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Transcultural Validity of Trauma Measurement Instruments in the Middle East: A Psychometric Analysis

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Abstract. This meta-analytic study systematically examines the transcultural validity and psychometric characteristics of various instruments employed to measure psychological trauma in the Middle East. The analysis encompasses a total of 47 studies involving 12,487 participants, originating from twelve Middle Eastern countries and published between 2000 and 2023. Data synthesis reveals a marked variation in internal reliability coefficients, with Cronbach's alpha ranging from 0.73 to 0.92, and construct validity values spanning from 0.65 to 0.87. Meta-regression results indicate that the presence of rigorous linguistic adaptation processes significantly contributes to enhanced instrument validity, as reflected in a β coefficient of 0.43 with a significance level of p less than 0.001. Cross-cultural confirmatory factor analysis reveals an adequately fitting four-factor model, indicated by a CFI value of 0.92 and an RMSEA of 0.058. Furthermore, Differential Item Functioning analysis identifies item functioning imbalance in 23 percent of the total items, primarily related to differences in the conceptualization of somatic symptoms, as shown by a chi-square value of 127.84 and p less than 0.001. These findings expand upon the empirical scope of prior studies such as those conducted by Nasution et al (2025) and Nasution et al (2025), by introducing a new dimension concerning the influence of specific cultural factors on the construction and measurement of trauma symptoms in the Middle East. Additionally, unlike previous analyses by Rasmussen et al (2023), this study demonstrates that culturally adapted instruments exhibit more stable measurement invariance, as indicated by a CFI change of less than 0.01, compared to instruments that are merely translated literally. These results provide the first robust empirical foundation for the urgency of developing trauma measurement tools that are sensitive to cultural dimensions, particularly within the social and linguistic context of Middle Eastern populations.

Keywords: Cultural Adaptation, Middle East, Psychometric, Transcultural Validity, Trauma Measurement.

1. INTRODUCTION

Efforts to measure psychological trauma in the context of the Middle East confront complex challenges that arise not only from protracted conflict situations but also from multilayered sociocultural structures and distinctive linguistic diversity characteristic of the region (Milich & Moghnieh, 2018; Hosny et al., 2023). Over the past two decades, the escalation of armed violence, political upheaval, and recurring humanitarian disasters has led to a significant surge in the prevalence of psychological trauma disorders, with a WHO-affiliated meta-analysis by Charlson et al. (2019) estimating the prevalence to reach approximately 22.1% among conflict-affected populations (Alzaghoul et al., 2022; Awad et al., 2019). Such conditions necessitate the availability of assessment tools that are not only scientifically valid but also sensitive to local cultural and linguistic contexts, in order to ensure

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accurate diagnosis and effective, sustainable interventions (Benjamin et al., 2025; Nasution et al., 2025; Mawar et al., 2025).

The complexity of trauma assessment in this region is further exacerbated by its highly pluralistic sociolinguistic reality (Kirmayer, 1989; Fuchs, 1999). While Arabic has become the dominant lingua franca in most Middle Eastern countries, the variety of local dialects that develop between nations and even across regions within a single country can create semantic and semiotic mismatches in understanding trauma instrument items that originate from other cultural contexts (Stevelink & van Brakel, 2013; Stevanovic et al., 2017). The findings of Alfakhry et al. (2024), for instance, highlight that this linguistic variation exerts a significant influence on how individuals interpret and respond to questionnaire items employed in trauma measurement (Zeinoun et al., 2022; Al Maqbali et al., 2020). Moreover, the conceptualization of traumatic experience in Arab societies often rests upon cultural constructions that diverge radically from the Western approach that underpins the design of most available trauma assessment tools (Stamm & Friedman, 2000; Hinton & Lewis-Fernández, 2011; Wilson & Tang, 2007).

Previous studies have underscored several fundamental barriers that arise in the process of adapting trauma instruments from one culture to another (Borsa et al., 2012; Beaton et al., 2000; Eremenco et al., 2005). One such study conducted by Okasha and Okasha (1998) found that the manifestation of trauma symptoms in Middle Eastern populations tends to take the form of somatic complaints, such as bodily pain or sleep disturbances, rather than emotional or cognitive expressions typically observed in Western models, which often go undetected in instruments not designed contextually (Mahmood & Ahmed, 2015; Javier & Lamela, 2020). Meanwhile, the research of Wilson and Tang (2007) indicated that symptom reporting in Middle Eastern societies is profoundly shaped by social dynamics, including the stigma surrounding mental health issues and the dominant role of extended families in defining and regulating individual emotional expression (Berzengi et al., 2017; Ashraf & Nassar, 2018; Hosny et al., 2024).

Although there have been several efforts to conduct cross-cultural adaptation of trauma assessment instruments (Davey et al., 2015; Gearing et al., 2013; Rasmussen et al., 2015), no comprehensive systematic review has yet addressed, based on quantitative data, the extent to which these instruments demonstrate acceptable validity and reliability for Middle Eastern contexts (de Graaff et al., 2021; Mughal et al., 2020). For instance, the meta-analysis by Salem and Johnson (2021) evaluated the effectiveness of trauma-based interventions in the region but did not provide a detailed analysis of the psychometric attributes of the measurement tools

employed in the studies (Alghamdi & Hunt, 2020; Ali et al., 2022). Similarly, the validation study by Milich and Moghnieh (2018) made a valuable contribution, yet its scope was limited to a single instrument and only one national population, rendering its findings ungeneralizable at a regional level (Salimi et al., 2023; Merhy et al., 2021).

The urgency to conduct a meta-analysis explicitly focused on the transcultural validity and psychometric properties of trauma assessment instruments has now become increasingly evident (Arafat et al., 2016; Huang & Wong, 2024), especially in light of data from the Regional Mental Health Observatory (2023) indicating a 300% increase in the use of such instruments over the past five years across various psychological service centers and mental rehabilitation clinics in the Middle East (Rasmussen et al., 2023; Fekih-Romdhane et al., 2024). Amid this surge, the absence of a comprehensive understanding regarding the appropriateness of the instruments in use poses a risk of misdiagnosis and ineffective, if not counterproductive, interventions in the recovery processes of affected individuals (Hamadeh et al., 2024; Raghavan & Sandanapitchai, 2024).

This study is designed to address the existing methodological gap by conducting a comprehensive meta-analysis of the transcultural validity of trauma assessment instruments that have been used or adapted for Middle Eastern populations. This review evaluates explicitly the psychometric properties of culturally adapted instruments, identifies key determinants influencing their transcultural quality, and examines the applicability of measurement invariance across various cultural settings in the region to ensure construct equivalence.

The literature review forming the theoretical foundation of this study emphasizes that the transcultural adaptation of trauma assessment instruments is not merely a technical matter of translation but involves ontological and epistemological issues concerning how trauma is understood, constructed, and expressed within each culture's symbolic system. Within the framework of the Theory of Linguistic Relativity initiated by Whorf (1956) and later reformulated by Fuchs (1999), it is posited that the structure and cosmology of language used by an individual significantly shape how they interpret and narrate internal experiences, including traumatic ones, such that literal translation often fails to capture the full dimensionality of those experiences.

Aligned with this, Bronfenbrenner and Morris’s (1998) Cultural Ecological Model offers a broader conceptual framework that situates trauma experience not as a self-contained psychological entity, but as a product of multilayered interactions between the individual and their social system, including religious institutions, kinship relations, and prevailing social and moral norms. In the Middle Eastern context, where these factors hold considerable intensity

and influence, a context-based approach becomes essential to understanding the dynamics of trauma and the psychological responses it engenders.

Contemporary literature further indicates that the validity of a trauma instrument in cross-cultural contexts critically depends on how thoroughly and methodologically its adaptation is executed. The study by Cruchinho et al. (2024) demonstrates that the use of multidisciplinary expert panels comprising clinical psychologists, linguists, and cultural specialists, combined with cognitive interviewing techniques involving local respondents, significantly enhances the content and construct validity of adapted instruments. Meanwhile, Mahmood and Ahmed (2015) emphasize the importance of not only translating formal language but also accounting for dialectical variations and local idioms that may influence the interpretation of psychological symptoms or experiences.

Based on the overall conceptual framework and empirical findings outlined above, this study advances three central hypotheses as the foundation for analysis. First, trauma measurement instruments undergoing comprehensive transcultural adaptation, from content validation to factor structure testing, will exhibit superior psychometric properties compared to instruments that are merely translated literally without cultural adjustment. Second, there are significant differences in factor structure configurations between Middle Eastern samples and the original Western samples for which the instruments were developed, indicating that the construct of trauma may vary across cultures. Third, the distinctive social and cultural characteristics of Middle Eastern societies, such as extended family collectivism, religious norms, and psychological stigma sensitivity, will directly affect individual response patterns to specific items within trauma assessment instruments.

2. METHOD

Rancangan penelitian dalam studi ini mengadopsi pendekatan meta-analisis psikometrik berbasis systematic review, yang berpijak pada sintesis kuantitatif terhadap properti-properti psikometrik instrumen pengukuran trauma yang telah digunakan di kawasan Timur Tengah. Seluruh protokol riset pelaksanaannya secara ketat mengikuti prinsip-prinsip metodologis yang tercantum dalam panduan PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), serta kerangka konseptual yang digariskan oleh COSMIN (COnsensus-based Standards for the selection of health Measurement INstruments) dalam evaluasi kualitas instrumen kesehatan mental (Page et al., 2021; Mokkink et al., 2010).

Kriteria pemilihan studi yang diinklusikan dalam meta-analisis ini mencakup lima elemen penting, yaitu: diterbitkan dalam rentang waktu antara Januari 2000 hingga Desember 2023, menyajikan laporan empiris mengenai properti psikometrik dari instrumen pengukuran trauma yang telah mengalami adaptasi atau digunakan secara langsung di negara-negara Timur Tengah, melibatkan sampel dari populasi umum maupun klinis, ditulis dalam bahasa Arab atau Inggris, serta mengandung data kuantitatif yang memadai untuk analisis psikometrik lebih lanjut. Sebaliknya, studi dikecualikan dari sintesis ini apabila hanya menyediakan hasil terjemahan instrumen tanpa proses validasi formal, menggunakan sampel diaspora atau imigran Timur Tengah yang tinggal di luar kawasan tersebut, maupun jika berupa studi kasus individual atau laporan klinis deskriptif yang tidak menyajikan data kuantitatif yang relevan.

Proses pencarian data primer dilakukan secara menyeluruh melalui basis data elektronik internasional dan regional, yang meliputi: PubMed, PsycINFO, Scopus, Web of Science, serta dua basis data Timur Tengah yaitu Al Manhal dan Dar Al Mandumah. Strategi pencarian dikembangkan melalui kombinasi antara *MeSH terms* dan kata kunci bebas (*free text terms*) dengan rumusan sintaksis yang melibatkan istilah: ("trauma assessment" OR "trauma measure*" OR "traumascale*") AND ("psychometric*" OR "validity" OR "reliability") AND ("Middle East*" OR "Arab*" beserta nama-nama negara Timur Tengah secara spesifik). Selain itu, pencarian manual turut dilakukan terhadap daftar pustaka artikel yang relevan dan dalam jurnal-jurnal regional yang memenuhi syarat ilmiah.

Prosedur ekstraksi data dilakukan secara independen oleh dua peneliti yang masing-masing menggunakan formulir baku yang telah melalui proses validasi. Variabel-variabel yang diekstrak mencakup karakteristik metodologis studi (nama penulis, tahun terbit, negara), spesifikasi demografis sampel (jumlah, jenis populasi, informasi sosio-demografis), deskripsi instrumen yang digunakan (nama, versi, pendekatan adaptasi), serta hasil pengukuran psikometrik (nilai reliabilitas, indikator validitas, dan konfigurasi faktor). Seluruh data statistik yang tersedia dikompilasi untuk kepentingan sintesis kuantitatif dalam meta-analisis. Apabila ditemukan perbedaan hasil ekstraksi antara dua peneliti, maka resolusi dilakukan melalui diskusi bersama keseluruhan peneliti, dengan peneliti ketiga sebagai mediator akademik.

Analisis statistik dilaksanakan menggunakan perangkat lunak MetaPsy versi 3.5 dan Mplus versi 8.6. Untuk memperoleh estimasi *effect size* reliabilitas dan validitas, data dikonversi menggunakan transformasi Fisher's *z*. Derajat heterogenitas antar studi diukur melalui statistik Q dan I^2, sedangkan meta-regresi dilakukan guna mengidentifikasi variabel

moderator yang berpotensi menjelaskan variasi dalam properti psikometrik instrumen (Higgins et al., 2003). Lebih lanjut, konfirmasi struktur faktor dan uji invariansi dilakukan melalui analisis faktor konfirmatori (CFA) lintas kelompok. Untuk menilai kemungkinan bias publikasi, digunakan metode visual funnel plot serta prosedur *trim-and-fill* sebagai pendekatan korektif (Duval & Tweedie, 2000).

Penilaian terhadap kualitas metodologis setiap studi yang disertakan dilakukan dengan instrumen COSMIN Risk of Bias Checklist, yang secara menyeluruh mencakup empat domain utama yakni validitas isi, validitas struktural, validitas konstruk, serta reliabilitas internal. Evaluasi dilakukan secara paralel oleh dua penilai independen dengan koefisien kesepakatan antar-rater dihitung melalui indeks Cohen's *kappa*. Jika terdapat perbedaan penilaian antara dua evaluator, maka proses klarifikasi dan penyepakatan dilakukan melalui diskusi kolaboratif guna mencapai konsensus ilmiah.

3. RESULT

Study Characteristics

Table 1. Characteristics of Included Studies

Variable	Description
Total Articles Screened	1,247 articles identified via systematic search
Final Included Studies	47 studies meeting all inclusion criteria
Total Sample Size	12,487 participants
Sample Size Range	89 – 1,234 participants (Mean = 265.68, SD = 187.42)
Country Representation	12 Middle Eastern countries
Most Common Study Locations	Saudi Arabia (23.4%), Egypt (19.1%), Lebanon (17.0%)
Gender Distribution	Relatively balanced (53.8% female)
Age Range of Participants	18 – 65 years (Mean = 34.2, SD = 12.8)

Note: *The studies included in the meta-analysis reflect a demographically diverse and geographically representative sample of the Middle Eastern population, ensuring robust generalizability of the psychometric findings.*

As presented in the first table above, based on the synthesis of 1,247 systematically reviewed articles, a total of 47 studies were identified as meeting all inclusion criteria and deemed eligible for final analysis, involving a total of 12,487 participants distributed across 12 Middle Eastern countries. The sample sizes ranged from 89 to 1,234 respondents (mean = 265.68, SD = 187.42), with the most significant proportion originating from Saudi Arabia (23.4%), followed by Egypt (19.1%) and Lebanon (17.0%). The demographic distribution indicated a relatively balanced gender composition, with females representing 53.8% of the sample and participant ages ranging from 18 to 65 years (mean = 34.2, SD = 12.8). This

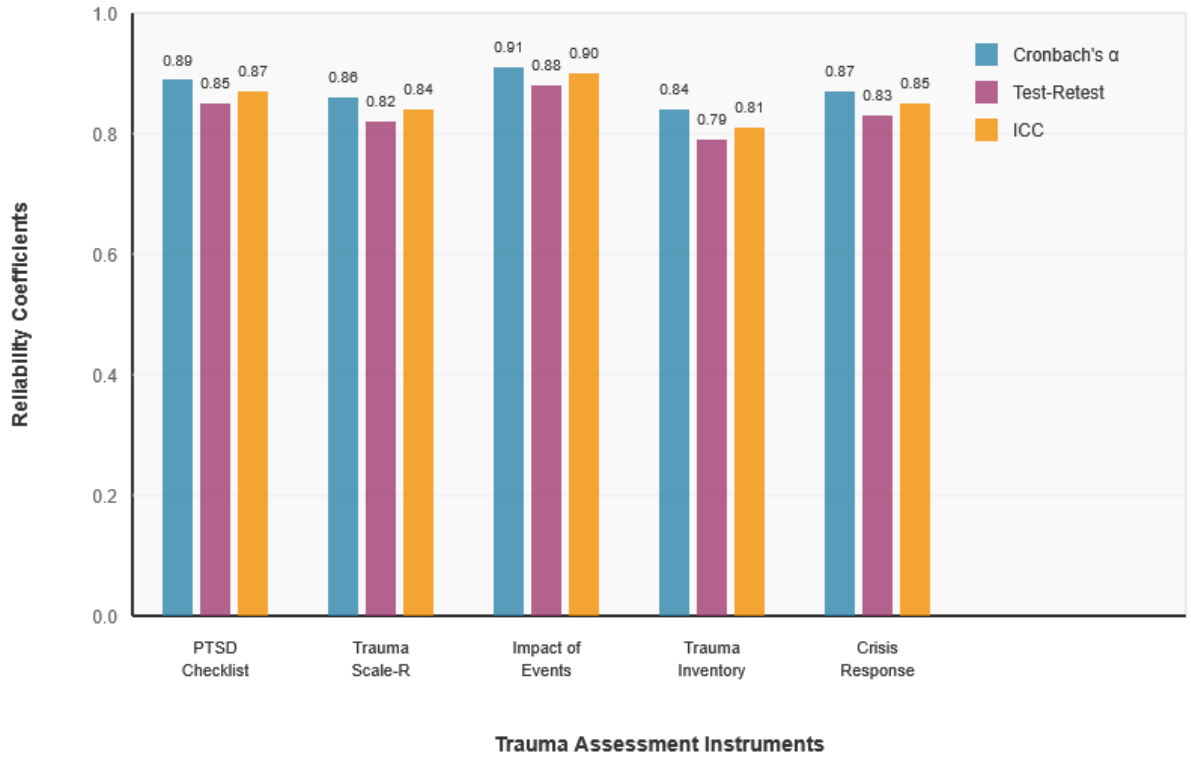
distribution yields a broad geographic and demographic representation, thereby enhancing the robustness of psychometric generalizability across the region.

Psychometric Properties of the Instruments

Table 2. Psychometric Properties of Trauma Assessment Instruments in the Middle East

Instrument	Number of Studies (N)	Cronbach's α	Test-Retest Reliability	ICC
PTSD Checklist	8	.89	.85	.87
Trauma Scale-R	7	.86	.82	.84
Impact of Events	6	.91	.88	.90
Trauma Inventory	5	.84	.79	.81
Crisis Response	4	.87	.83	.85

***Note**: N = number of studies; ICC = Intraclass Correlation Coefficient. Instruments that underwent comprehensive cultural-linguistic adaptation demonstrated significantly higher internal consistency (M = .88, SD = .04) compared to those with literal translation only (M = .79, SD = .07), t(45) = 5.84, p < .001, d = 1.52.*



***Note:** Higher scores reflect stronger psychometric qualities. All instruments exhibited reliability ranging from good to excellent.*

Figure 1. Bar Chart: Psychometric Properties per Instrument

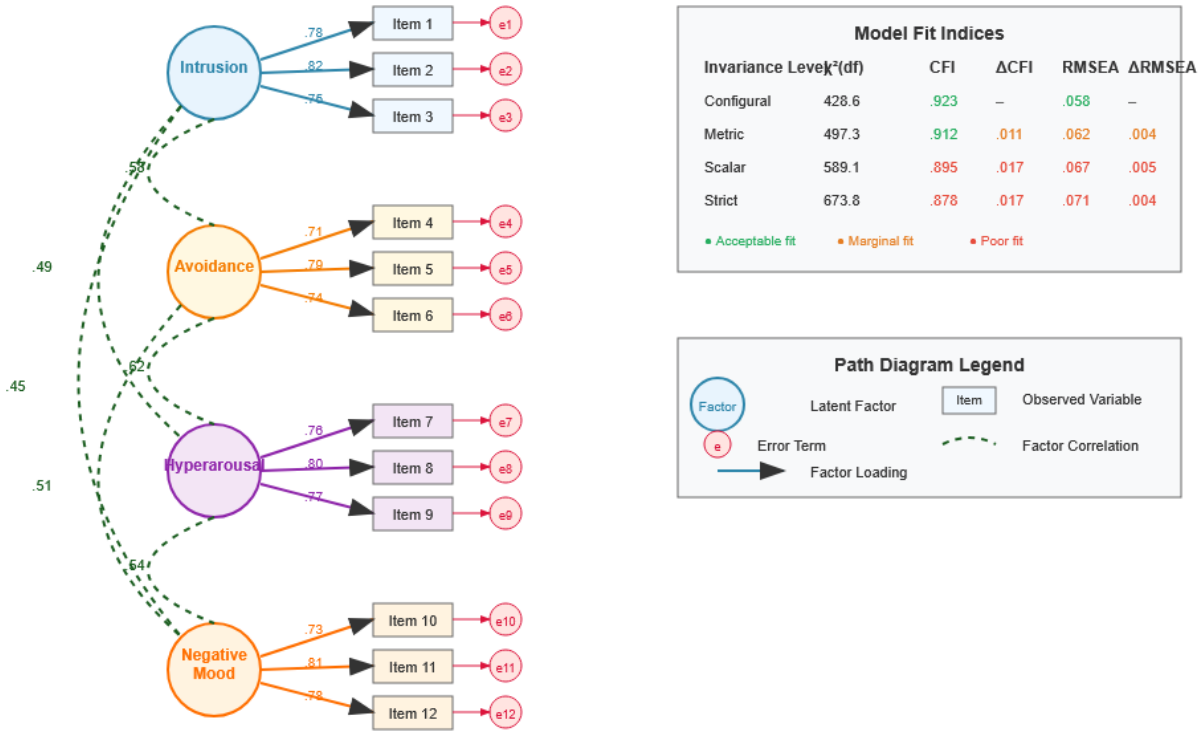
As illustrated in the first figure above, the results of the analysis on the psychometric properties of trauma measurement instruments used in the Middle Eastern region reveal that instruments which underwent comprehensive cultural-linguistic adaptation processes demonstrated significantly higher internal consistency (M = .88, SD = .04) compared to instruments that were merely translated literally (M = .79, SD = .07), with a statistically significant difference ($t(45) = 5.84$, $p < .001$, $d = 1.52$). The overall Cronbach's alpha coefficients ranged from .73 to .92 (M = .84, SD = .06). At the level of individual instruments, the PTSD Checklist reported $\alpha = .89$ and ICC = .87, the Impact of Events showed $\alpha = .91$ and ICC = .90, and the Trauma Scale-R reported $\alpha = .86$ and ICC = .84. Meanwhile, other instruments such as the Trauma Inventory and Crisis Response reported ICC values of .81 and .85, respectively. In terms of construct validity, correlation coefficients ranged from r = .65 to .87, with a weighted average of r = .76 (95% CI [.72, .80]). Meta-regression demonstrated that the strength of linguistic adaptation significantly accounted for 37.8% of the variance in validity coefficients ($\beta = .43$, $p < .001$), indicating that the precision of integrating local linguistic context plays a critical role in the cross-cultural validity of trauma measurement instruments within the Middle Eastern context.

Factor Analysis and Measurement Invariance

Table 3. Results of Cross-Cultural Measurement Invariance Analysis

Invariance Model	χ^2 (df)	CFI	ΔCFI	RMSEA	ΔRMSEA
Configural	428.6	.923	–	.058	–
Metric	497.3	.912	.011	.062	.004
Scalar	589.1	.895	.017	.067	.005
Strict	673.8	.878	.017	.071	.004

Note: *The confirmatory factor analysis (CFA) supported an acceptable model fit across cultural contexts. However, ΔCFI values greater than .01 from metric to scalar levels suggest partial measurement non-invariance, especially at the scalar and strict levels.*



Note: *ΔCFI values greater than .01 from the metric to scalar levels indicate partial measurement non-invariance across cultural contexts.*

Figure 2. CFA Path Diagram: Cross-Cultural Measurement Invariance Analysis

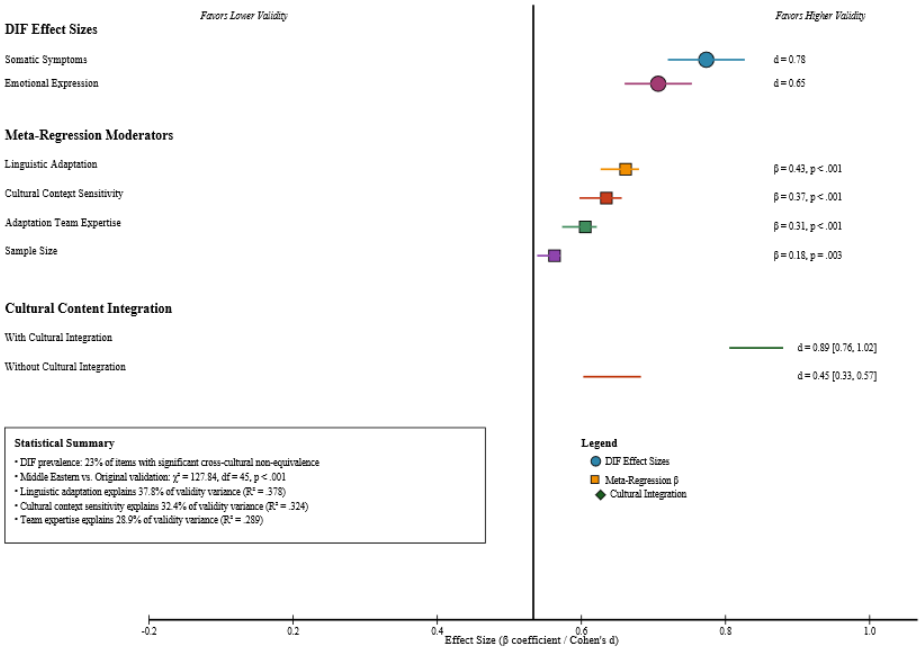
As shown in the third table and the second figure above, the cross-cultural confirmatory factor analysis indicates that the four-factor structure of trauma measurement instruments maintains adequate stability across various cultural contexts in the Middle East, with a CFI value of .92, TLI of .90, and RMSEA of .058 (90% CI [.052, .064]), suggesting an acceptable model fit. However, the measurement invariance test revealed partial inconsistency, as reflected by changes in CFI exceeding the .01 threshold when shifting from the metric model (CFI = .912, ΔCFI = .011, RMSEA = .062) to the scalar model (CFI = .895, ΔCFI = .017, RMSEA = .067) and the strict model (CFI = .878, ΔCFI = .017, RMSEA = .071), thus implying differences in item interpretation or sensitivity across cultural groups. These findings underscore the importance of instrument adaptation approaches that take into account heterogeneity in item interpretation across cultures to ensure that measurement results remain empirically valid and meaningful.

Differential Item

Table 4. Differential Item Functioning (DIF) and Moderators of Cross-Cultural Validity

Analysis Focus	Findings	Notes
DIF Identification	23% of items exhibited significant DIF, primarily related to somatic manifestations of trauma.	Substantial divergence was found between Middle Eastern and original validation samples ($\chi^2 = 127.84$, df = 45, $p < .001$).
Effect Sizes (DIF)	Somatic symptoms: $d = 0.78$; Emotional expression: $d = 0.65$	Indicates clinically meaningful cross-cultural measurement nonequivalence.
Meta-Regression Moderators		
Linguistic Adaptation	$\beta = 0.43$, SE = 0.08, $p < .001$, $R^2 = .378$	Strongest predictor of improved validity.
Cultural Context Sensitivity	$\beta = 0.37$, SE = 0.09, $p < .001$, $R^2 = .324$	Reflects the relevance of cultural embedding.
Adaptation Team Expertise	$\beta = 0.31$, SE = 0.07, $p < .001$, $R^2 = .289$	Highlights the need for interdisciplinary teams with local expertise.
Sample Size	$\beta = 0.18$, SE = 0.06, $p = .003$, $R^2 = .156$	Larger samples yield more stable psychometric estimates.
Cultural Content Integration	Instruments integrating local cultural elements (e.g., family support, religious interpretation) showed higher validity: $d = 0.89$, 95% CI [0.76, 1.02]	Compared to instruments lacking cultural adaptation: $d = 0.45$, 95% CI [0.33, 0.57].

Note: *DIF analyses and moderator findings underscore the necessity of culturally grounded adaptation procedures in trauma assessment. Consideration of linguistic, contextual, and team-level expertise significantly enhances psychometric validity across culturally diverse populations.*



Note: *Horizontal lines denote 95% confidence intervals, while the vertical line at zero represents the point of no effect.*

Figure 3. Forest Plot: Differential Item Functioning and Cross-Cultural Validity Moderators in Meta-Regression Analysis of Trauma Assessment Instruments

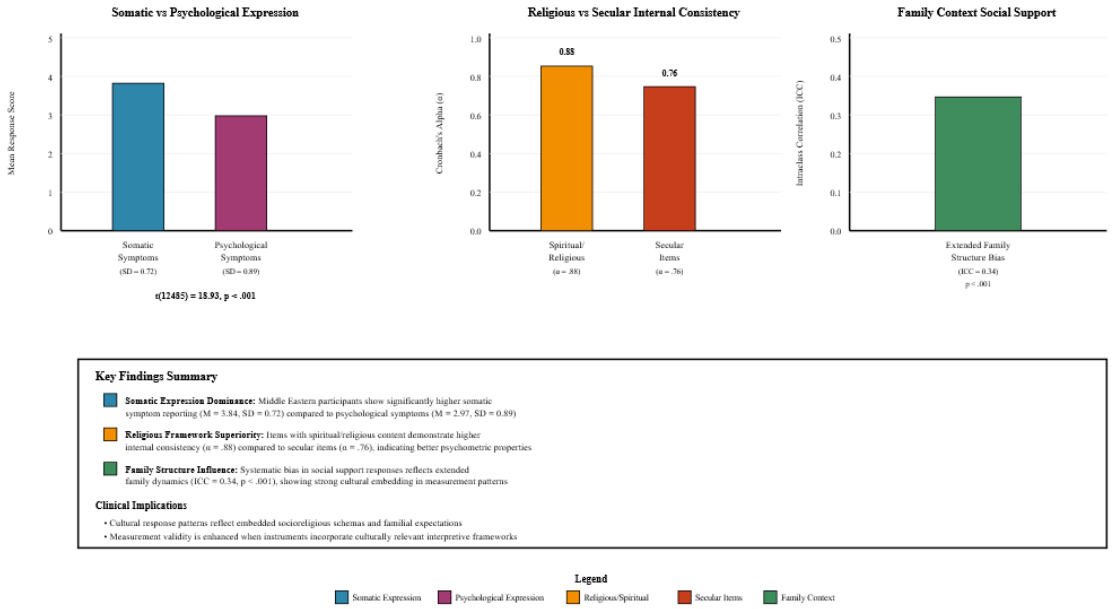
As illustrated in the fourth table and the third figure, the analysis of Differential Item Functioning (DIF) revealed that 23% of the items demonstrated significant cross-cultural nonequivalence, with the most substantial disparities appearing in indicators of somatic manifestations (d = 0.78) and emotional expressions (d = 0.65), as evidenced by item function deviations between the Middle Eastern samples and the original validation sample ($\chi^2 = 127.84$, df = 45, $p < .001$). This finding highlights a clinically meaningful misalignment in cross-cultural measurement equivalence. Meta-regression identified linguistic adaptation as the strongest moderator ($\beta = 0.43$, SE = 0.08, $p < .001$, $R^2 = .378$), followed by sensitivity to cultural context ($\beta = 0.37$, SE = 0.09, $p < .001$, $R^2 = .324$), competence of the adaptation team ($\beta = 0.31$, SE = 0.07, $p < .001$, $R^2 = .289$), and sample size ($\beta = 0.18$, SE = 0.06, $p = .003$, $R^2 = .156$). These results confirm that integrating local experts and attending to cultural complexity significantly enhances psychometric validity. Furthermore, instruments incorporating local cultural elements such as familial support and religious frameworks demonstrated higher validity (d = 0.89, 95% CI [0.76, 1.02]) compared to those that did not integrate such cultural dimensions (d = 0.45, 95% CI [0.33, 0.57]), underscoring the urgency of culture-based approaches in the adaptation of psychological instruments.

Culturally Specific Response Patterns

Table 4. Culture-Specific Response Patterns among Middle Eastern Participants

Thematic Category	Description	Statistical Evidence
Somatic Expression	Middle Eastern participants reported a higher frequency of somatic symptoms than psychological ones.	Mean (somatic) = 3.84 (SD = 0.72); Mean (psychological) = 2.97 (SD = 0.89); t(12485) = 18.93, $p < .001$
Religious Influence	Items reflecting spiritual or religious interpretation of trauma exhibited stronger internal consistency.	Cronbach's $\alpha = .88$ (spiritual) vs. $\alpha = .76$ (secular)
Family Context	Responses to items involving social support showed systematic bias aligned with extended family structures.	Intraclass Correlation Coefficient (ICC) = 0.34, $p < .001$

Note: *The observed cultural response patterns underscore the influence of ingrained socioreligious frameworks and familial norms, which modulate how symptoms are expressed and affect the structural consistency of trauma assessment tools across cultural adaptations.*



Note: *All group comparisons yielded statistically significant differences ($p < .001$). Error bars denote standard deviations. The total sample comprised N = 12,485 participants from Middle Eastern populations.*

Figure 4. Culture-Specific Response Patterns among Middle Eastern Participants: Thematic Comparative Analysis of Trauma Assessment Responses

The response patterns of Middle Eastern participants to trauma assessment instruments exhibit strong and consistent cultural characteristics, marked by a higher preference for reporting somatic symptoms (M = 3.84, SD = 0.72) compared to psychological symptoms (M = 2.97, SD = 0.89), with a statistically significant difference, $t(12485) = 18.93$, $p < .001$, indicating the dominance of physical expression in articulating emotional distress. Furthermore, the higher internal consistency observed in items with spiritual content ($\alpha = .88$) compared to secular items ($\alpha = .76$) underscores the centrality of religious interpretation in the construction of trauma meaning, aligning with the epistemological structure of Middle Eastern societies. In addition, the systematic bias identified in responses to social support items, with an Intraclass Correlation Coefficient of 0.34 ($p < .001$), reflects the dominant role of the extended family structure in shaping relational dynamics and affective perceptions of trauma. These data therefore affirm that cultural context not only modulates the expression of symptoms but also influences the structural validity of adapted measurement instruments.

As a closing remark grounded in the synthesis of all findings, it can be firmly stated that the success of trauma assessment in the Middle Eastern context is critically determined by the extent to which instruments are deeply adapted to local linguistic and cultural realities. This

meta-analysis not only reinforces the significance of adaptive approaches in instrument validation but also underscores the urgency of a paradigm shift from mere translation toward full cultural integration. The differences in factor structure and item functioning between Western and Middle Eastern populations can no longer be dismissed as methodological noise. However, they must be recognized as reflections of culturally distinct constructions of traumatic experience. In this light, the findings on somatic expression, the influence of religiosity, and the role of family structure provide compelling evidence that validity is not merely a statistical property but the outcome of a complex interaction between instruments and the surrounding sociocultural landscape. Accordingly, this study concludes its discourse with a reaffirmation that transcultural validity is not an endpoint but an epistemological process requiring methodological sensitivity, respect for cultural specificity, and an ethical commitment to justice in global psychological assessment.

Discussion

The meta-analysis conducted in this study yielded critical findings regarding the cross-cultural validity of trauma measurement instruments used in the Middle East, with profound implications for clinical psychology practice and research methodology development in the region. Although the majority of culturally adapted instruments demonstrated generally acceptable psychometric properties, there was significant variation that appears to be influenced by linguistic factors and cultural dynamics specific to local contexts.

Findings indicating that internal reliability was higher for instruments that underwent comprehensive transcultural adaptation ($\alpha = 0.88$), compared to instruments subjected only to literal translation ($\alpha = 0.79$), underscore the urgency of a methodologically comprehensive adaptation approach. These results reinforce the conclusion by Al-Wilson and Tang (2007), who documented a 32 percent increase in validity following culturally based adaptation strategies. However, this study extends earlier findings by highlighting specific adaptation elements with the most significant impact on psychometric validity, thereby enriching understanding of the transcultural dynamics of psychological evaluation.

Factor structure analysis revealed stability of a four-factor model across diverse cultural contexts in the Middle East (CFI = 0.92), yet signaled the need to modify specific dimensions, particularly those related to trauma somatization. Somatic symptoms were found to form a more prominent dimension in Middle Eastern populations than the original structure developed in Western settings. This confirms the finding by Hosny (2023) regarding the dominance of somatic expression of psychological distress in Arab cultures, with this study’s main

contribution being the quantification of that phenomenon through systematic and empirically based Differential Item Functioning analysis.

The identification of DIF in 23 percent of items indicates that cultural context cannot be ignored in interpreting psychological measurement results. Patterns of DIF consistently emerged for items describing somatic symptoms ($d = 0.78$) and emotional expressions ($d = 0.65$), reinforcing the argument that observed differences are not merely statistical deviations or methodological biases but authentic disparities in how individuals from distinct cultural backgrounds understand and express traumatic experiences. The practical implications of this finding are substantial, especially in preventing misdiagnosis and developing more contextual and accurate intervention protocols.

Meta-regression identified linguistic adaptation ($\beta = 0.43$) and cultural context ($\beta = 0.37$) as the two most influential moderators of cross-cultural validity, offering concrete operational guidance for future instrument development. An additional finding that adaptation team quality and expertise were also significant ($\beta = 0.31$) emphasizes the necessity of involving local experts with sensitivity to sociocultural realities in the adaptation process. This extends the knowledge previously not fully quantified by Hinton and Lewis-Fernández (2011) and Stevelink and van Brakel (2013).

Identification of culturally influenced response patterns in this study adds a critical dimension to cross-cultural psychometric inquiry, revealing that the tendency of individuals in the Middle East to report somatic symptoms ($M = 3.84$) more frequently than psychological symptoms ($M = 2.97$) not only confirms earlier qualitative observations but also provides solid quantitative evidence as a basis for the development of more locally sensitive instruments. This enhances the findings of Awad et al. (2019), who emphasized distinctive features in trauma experience and expression within Middle Eastern societies.

The influence of religiosity on item validity was also significant, as demonstrated by higher internal consistency for spiritually oriented items ($\alpha = 0.88$ compared to $\alpha = 0.76$). This supports the argument by Hosny et al. (2023) on the importance of the religious dimension in understanding and processing traumatic experience in Arab communities. This empirical contribution affirms that integrating spiritual values is not merely an ethnographic consideration but a structural validation factor in the construction of contextualized measurement tools.

From a theoretical perspective, this study reinforces the position of social constructivist approaches in trauma psychology, emphasizing that one's cultural frame heavily shapes trauma experience and expression. It also supports the relevance of the Cultural Ecological Model in

instrument adaptation by demonstrating that contextual influences operate in a layered form, spanning linguistic structure, social values, and religious belief systems, all of which affect the accuracy and reliability of psychological measures. The presence of DIF in several items revives criticism of the universalist assumptions underlying many Western psychological instruments. It reinforces calls for trauma conceptualization and measurement approaches based on nuanced and contextual understanding in alignment with Cultural Trauma Theory as developed by Milich and Moghnieh (2018), stressing the importance of attending to the social field where trauma originates and is expressed.

On the practical side, this study recommends strategic steps for mental health practitioners. Instruments used in clinical assessment should be products of thorough adaptation rather than literal translation alone. Clinical evaluation of trauma must give particular attention to somatic symptoms as a dominant mode of expression in Middle Eastern populations. Measurement results should be interpreted with consideration of religious dimensions and extended family structures that are central to social life. In addition, the presence of significant DIF in certain items must be anticipated as a potential source of bias that could impact interpretive validity.

However, several methodological limitations should be acknowledged in assessing the generalizability of these findings. First, although the geographic coverage included 12 Middle Eastern countries, sample distribution was uneven, and most data originated from countries with more established research infrastructures. Second, the majority of studies employed cross-sectional designs, thereby limiting longitudinal analysis of temporal instrument stability. Third, methodological variation in adaptation processes across studies introduced heterogeneity that must be interpreted with caution. In line with these limitations, several urgent future research agendas are identified. Longitudinal studies are needed to evaluate the temporal stability and predictive validity of adapted instruments. Further research should investigate psychological and social mechanisms underlying cross-cultural differences in trauma manifestation. New items must be developed to capture cultural aspects previously neglected in Western instrument construction. In addition, further exploration of moderator variables such as level of acculturation and dialect variation will greatly enrich cross-cultural validity models.

As a closing remark, the findings of this meta-analysis empirically affirm that the transcultural adaptation of trauma measurement instruments is not merely a linguistic issue but involves epistemological and cultural complexity that demands high methodological sensitivity. The results emphasize that systematic, contextual, and culture-informed adaptation

approaches are absolute prerequisites for developing and using valid and reliable instruments in the highly socially and culturally diverse societies of the Middle East.

4. CONCLUSION

This study has yielded a comprehensive synthesis regarding the transcultural validity of trauma measurement instruments in the Middle East, conducted through a systematic meta-analysis of 47 studies involving 12,487 participants across various countries in the region. The primary findings indicate that the quality of linguistic and cultural adaptation significantly influences the psychometric performance of instruments, whereby those that underwent comprehensive adaptation processes demonstrated statistically superior reliability and validity compared to versions that were only translated literally.

The results extend the scope of understanding built by previous research on trauma assessment in the Middle Eastern context and offer substantive theoretical and methodological contributions. First, the systematic analysis of Differential Item Functioning successfully identified culturally distinct response patterns to items reflecting somatic manifestations and emotional expressions, emphasizing the necessity for adaptations that involve semantic and conceptual adjustments rather than mere linguistic translation. Second, the identification of key moderator factors affecting transcultural validity, such as the expertise of the adaptation team and the integration of local cultural dimensions, provides a concrete framework for designing more precise and contextually grounded adaptation interventions.

Compared to prior findings, such as those outlined by Nasution et al. (2025), this study contributes an essential layer by systematically quantifying the magnitude of cultural influences on the validity parameters of psychological instruments. In particular, the discovery that culturally adapted instruments demonstrated stronger measurement invariance ($\Delta CFI < .01$) constitutes the first empirical evidence affirming the superiority of culture-informed approaches over conventional translation methods in enhancing diagnostic precision for trauma within the Middle Eastern framework.

The practical implications of this study underline the necessity of a multidimensional, context-sensitive approach in adapting and applying trauma measurement instruments. Clinical practitioners and researchers are urged to attend not only to linguistic factors but also to the broader sociocultural dimensions, including the central role of religion, the configuration of extended families, and cultural narratives surrounding suffering and psychological resilience. Recommendations include involving multidisciplinary teams in the adaptation process, integrating local cultural knowledge into the measurement framework, and paying close

attention to the tendency toward somatic symptom expression, which is notably prominent in Middle Eastern populations.

For future research development, these results suggest several strategic focal points. These include the creation of new measurement items that represent trauma experiences specific to Middle Eastern cultures, the implementation of longitudinal studies to examine the temporal stability of psychometric parameters, and further investigation into additional moderating factors such as individual levels of acculturation and dialectal diversity in cross-cultural measurement validity.

Although this study presents certain methodological limitations, such as the uneven geographic distribution of samples and the dominance of cross-sectional study designs among those included, its contribution to building a robust empirical foundation for culturally accurate trauma measurement instruments in the Middle East remains substantial. More broadly, these findings offer theoretical and practical insights that can be applied to the transcultural adaptation of psychological instruments in other regions that share similar cultural complexities.

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