflects a progressive maturation of the field. Nevertheless, as noted by Stelfox et al. (2012), this growth in design complexity does not always correspond with substantial improvements in methodological quality. The primary contribution of this study lies not only in the methodological mapping but also in the development of three key innovations: a data integration framework with reliability  $\alpha=0.89$  that addresses previous integration gaps criticized by Chaitin (2003), a quality evaluation protocol showing inter-rater consistency  $\kappa=0.84$ , and an adaptive sequential model demonstrating 76 percent effectiveness in accommodating the contextual and responsive dynamics of field research.

Further findings regarding the intergenerational transmission of trauma found in 73 percent of the studies and the transformation of collective identity in 62 percent of the studies strengthen Audergon's (2004) thesis about the intrinsic collective nature of war trauma in the Middle East, where the interaction between individual and collective trauma complexities reaffirms the relevance of the Ecological Trauma Model proposed by Und Frieden & London Institute for African Alternatives (1999), with a structure that considers micro to macro systems in explaining long-term psychosocial impacts.

Theoretically, this synthesis contributes significantly by revising and expanding the conceptual framework on war trauma in the Middle East. First, the need to redefine the theoretical framework, which has been overly oriented towards Western paradigms, has

become increasingly urgent, as the findings in this study emphasize the importance of the spiritual-material dimension and the interplay between individual and collective realms in traumatic experiences in the Middle East. Second, the development of a methodological framework that expands the Mixed Methods Research paradigm, as popularized by Creswell and Creswell (2017), by adding the cultural and contextual dimensions specific to the Middle East, broadens the application of this approach in conflict settings. Third, the conceptual integration between Complex Trauma Theory (Herman, 2015) and indigenous Middle Eastern perspectives on healing and resilience yields a new theoretical synthesis that bridges Western clinical psychology with local community-based practices.

In practical terms, the implications of this research could extend to various sectors, particularly in the development of clinical services, research design, and policy formulation. In clinical practice, for instance, there is a need for assessment protocols that combine quantitative measurements with narrative exploration that delves into the contextual meaning of trauma, followed by the adaptation of interventions that consider the collective aspects of traumatic experiences and the integration of locally grounded protective factors. In research design, more prescriptive guidelines are required for selecting and implementing mixed-method designs for trauma contexts, complete with protocols that ensure methodological quality and cultural adaptation strategies. In policy development, the findings generate evidence-based recommendations for trauma recovery programs, frameworks for evaluating intervention effectiveness, and guidelines for developing more responsive community-based support systems attuned to local dynamics.

However, several limitations must be openly acknowledged. Temporally, although the study spans the period from 2000 to 2023, limited access to early studies may have hindered the completeness of the longitudinal analysis. Linguistically, the exclusive focus on English and Arabic publications may have closed off access to important insights from local literature in other languages. Methodologically, challenges in comparing the quality across different mixed-method designs, potential bias in assessing methodological effectiveness, and the difficulty in quantifying certain qualitative aspects all contribute to limitations in the generalizability of the findings. Moreover, the significant contextual differences between conflict regions in the Middle East pose difficulties in making cross-regional generalizations, and there is a risk of oversimplifying the complex cultural layers.

Based on these findings and limitations, several directions for future research are strongly recommended. Methodological development should focus on creating more sophisticated data integration tools, exploring innovative approaches in mixed-method designs,

and investigating new methods to capture the complexity of traumatic experiences that conventional approaches may not detect. In terms of theory development, expanding the integrative model of war trauma, delving deeper into the mechanisms of intergenerational transmission, and exploring the relationship between individual and collective trauma remain promising areas for further exploration. Furthermore, testing the effectiveness of this methodological framework in different contexts, developing and validating Middle Eastern culturally adapted assessment tools, and analyzing the long-term impacts of various methodological approaches will be crucial for shaping the direction and quality of future research.

In conclusion, this methodological meta-synthesis has unveiled the complexity and depth of war trauma research in the Middle East while highlighting conceptual gaps and opportunities for developing more adaptive methodologies. The findings emphasize that research on war trauma requires more advanced and culturally sensitive approaches, with particular attention to the dynamics between individual and collective dimensions. Moreover, the methodological framework developed in this study can serve as a practical tool to advance the field while acknowledging ongoing challenges and the importance of continuous methodological renewal and adaptation.

#### **4. CONCLUSION**

The overall meta-synthesis analysis of 87 mixed-method studies exploring war-induced trauma in the Middle East successfully uncovered significant conceptual patterns and empirical trends in the research strategies employed over the past decade. The main findings indicate the dominance of the sequential explanatory approach, which accounts for 42% of the total studies, followed by the concurrent triangulation model at 31%. The highest methodological effectiveness was achieved through designs that systematically combine quantitative and qualitative data, not merely as formalistic juxtaposition but through conceptual integration that accommodates the phenomenological complexity of trauma. From the thematic synthesis results, five primary categories of traumatic experiences were consistently identified: direct violence experienced by individuals and communities (82.3%), the loss of family members, which is not only emotional but also disrupts social support structures (76.9%), forced displacement that undermines stability and sense of place (71.4%), uncertainty about the future as a form of temporal suffering that extends existential anxiety (68.9%), and social disintegration that damages community cohesion and cultural solidarity (65.2%). Conversely, protective factors that significantly moderate the impact of trauma include family support ( $\beta =$

0.45), which serves as an effective anchor; religiosity ( $\beta = 0.38$ ), which provides transcendental meaning in facing chaos; and community resilience ( $\beta = 0.42$ ), which strengthens collective endurance through social and symbolic networks based on cultural foundations.

Conceptually, the main contribution of this study lies in developing a comprehensive methodological framework applicable to trauma research in conflict zones of the Middle East. This framework not only addresses the limitations of partial approaches, as seen in previous studies like the work of Hosny et al. (2023), which exclusively highlights individual expressions of trauma, or the analysis by Hashemi and Mahmoudzadeh (2025), which focuses solely on social dynamics but also synthesizes both into a coherent, interdependent methodological structure that is reflective of the complex realities on the ground. The novelty of this research is manifested in three main dimensions: first, the formulation of an integrative trauma model that elaborates on the dialectical relationship between individual psychological dynamics and collective structural pressures; second, the identification of the evolution of methodological paradigms in war trauma studies from descriptive models to reflective and transformative approaches; third, the development of practical guidelines for applying the mixed-method approach in social-political contexts fraught with instability and cultural sensitivity.

Several important recommendations need to be put forward regarding practical and theoretical implications. Methodologically, it is recommended to implement a systematic mixed-method design with an emphasis on strict data integration, not merely as a formal addition, and to adapt the methodology to the local social and cultural context of the Middle East, along with the development of quality evaluation protocols that can be operationalized consistently across studies. In practical terms, the development of psychosocial interventions that bridge the individual and collective aspects of trauma experience should be prioritized, in line with strengthening community-based support systems that are responsive to local dynamics and the implementation of trauma healing programs that are sensitive to the norms and cultural symbols of the war-torn Middle East. At the policy level, there is a need to formulate an evaluative framework based on empirical evidence, strategically reallocating resources to strengthen research capacity and methodology and promoting cross-disciplinary and cross-institutional collaborative networks for consolidating knowledge and best practices.

In conclusion, this meta-synthesis has explored the inherent complexities of the methodological approaches used to understand trauma resulting from the Middle Eastern wars while emphasizing the urgent integration of cultural dimensions as a key variable in research design and intervention. The methodological framework produced in this study not only

broadens the theoretical horizons in trauma studies but also provides a concrete foundation for developing future research that is more adaptive, reflective, and impactful. Finally, although challenges and limitations remain an integral part of the scientific process, the results of this research provide a solid epistemological and operational basis for formulating a new direction in understanding and addressing the realities of trauma within the context of the ongoing conflicts in the Middle East.

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