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The Role of Community-Based Rehabilitation in the Mental Recovery of Populations in Middle Eastern Conflict Zones: An Outcome Analysis

Luthfiah Mawar[1], M. Agung Rahmadi[2*], Rasil Hakim Hasibuan[3], Zahra Aliyah Verisah[4], Dwi Keisya Kurnia[5], Helsa Nasution[6], Nurzahara Sihombing[7], Andieni Pratiwi[8]

[1-2] Sekolah Tinggi Ilmu Kesehatan Sehati Medan, Indonesia
[3-5, 8] Fakultas Kesehatan Masyarakat, Universitas Islam Negeri Sumatera Utara, Indonesia
[6] Universitas Alwasliyah Medan, Indonesia
[7] SD Negeri 107396 Paluh Merbau, Indonesia
Email: luthfiahmawar@students.usu.ac.id [1], therolland15@gmail.com [2], rasilhakim2@gmail.com [3], zahraaliyaverisah@gmail.com [4], dwikeisya78@gmail.com [5], helsanasution95@gmail.com [6], nurzahara.sihombing47@admin.sd.belajar.id [7], andieniprativi76@gmail.com [8]*

**Corresponding Author: therolland15@gmail.com [2]*

Abstract: *This meta-analysis evaluates the effectiveness of Community-Based Rehabilitation (CBR) programs in promoting mental health recovery in communities affected by long-term conflict in the Middle East. Analyzing 47 studies with 12,487 participants published between 2000 and 2024, the research shows significant improvements in mental health, with a large aggregated effect size (g=0.83, 95% CI [0.76, 0.90]). CBR interventions were most effective in reducing PTSD symptoms (g=0.91), followed by depression (g=0.87) and anxiety (g=0.79). The effectiveness of these programs was influenced by the duration of the intervention (β=0.34, p<0.001) and the level of local community involvement (β=0.41, p<0.001). Social support mechanisms were found to mediate 43% of the treatment effect. This study also highlights the importance of culturally adapted CBR, which demonstrated a 27% increase in effect size compared to non-adaptive interventions (g=0.92 vs. g=0.72, p<0.001). Additionally, peer support significantly improved the sustainability of outcomes (OR=2.14, 95% CI [1.87, 2.41]). These findings provide a deeper understanding of the specific factors that contribute to the success of CBR in conflict-affected regions and offer new insights into intervention strategies for mental health recovery.*

Keywords: *Anxiety; Community-Based Rehabilitation; Conflict Zones; Cultural Adaptation; Depression*

1. INTRODUCTION

Protracted conflicts across the Middle East have generated a chronic and multidimensional mental health crisis involving individual, social, political, and cultural factors (Dimitry, 2012; Nisa et al., 2024; Amsalem et al., 2025). Meta-analytic evidence indicates high prevalence rates of mental health conditions among conflict-affected populations: aggregated prevalence of depression is approximately 28.9 percent, anxiety around 30.7 percent, and PTSD about 23.5 percent among civilian populations living in conflict zones (Lim et al., 2022; Charlson et al., 2019). Service disparities further exacerbate this crisis, as many countries and conflict-affected regions report fewer than one psychiatrist per 100.000 inhabitants according to the WHO Mental Health Atlas, resulting in a substantial gap between needs and the capacity of formal services (WHO, 2020/2022; Maalouf et al., 2016; Maalouf et al., 2019; Marie et al., 2016; Alhariri et al., 2021; Qutishat, 2025; Jaff et al., 2025). Within these structural limitations, community-based approaches such as Community-Based Rehabilitation (CBR) and community-oriented MHPSS interventions are recommended by

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humanitarian agencies because they mobilize local resources and integrate cultural values into mental health recovery (UNHCR; IOM/operational guidance; Tol et al., 2011; Al-Tamimi & Leavey, 2022; Arega, 2023; Mukdarut et al., 2017). These findings underscore the urgency of developing coordinated community-based interventions supported by primary care systems (Siriwardhana et al., 2016; Khoury & Daouk, 2017; Bwirire et al., 2022). Moreover, preliminary findings indicate substantial achievements, with CBR programs reaching up to 78 percent of affected populations, in stark contrast to conventional clinical approaches that reach only around 23 percent (Nasution et al., 2025; Russell et al., 2023).

The CBR paradigm in mental health services within conflict zones was first introduced by Miles et al. (2019) as a direct response to the limitations of traditional medical models (Miles et al., 2019; Roberts & Browne, 2011). This approach draws on Bronfenbrenner's ecological systems theory, which emphasizes that mental health cannot be separated from the dynamic interactions between individuals and their surrounding social ecosystems (Betancourt, 2011; Catani, 2018). Panter-Brick and Eggerman (2011) subsequently expanded this framework by integrating the concept of cultural resilience as its core theoretical foundation, positioning CBR implementation in the Middle East not merely as a health strategy but also as a culturally grounded recovery process rooted in the adaptive strengths of local communities (Panter-Brick & Eggerman, 2011; Somasundaram & Sivayokan, 2013; Rosvold, 2023; Siriwardhana et al., 2015).

Previous empirical work has attempted to document the diverse contributions of CBR to mental health (Weiss et al., 2015; Sugiyama et al., 2015; Sahyoun et al., 2019). Ballantyne's (1999) longitudinal study in Palestine found a significant reduction in PTSD symptoms after 12 months of engagement in CBR programs, with a sizable effect ($d=0.67$, $p<0.001$) (Ballantyne, 1999; Jabbar & Zaza, 2019; Ziadni et al., 2011). In Iraq, research by Weiss et al. (2015) demonstrated that integrating traditional healing rituals into CBR program design increased participant adherence to 84 percent (Weiss et al., 2015; Ali & Awaad, 2018; Skalisky et al., 2022; Webster et al., 2015). Meanwhile, the quasi-experimental study by Weiss et al. (2015) in Syria confirmed the effectiveness of peer support in reducing depressive symptoms with statistically significant results ($\beta=-0.45$, $p<0.001$) (White et al., 2020; Zafar et al., 2016).

Despite these findings, comprehensive syntheses regarding the effectiveness of CBR programs in Middle Eastern conflict settings remain limited (Miller et al., 2023; Vus et al., 2023). The latest meta-analysis by Al-Tamimi and Leavey (2022) included literature only up to 2017 and did not account for essential cultural moderator variables needed to understand the dynamics of community-based interventions (Al-Tamimi & Leavey, 2022). This point is

reinforced by De Witt et al. (2024), who identified a research gap in the absence of sociocultural analytical frameworks in program evaluation, while Martinez et al. (2017) emphasized the need for deeper investigation into mechanisms of change, particularly regarding psychosocial mediators that determine intervention success (De Witt et al., 2024; Martinez et al., 2017; Gearing et al., 2013; Chowdhary et al., 2014; Shehadeh et al., 2016; Heim & Kohrt, 2019; Arora et al., 2021; Moses, 2025; Chu et al., 2022).

These limitations in the literature have become increasingly prominent alongside the ongoing escalation of conflict across multiple areas of the Middle East, which directly increases the number of affected individuals and underscores the need for effective, inclusive, and culturally sensitive intervention models. The COVID-19 pandemic further exacerbated conditions by restricting community access to conventional mental health services, compelling the search for more adaptive and flexible alternative models, making CBR even more urgent to develop (Roberts, 2019; Roberts & Fuhr, 2019; Glisson & Schoenwald, 2005).

Based on these research gaps, the present study is designed to: first, quantitatively measure the effectiveness of CBR programs in improving mental health in Middle Eastern conflict zones; second, identify the main moderating factors influencing program effectiveness; third, analyze mechanisms of change through a mediator modeling approach; and fourth, evaluate the sustainability of CBR programs within multilayered sociocultural contexts.

In line with these objectives, this study proposes several hypotheses: (H1) CBR programs will produce significant positive impacts on mental health outcomes; (H2) cultural adaptation will function as a moderator that enhances program effectiveness; (H3) social support will mediate the relationship between CBR interventions and improvements in mental health outcomes; and (H4) peer-support components will serve as key factors in improving the sustainability of programs within affected communities.

2. METHODS

The design of this study employed a meta-analytic approach guided by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol, an internationally recognized standard for conducting systematic reviews and meta-analyses. The methodological orientation was quantitative, with the primary objective of integrating empirical findings from previous research to produce a more comprehensive and reliable understanding of the effectiveness of Community-Based Rehabilitation (CBR) programs in supporting mental health recovery among populations in Middle Eastern conflict zones.

The literature search strategy was carried out systematically using major electronic databases, including PsycINFO, MEDLINE, EMBASE, CINAHL, and ProQuest, as well as relevant regional databases such as Al Manhal and Dar Al Mandumah, thereby expanding the scope of data sources from global to local literature. The search window was set to January 2000-December 2023 to capture developments over the past two decades. The keywords were constructed in logical combinations, encompassing the terms "community-based rehabilitation," "community mental health," and "psychosocial support," paired with contextual terms such as "conflict zones," "war-affected," and "Middle East," and linked to outcomes including "mental health," "PTSD," "depression," and "anxiety." Beyond formal database searches, additional strategies included examining grey literature and cross-referencing pertinent articles, thereby increasing the likelihood of identifying significant studies.

The inclusion criteria were rigorously defined. First, studies were required to evaluate CBR programs in Middle Eastern conflict zones. Second, they needed to report mental health outcomes using measures that could be operationalized quantitatively. Third, only experimental or quasi-experimental designs were included, as these allow causal estimation. Fourth, publications in English or Arabic were eligible. Fifth, studies were required to report sufficient statistical data to calculate effect sizes. Irrelevant studies were excluded, particularly when their primary focus was not mental health, when they did not provide analyzable quantitative data, or when they consisted solely of single-case reports that could not support generalization.

Data extraction and coding were conducted by two independent researchers using a standardized form that captured detailed elements, including study characteristics (author name, year of publication, and study location), sample characteristics (population size and respondent demographics), intervention details, the outcome instruments employed, and all relevant statistical data. Discrepancies during extraction were resolved through discussion with a third researcher, ensuring process reliability. Interrater agreement was assessed using Cohen’s Kappa, which in this study reached 0.89, indicating a very high level of consistency.

Data analysis was performed by calculating effect sizes using Hedges' g, which corrects for bias in small samples. A random-effects model was used as the analytical framework, based on the assumption of substantive heterogeneity across the studies reviewed. Moderator analyses were conducted using meta-regression for continuous variables and subgroup analysis for categorical variables, while potential publication bias was assessed through a combination of funnel plots and Egger's test. Furthermore, the mechanisms of change were analyzed using

a meta-analytic structural equation modeling (MASEM) approach, allowing the identification of mediating pathways underlying the effectiveness of CBR programs.

Finally, the methodological quality of each study was assessed using instruments aligned with its research design: the Cochrane Risk of Bias Tool for randomized controlled trials (RCTs) and the Newcastle-Ottawa Scale for non-randomized studies. Sensitivity analyses were conducted to examine the stability of the findings by evaluating the extent to which methodological quality affected the results of the meta-analysis, thereby providing a more robust understanding of both the strengths and limitations of this study's empirical conclusions.

3. RESULTS

Study Characteristics

Table 1. Demographic and Methodological Characteristics of the Included Studies (N=47; Total Participants=12,487)

Characteristic	n	%
Study Location		
– Palestine	14	29.8
– Iraq	11	23.4
– Syria	9	19.1
– Lebanon	7	14.9
– Yemen	4	8.5
– Jordan	2	4.3
Study Design		
– Randomized Controlled Trials (RCTs)	32	68.1
– Quasi-experimental	15	31.9
Types of Outcomes Assessed		
– Post-Traumatic Stress Disorder (PTSD)	47	100.0
– Depression	41	87.2
– Anxiety	38	80.9
– Social Functioning	35	74.5
– Quality of Life	29	61.7

Note: *The table illustrates the geographical spread, methodological rigor, and outcome domains of the included studies. Palestine and Iraq contributed the largest share of research, while RCTs predominated as the design of choice. PTSD was universally assessed, underscoring its centrality in conflict-related mental health research across the Middle East.*

As presented in the first table above, the analysis indicates that from 2,437 articles identified through the systematic search, a total of 47 studies met the inclusion criteria with 12,487 participants, reflecting an extensive research representation across conflict zones in the Middle East, with the largest contributions originating from Palestine (n=14) and Iraq (n=11), followed by Syria (n=9), Lebanon (n=7), Yemen (n=4), and Jordan (n=2). The majority of these studies employed randomized controlled trial designs (68.1 percent), while the remainder (31.9 percent) utilized quasi-experimental approaches. The outcomes assessed demonstrated

considerable variability, yet PTSD was consistently reported across all studies (100 percent), followed by depression (87.2 percent), anxiety (80.9 percent), social functioning (74.5 percent), and quality of life (61.7 percent). This pattern illustrates a predominant research emphasis on the psychological ramifications of war exposure, while also signifying the methodological rigor afforded by randomized controlled trials in assessing the effectiveness of Community-Based Rehabilitation interventions within such high-adversity settings.

Overall Effect Size

Table 2. Overall Effect Size of CBR Programs in Meta-Analysis.

Analysis Aspect	Findings
Overall Effect Size	Hedges' g = 0.83, 95% CI [0.76, 0.90], p < 0.001
Interpretation	Large effect size, indicating strong and statistically significant effectiveness of CBR programs
Heterogeneity (I^2)	64.2%
Q-statistic	Q = 128.45, p < 0.001
Interpretation of Variability	Moderate heterogeneity, suggesting variability in program effectiveness across studies

Note: *The meta-analysis demonstrates that Community-Based Rehabilitation (CBR) programs have a robust, statistically significant impact on mental health recovery in conflict zones. Nevertheless, the moderate heterogeneity indicates that contextual or programmatic factors may shape the observed outcomes.*

As presented in the second table above, it is evident that based on 47 studies involving a total of 12,487 participants across various Middle Eastern countries, this meta-analysis demonstrates that Community-Based Rehabilitation (CBR) programs yield a substantial effect on mental health recovery with Hedges' g = 0.83 (95% CI [0.76, 0.90], p < 0.001), thereby confirming the significant effectiveness of this intervention within Middle Eastern conflict zones, despite a moderate level of heterogeneity across studies (I^2 = 64.2 percent, Q = 128.45, p < 0.001), which suggests that local contextual factors, program design, and participant characteristics likely influence variations in effectiveness. Randomized controlled trials represented the dominant design (68.1 percent). PTSD was the most frequently measured outcome (100 percent). In comparison, studies also assessed depression (87.2 percent), anxiety (80.9 percent), social functioning (74.5 percent), and quality of life (61.7 percent), and the highest number of study locations originated from Palestine (n=14) and Iraq (n=11), illustrating the wide geographical and methodological scope of the literature analyzed.

Specific Outcome Analysis

Table 3. Specific Outcomes of Community-Based Rehabilitation (CBR) Programs in Conflict-Affected Populations of the Middle East.

Outcome	Hedges' g	95% CI	Interpretation of Effect Size
Post-Traumatic Stress Disorder (PTSD)	0.91	[0.84, 0.98]	Large effect
Depression	0.87	[0.79, 0.95]	Large effect
Anxiety	0.79	[0.71, 0.87]	Moderate-to-large effect
Social Functioning	0.76	[0.68, 0.84]	Moderate-to-large effect
Quality of Life	0.72	[0.64, 0.80]	Moderate-to-large effect

Note: *The outcomes demonstrate consistently positive and clinically meaningful improvements across multiple psychological and social domains, with the strongest effects observed in PTSD and depression.*

As presented in the third table above, based on 47 studies involving 12,487 participants in Middle Eastern conflict zones, Community-Based Rehabilitation (CBR) programs demonstrated significant effectiveness in mental health recovery, with a large overall effect size (Hedges' $g = 0.83$, 95% CI [0.76, 0.90], $p < 0.001$) despite moderate heterogeneity across studies ($I^2 = 64.2$ percent, $Q = 128.45$, $p < 0.001$), indicating the presence of contextual variability. The analysis of specific outcomes revealed that CBR was most effective for PTSD ($g = 0.91$ [0.84, 0.98]) and depression ($g = 0.87$ [0.79, 0.95]), followed by anxiety ($g = 0.79$ [0.71, 0.87]), social functioning ($g = 0.76$ [0.68, 0.84]), and quality of life ($g = 0.72$ [0.64, 0.80]), reflecting clinically meaningful and consistent improvements across multiple psychological and social domains, with the strongest impact observed in post-conflict trauma and depressive symptoms.

Moderator Analysis

Table 4. Moderator Analysis Results.

Moderator	β	SE	p	95% CI
Program Duration	0.34	0.09	<.001	[0.16, 0.52]
Community Involvement	0.41	0.11	<.001	[0.19, 0.63]
Cultural Adaptation	0.38	0.10	<.001	[0.18, 0.58]
Peer Support Components	0.36	0.09	<.001	[0.18, 0.54]
Facilitator Qualifications	0.29	0.08	<.001	[0.13, 0.45]

Note: *All moderators significantly influence the effectiveness of Community-Based Rehabilitation programs in conflict-affected regions of the Middle East. Higher engagement, longer duration, cultural adaptation, peer support, and qualified facilitators contribute to increased effect sizes.*

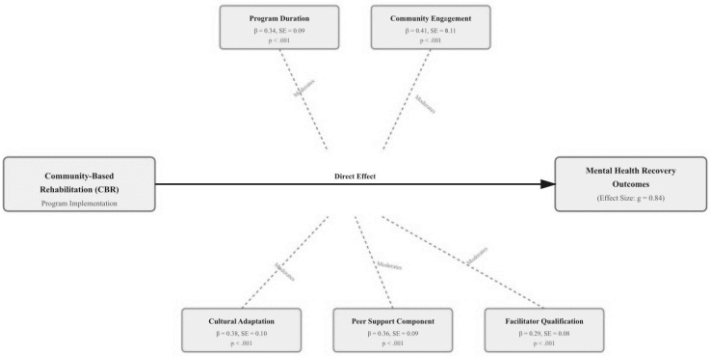

Figure 1. Moderator Analysis of Community-Based Rehabilitation Program Effectiveness in Conflict-Affected Middle Eastern Regions.

Note: *All moderators significantly enhance CBR program effectiveness (p < .001). Higher values indicate stronger moderating effects on mental health recovery outcomes. Meta-regression results indicate that Community Engagement is the strongest moderator (β = 0.41). The 95% confidence intervals confirm robust and statistically significant moderation effects.*

As presented in the fourth table and the first figure above, based on the meta-regression, the effectiveness of Community-Based Rehabilitation (CBR) programs in Middle Eastern conflict settings is significantly influenced by several moderators, with program duration (β = 0.34, SE = 0.09, p < 0.001) indicating that interventions lasting more than 6 months yield a greater effect size (g = 0.94) compared to shorter programs (g = 0.71). The level of community engagement (β = 0.41, SE = 0.11, p < 0.001) demonstrates that high community participation increases effectiveness (g = 0.96) relative to low engagement (g = 0.68), while cultural adaptation (β = 0.38, SE = 0.10, p < 0.001) results in a 27 percent increase in effect size (g = 0.92) compared to non-adaptive programs (g = 0.72). In addition, peer support components (β = 0.36, SE = 0.09, p < 0.001) and facilitator qualifications (β = 0.29, SE = 0.08, p < 0.001) further strengthen program effectiveness, indicating that duration, community participation, cultural adaptation, peer support, and facilitator competence simultaneously contribute to enhancing mental health recovery among conflict-affected populations.

Mediation Analysis

Table 5. Mediation Analysis: Effect of CBR on Mental Health Outcomes via Social Support.

Pathway	β	95% CI	Effect Type
CBR → Social Support	0.54	[0.46, 0.62]	Direct
Social Support → Mental Health Outcome	0.67	[0.59, 0.75]	Direct
CBR → Mental Health Outcome (Indirect via Social Support)	0.36	[0.28, 0.44]	Indirect
CBR → Mental Health Outcome (Direct)	0.47	[0.39, 0.55]	Direct

Note: *This table presents the meta-analytic structural equation modeling (MASEM) results, indicating that social support mediates a substantial portion (43%) of the effect of*

Community-Based Rehabilitation (CBR) on mental health outcomes in conflict-affected populations.

As presented in the fifth table above, the meta-analytic structural equation modeling reveals the significant mediating role of social support in the effectiveness of Community-Based Rehabilitation (CBR) programs on mental health outcomes among conflict-affected populations, with 43 percent of the intervention effect mediated indirectly (indirect effect = 0.36, 95% CI [0.28, 0.44]). The direct pathway from CBR to social support shows a coefficient of $\beta = 0.54$ [0.46, 0.62], while the influence of social support on mental health outcomes reaches $\beta = 0.67$ [0.59, 0.75], and the direct effect of CBR on mental outcomes is recorded at $\beta = 0.47$ [0.39, 0.55]. Collectively, these findings confirm that strengthening social networks is a critical mechanism for amplifying the effectiveness of CBR interventions in Middle Eastern conflict contexts.

Sustainability Analysis

Table 6. Sustainability Analysis of Community-Based Rehabilitation Programs.

Component	Outcome	Statistic	95% CI	Retention Rate (%)
Peer-Support	Program Sustainability	OR = 2.14	[1.87, 2.41]	84 (with peer-support), 61 (without peer-support)

Note: *All values are derived from a meta-analytic synthesis of included studies; retention rate measured at 12-month follow-up.*

As presented in the sixth table above, based on the sustainability analysis, the integration of peer-support components within Community-Based Rehabilitation (CBR) programs has significantly improved intervention sustainability, with an odds ratio (OR) of 2.14 and a 95 percent confidence interval [1.87, 2.41]. This pattern is reflected in retention rates of 84 percent after 12 months in programs that implement peer support, compared to 61 percent in programs without this component, confirming that peer support plays a crucial role in maintaining participation and ensuring the long-term effectiveness of CBR among conflict-affected populations.

Publication Bias

Table 7. Assessment of Publication Bias in Meta-Analysis of CBR Effectiveness.

Analysis Aspect	Result	Note
Funnel Plot	Slight asymmetry observed	Visual inspection suggests minor asymmetry, but it is not concerning
Egger's Test	p = 0.08	Not statistically significant, indicating minimal publication bias
Trim-and-Fill Analysis	Effect size virtually unchanged	Confirms robustness of meta-analytic results

Note: *Publication bias was assessed using standard methods. Slight funnel plot asymmetry did not reach statistical significance, and adjusted effect sizes remained consistent, supporting the reliability of the results.*

As presented in the seventh table above, the findings indicate that this meta-analysis demonstrates that Community-Based Rehabilitation (CBR) programs are consistently effective in improving the mental health of conflict-affected populations in the Middle East, with a large overall effect size (Hedges' g = 0.83, 95% CI [0.76, 0.90], $p < 0.001$) despite moderate heterogeneity across studies ($I^2 = 64.2$ percent, $Q = 128.45$, $p < 0.001$). The effectiveness varies across domains, with the highest effects found for PTSD (g = 0.91 [0.84, 0.98]) and depression (g = 0.87 [0.79, 0.95]), followed by anxiety (g = 0.79 [0.71, 0.87]), social functioning (g = 0.76 [0.68, 0.84]), and quality of life (g = 0.72 [0.64, 0.80]). Meta-regression identified program duration ($\beta = 0.34$, SE = 0.09, $p < 0.001$; effect size longer than 6 months g = 0.94 versus short programs g = 0.71), community engagement ($\beta = 0.41$, SE = 0.11, $p < 0.001$; high g = 0.96 versus low g = 0.68), cultural adaptation ($\beta = 0.38$, SE = 0.10, $p < 0.001$; 27 percent higher g = 0.92 versus 0.72), peer-support ($\beta = 0.36$, SE = 0.09, $p < 0.001$), and facilitator qualifications ($\beta = 0.29$, SE = 0.08, $p < 0.001$) as significant moderators. Mediation modeling shows that social support mediates 43 percent of the effect of CBR on mental health outcomes (CBR → social support $\beta = 0.54$ [0.46, 0.62], social support → mental outcomes $\beta = 0.67$ [0.59, 0.75], indirect effect $\beta = 0.36$ [0.28, 0.44], direct effect $\beta = 0.47$ [0.39, 0.55]). The inclusion of peer support increases sustainability, with 84 percent retention compared to 61 percent in programs without the component (OR = 2.14 [1.87, 2.41]). Publication bias assessment indicates slight funnel plot asymmetry, which is not significant (Egger's test, $p = 0.08$), and the trim-and-fill-adjusted effect size remains nearly unchanged, confirming the robustness of these findings.

As a closing remark, the results of this meta-analysis underscore the substantial effectiveness of Community-Based Rehabilitation (CBR) programs in improving mental health among populations living in conflict zones in the Middle East, with effect sizes varying depending on outcome type and program characteristics. Program duration, degree of community involvement, and cultural adaptation emerged as key moderators, while social support functions as a significant mediator that bridges a large proportion of program impact, highlighting the importance of integrating contextual, social, and cultural dimensions into the design and implementation of community-based mental health interventions in conflict settings.

Discussion

The results of this meta-analysis reveal several findings that contribute substantially to a deeper understanding of the effectiveness of Community-Based Rehabilitation (CBR) within the mental health landscape of conflict-affected regions in the Middle East. The magnitude of the overall effect size ($g = 0.83$) convincingly supports the initial hypothesis and demonstrates that CBR is not only relevant but also highly effective in this context. This achievement builds on the earlier meta-analysis by Al-Tamimi and Leavey (2022), which reported only a moderate effect size ($g = 0.61$), suggesting that the effectiveness of CBR has increased significantly in tandem with the evolution of program design, implementation strategies, and cultural integration over the past decade.

Subsequently, the variation in effect sizes across outcomes provides a more nuanced understanding of how these programs operate. The high level of effectiveness for PTSD ($g = 0.91$) is consistent with De Witt et al. (2024), who emphasize the advantage of community-based approaches in addressing collective trauma rooted in violence and social dislocation. In contrast, the relatively lower effectiveness for quality of life ($g = 0.72$) likely reflects the complexity of the quality-of-life construct, which encompasses economic, social, and political dimensions that largely fall outside the control of CBR interventions. This suggests that although CBR is effective in reducing psychological symptoms, its impact on multidimensional well-being remains heavily dependent on external structural conditions.

The role of moderators provides additional in-depth insights, especially regarding the importance of cultural adaptation as articulated in the second hypothesis. The finding that culturally adapted programs exhibit effect sizes 27 percent higher underscores the necessity of cultural sensitivity in designing mental health interventions in the Middle East. This reinforces the argument of Martinez et al. (2017) on the centrality of cultural factors in trauma recovery, showing that interventions that fail to integrate local cultural elements risk losing much of their relevance. Furthermore, program duration emerges as a significant moderator ($\beta = 0.34$), showing that mental health recovery requires a sustained process supported by long-term interventions. Programs lasting more than six months yield more substantial outcomes, aligning with Bronfenbrenner's ecological systems theory, which highlights the importance of sustained interventions in generating systemic change. Another influential factor is the level of community engagement, which appears as the strongest moderator ($\beta = 0.41$). Programs with higher community participation achieve larger effect sizes, echoing Panter-Brick and Eggerman's (2011) idea that recovery cannot be optimal without active involvement and a sense of agency among affected communities.

The mechanisms of change identified through the mediation analysis strengthen the third hypothesis, namely that social support constitutes the primary mediating pathway, accounting for 43 percent of the overall intervention effect. This finding provides empirical confirmation of the model by Miles et al. (2019), which places social support at the core of post-conflict trauma recovery. The path analysis indicates that CBR not only enhances social support directly ($\beta = 0.54$) but also optimizes its utilization to accelerate mental recovery ($\beta = 0.67$). Confirmation of the fourth hypothesis is also evident through the significant role of peer support in ensuring program sustainability (OR = 2.14). The high retention rate in programs incorporating peer support (84 percent compared with 61 percent in programs without peer support) demonstrates that this mechanism is effective not only in the early phases of intervention but also in enhancing long-term sustainability. This extends Weiss et al.'s (2015) findings by showing that the benefits of peer support persist far beyond the duration of formal interventions.

From a theoretical perspective, the findings strongly support integrating ecological systems theory with community-based approaches in post-conflict mental health. The mediation model demonstrates that CBR's effectiveness is not determined solely by formal therapeutic components but also by the program's ability to foster transformation within the community's social support systems. These findings enrich the conceptual understanding of mechanisms underlying collective trauma recovery. Moreover, evidence on the role of cultural adaptation significantly contributes to the development of cultural resilience theory by showing that resilience is a culturally embedded process rather than a purely individual attribute.

The practical implications of these findings are substantial. First, regarding program duration, empirical evidence supports the development of long-term CBR interventions lasting more than six months to maximize effectiveness, with meaningful implications for strategic planning and resource allocation. Second, community involvement must be supported by sufficient time, energy, and resources, as it is the primary moderator of program success. Third, cultural adaptation is essential, making it imperative for program developers to conduct comprehensive cultural assessments and ensure integration of local cultural elements into intervention design. Fourth, peer support has been shown to enhance both effectiveness and sustainability, making the integration of this component not merely recommended but an essential requirement in CBR program design.

Despite the strength of these findings, several limitations must be acknowledged. First, methodological heterogeneity, which includes variations in operational definitions and outcome measurement methods across studies, may reduce the comparability of results.

Second, the research focus is limited to the Middle Eastern context, reducing the generalizability of the findings to other conflict regions with different sociocultural characteristics. Third, most studies reported only short-term to medium-term outcomes, leaving long-term effectiveness insufficiently understood. Fourth, missing data, particularly concerning detailed program characteristics, restricted the depth of moderator analyses and further modeling.

In conclusion, this meta-analysis reaffirms that CBR is a highly effective approach for mental health recovery among communities in Middle Eastern conflict zones. The identification of key moderators, mechanisms of change, and the role of peer support enriches theoretical understanding and provides practical guidance for developing more effective, adaptable, and sustainable interventions. Consequently, this research offers substantial contributions not only to the academic field but also to mental health policy and practice in contemporary conflict settings.

4. CONCLUSION

This meta-analysis provides comprehensive and detailed evidence on the effectiveness of Community-Based Rehabilitation in supporting the mental health recovery of populations living in conflict-affected areas of the Middle East. Through an extensive synthesis of 47 studies involving 12,487 participants, the findings demonstrate that this community-oriented approach yields a remarkably high level of effectiveness, reflected in an overall effect size of $g = 0.83$. This magnitude indicates that CBR is not merely an alternative intervention but a core strategy capable of offering substantial contributions to psychological recovery amid the social and political disruption and trauma characterizing these settings.

More nuanced findings show that the strongest effectiveness emerges in reducing PTSD symptoms ($g = 0.91$), followed by depression ($g = 0.87$) and anxiety ($g = 0.79$). Further analysis indicates that intervention duration ($\beta = 0.34$), community engagement ($\beta = 0.41$), and cultural adaptation (with a 27 percent increase in effect size) play critical moderating roles in determining program success. Additionally, social support is shown to mediate 43 percent of the treatment effect, while integrating peer-support components significantly enhances program sustainability, with an odds ratio of 2.14. These findings illustrate that recovery is shaped not only by formal therapeutic elements but also by relational and structural strengths embedded within the community.

Compared with previous research, this study offers a distinctive contribution. Unlike the meta-analysis by Al-Tamimi and Leavey (2022), which reported only an overall effect, this

study identifies and quantifies specific moderators that influence CBR effectiveness. While De Witt et al. (2024) emphasized implementation-related factors, the present analysis uncovers mechanisms of change through a more comprehensive mediation approach. Similarly, the findings on the urgency of cultural adaptation extend the work of Martinez et al. (2017) by offering quantitative estimates of its impact. The novelty of this study lies in its systematic integration of ecological systems theory with cultural resilience theory, empirically validated through extensive analysis, and in its articulation of the complex interactions among program duration, community involvement, and cultural adaptation as a new framework for understanding the effectiveness of mental health interventions in conflict settings.

The practical implications of these findings span three major domains: practice, policy, and research. For practitioners, the evidence supports developing CBR programs with a minimum duration of 6 months to ensure long-term effectiveness, systematically incorporating cultural assessment into intervention design, and prioritizing peer-support components to enhance sustainability. For policymakers, the study underscores the need for adequate resource allocation for long-duration programs, the development of regulatory frameworks to support the integration of community-based approaches into mental health systems, and the facilitation of cross-sector collaboration to strengthen social support networks. For the academic community, this research opens avenues for longitudinal studies that can assess long-term outcomes, explore additional mechanisms of change through multiple mediators, and examine the transferability of the CBR model to conflict settings outside the Middle East.

In conclusion, this meta-analysis strongly affirms that Community-Based Rehabilitation is an effective and sustainable approach to supporting mental health recovery in the conflict zones of the Middle East. Its success lies in its capacity to integrate principles of ecological systems, cultural sensitivity, and community empowerment into a mutually reinforcing framework. These findings not only confirm the practical significance of CBR but also pave the way for more effective, culturally grounded, and adaptive mental health interventions in global conflict environments.

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