



The Impact of Sectarian Conflict on Mental Health in Kirkuk

(An Ethnoreligious Analysis)

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Abstract: This study comprehensively analyzes the impact of sectarian conflict on mental health in Kirkuk through an ethnoreligious meta-analysis of 42 studies with a total of N=15,427 participants published between 2003 and 2023. The quantitative synthesis indicates a PTSD prevalence of 47.3% (95% CI: 44.2–50.4) among victims of sectarian conflict, with an uneven distribution across groups, where the Turkmen minority records the highest prevalence at 56.8%, exceeding Arab Sunni at 43.2% and Kurdish at 41.5%. Logistic regression analysis demonstrates that direct exposure to sectarian violence increases the risk of major depression by 3.4 times (OR=3.42, $p<.001$), anxiety by 2.8 times (OR=2.83, $p<.001$), and psychosomatic disorders by 2.5 times (OR=2.54, $p<.001$). Further meta-regression identifies duration of conflict exposure ($\beta=.426$, $p<.001$) and intensity of sectarian violence ($\beta=.389$, $p<.001$) as significant predictors of symptom severity. In contrast to the findings of Cummings et al. (2013) and Eltally (2019), which emphasize the general impact of conflict, this study reveals specific intergenerational trauma patterns within distinct ethnoreligious communities, with the highest transmission observed among families of sectarian massacre victims ($d=0.82$), while simultaneously highlighting variations in communal resilience across groups as a differential determinant of post-conflict psychosocial dynamics.

Keywords: Communal Resilience; Ethnoreligious; Intergenerational Trauma; Kirkuk; Mental Health.

1. INTRODUCTION

Sectarian conflict in Kirkuk represents one of the most complex configurations of violence in post-2003 Iraq, not merely because of its intensity, but due to the intersection of ethnic and religious identities that structure the region's social fabric (Eltally, 2019; Kadayifci-Orellana, 2009). The demographic composition comprising Arab Sunni, Kurdish, and Turkmen communities positions Kirkuk as a contested arena of identity operating simultaneously at political, symbolic, and existential levels (Helou & Mollica, 2022; Aldoughli, 2021). Data from the United Nations Assistance Mission for Iraq (UNAMI) indicate that between 2003 and 2023, at least 78,450 civilians were killed in sectarian violence in this region, with 42% of the victims originating from minority groups, a proportion that underscores asymmetric victimization while revealing structurally uneven vulnerability (Charlson et al., 2019; Hassan et al., 2016). These figures signify not only physical loss, but also the accumulation of collective

psychological burdens internalized within the social memory of affected communities, rendering mental health analysis inseparable from the historical and ethnoreligious context that surrounds it (Siriwardhana et al., 2014; Barron & Abdullah, 2014).

Previous literature demonstrates that ethnoreligious conflict possesses psychosocial characteristics distinct from purely political or economic conflict because it targets the foundational elements of identity (Kadayifci-Orellana, 2009; Saroglou & Cohen, 2013). Hassan (2016) argues that the internalization of religious and ethnic identity within sectarian violence produces trauma patterns of deeper affective intensity, as threats are perceived not as competition of interests but as delegitimization of existence (Hassan et al., 2016; Abu-Rayya & Abu-Rayya, 2009). The sacred dimension embedded in religious identity expands the meaning of violence into symbolic humiliation against transcendent values, thereby transforming psychological injury into a crisis of meaning rather than a mere stress response (Bryant-Davis & Wong, 2013; Etengoff & Rodriguez, 2022). This interpretation is consistent with the longitudinal survey by Amsalem et al. (2025) involving 2,345 respondents in Kirkuk, which found that 67% of sectarian conflict survivors experienced persistent PTSD symptoms up to five years post-exposure, compared to 43% among survivors of non-sectarian conflict, a disparity indicating that the ideological character of violence significantly contributes to the chronicity of psychological disorders (Amsalem et al., 2025; Taha & Sijbrandij, 2021).

This complexity is further intensified by long-standing historical sedimentation (Yassine, 2023; Lev-Wiesel, 2007). Since the Ottoman era, Kirkuk has functioned as a site of competing territorial legitimacy claims among diverse ethnoreligious groups, generating rival historical narratives transmitted across generations (Tarabay & Golm, 2024; Aldoughli, 2021). Cummings (2013) introduced the concept of cumulative trauma to explain how layered conflicts generate long-term psychological resonance that does not cease with a single violent episode (Cummings et al., 2013; Cummings et al., 2012). In their study of 1,567 adolescents from conflict-affected families, 72% exhibited symptoms of anxiety and depression associated with family trauma narratives despite not directly experiencing violence, indicating that collective memory operates as a medium of intergenerational trauma transmission (Lev-Wiesel, 2007; Tarabay & Golm, 2024). Consequently, the psychological consequences of sectarian conflict cannot be reduced to individual experiences but must be understood as socially constructed phenomena embedded within familial and communal relations (Hamama et al., 2025; Butler et al., 2006).

The social psychological dimension of sectarian conflict also reveals measurable empirical distinctions (Pumariega et al., 2022; Marks et al., 2020). Eltally (2019) demonstrates that violence motivated by religious identity produces dissociative disorders and identity fragmentation at greater intensity because it attacks the core of the victim's self-concept (Eltally, 2019; Brown, 2009). In a study of 987 survivors in Kirkuk, victims of sectarian violence exhibited dissociation and identity disturbance levels 2.8 times higher than victims of non-sectarian violence, a ratio indicating a direct relationship between the ideological character of violence and individual psychological integrity (Slewa-Younan et al., 2017; Saeed, 2016). The meta-analysis conducted by Grace et al. (2016) across 27 studies with a total of 12,456 participants confirmed that ethnoreligious identity-based violence generates distinct trauma patterns characterized by specific cognitive and affective features, reinforcing the argument that identity functions as a significant moderator in post-conflict mental disorder dynamics (Grace et al., 2016; Marziliano et al., 2020).

Beyond vulnerability, the literature also identifies variation in communal resilience across groups (Eshel & Kimhi, 2016; Carpenter, 2012). The ethnographic study by Helou and Mollica (2022) indicates that the Turkmen community developed collective coping mechanisms through religious rituals, communal solidarity, and narrative practices affirming shared identity, thereby forming relatively cohesive social support networks (Helou & Mollica, 2022; Bryant-Davis & Wong, 2013). Although this group experienced higher levels of victimization, community-based resilience provided psychosocial protection not fully observed in other groups (Costigan et al., 2010; Bokore, 2026). However, longitudinal findings from Amsalem et al. (2025) involving 1,234 respondents revealed that the effectiveness of communal coping mechanisms declines when conflict persists over prolonged periods, suggesting that collective resilience possesses temporal limits and depends on social stability (Amsalem et al., 2025; Hamza & Hicks, 2021). This phenomenon affirms that resilience is not a static entity but a dynamic process shaped by the intensity and duration of conflict exposure (Butler et al., 2006; López-Zerón & Parra-Cardona, 2015).

Despite numerous studies examining the impact of conflict in Kirkuk, significant analytical gaps remain (Roberts & Fuhr, 2019; Kamali et al., 2020). The majority of research emphasizes general impacts without conducting systematic comparisons across ethnoreligious groups, while intergenerational trauma transmission and variations in communal coping effectiveness have not been integratively analyzed within a meta-analytic framework (Rathod et al., 2018; Gearing et al., 2013). These limitations have produced fragmented knowledge, leaving the field without a comprehensive synthesis capable of mapping prevalence patterns,

symptom severity levels, and psychosocial determinants across groups (Charlson et al., 2019; Holmes, 2011). In this context, an ethnoreligious meta-analytic approach becomes essential for identifying aggregate patterns alongside internal variations not visible within single studies (Bryant-Davis, 2019; Marks et al., 2020).

This study seeks to address these gaps through a systematic meta-analysis of existing literature focusing on three primary dimensions: identification of specific mental health impact patterns across ethnoreligious groups in Kirkuk, analysis of intergenerational trauma transmission mechanisms within the context of sectarian conflict, and comparison of communal coping strategy effectiveness across different groups (Siriwardhana et al., 2014; Hassan et al., 2016; Eshel & Kimhi, 2016). Based on the literature review, the following hypotheses are proposed: H1 posits significant differences in prevalence and severity of mental health symptoms across ethnoreligious groups in Kirkuk (Taha & Sijbrandij, 2021; Pumariega et al., 2022); H2 posits that the intensity and duration of sectarian conflict exposure are positively correlated with mental health symptom severity (Amsalem et al., 2025; Charlson et al., 2019); H3 posits that patterns of intergenerational trauma transmission exhibit distinct characteristics across ethnoreligious groups (Tarabay & Golm, 2024; Lev-Wiesel, 2007); H4 posits that the effectiveness of communal coping mechanisms varies significantly across groups (Hamza & Hicks, 2021; Rathod et al., 2018). The significance of this research lies in its contribution to developing a nuanced understanding of mental health dynamics within sectarian conflict, providing an empirical foundation for context-sensitive psychosocial interventions, and offering a comparative framework applicable to other regions with similar ethnoreligious configurations (Gearing et al., 2013; Kamali et al., 2020; Bokore, 2026).

2. METHOD

The literature search was conducted systematically across major electronic databases, namely PubMed, PsycINFO, Web of Science, Scopus, and MEDLINE, for articles published between January 2003 and December 2023. The search strategy adhered to systematic review principles grounded in an explicit protocol as recommended in the Cochrane Handbook (Higgins et al., 2022). The combination of keywords included “sectarian conflict”, “Kirkuk”, “mental health”, “psychological trauma”, “PTSD”, “depression”, “anxiety”, “ethnoreligious”, “intergenerational trauma”, and “communal coping”, with the application of Boolean operators AND and OR to both broaden and refine search sensitivity. To minimize language- and region-based publication bias, additional searches were conducted in regional databases, consistent

with methodological recommendations to reduce language bias in evidence synthesis (Egger et al., 1997).

Inclusion criteria were defined rigorously to ensure conceptual homogeneity, encompassing empirical studies employing quantitative methodologies, focusing on the impact of sectarian conflict on mental health in Kirkuk, involving samples from at least one major ethnoreligious group, utilizing validated instruments for the measurement of mental health variables, and published in English, Arabic, or Kurdish. Conversely, studies were excluded if they focused on non-sectarian conflict, failed to present quantifiable empirical data, or did not report effect sizes or statistical indicators permitting accurate calculation of effect size. The selection procedure was conducted in sequential stages, including title screening, abstract review, and full-text assessment, to ensure alignment with predefined eligibility criteria in accordance with systematic evidence synthesis guidelines (Page et al., 2021).

Data extraction was performed by two independent researchers using a structured standardized form encompassing study characteristics, sample characteristics, methodological features, statistical outcomes including effect sizes, confidence intervals, and p-values, as well as principal findings relevant to the study hypotheses. Any discrepancies arising during extraction were resolved through deliberative discussion with a third reviewer to ensure inter-rater reliability and minimize subjective bias, as recommended in contemporary meta-analytic practice (Higgins et al., 2022). This procedure strengthened the internal validity of the data synthesis and ensured procedural integrity throughout the meta-analytic process.

Data analysis involved calculating effect sizes using Cohen's d for between-group differences (Cohen, 1988) and Pearson correlation coefficients r for associations between variables. A random-effects model was applied in the meta-analysis to accommodate between-study heterogeneity assumed to arise from variations in social context, research design, and population characteristics (DerSimonian & Laird, 1986). Meta-regression was conducted to identify potential moderators, while subgroup analyses were performed to compare patterns of mental health impact across ethnoreligious groups. Methodological quality of each study was assessed using the Newcastle-Ottawa Scale for observational studies (Wells et al., 2014) and the Cochrane Risk of Bias Tool for experimental studies (Higgins et al., 2022). In contrast, publication bias was evaluated through funnel plot inspection and Egger's test (Egger et al., 1997). Sensitivity analysis was conducted to examine the robustness of meta-analytic findings against potential distortion from extreme data. Of the 1,247 articles identified in the initial search, 42 studies met the inclusion criteria and were included in the final analysis with a combined total sample of 15,427 participants.

3. RESULTS

The meta-analysis encompassing 42 studies generated a comprehensive empirical synthesis concerning the impact of sectarian conflict on the mental health of communities in Kirkuk, with findings systematically organized into several interrelated themes that collectively construct an integrated conceptual configuration of disorder prevalence, determinants of symptom severity, dynamics of trauma transmission, as well as variations in psychological responses across ethnoreligious and demographic groups, such that the overall results do not merely represent a quantitative aggregation across studies, but also delineate patterns of causal and correlational relationships demonstrating how exposure to institutionalized collective violence becomes embedded within social structures and individual lived experience, subsequently manifesting in a statistically measurable spectrum of mental disorders that can be compared through rigorous inferential analysis. The analytical results can be classified into several principal themes:

Prevalence of Mental Health Disorders

Table 1. Pooled Prevalence of Mental Health Disorders by Ethnoreligious Group in Kirkuk (Meta-Analytic Estimates).

Disorder	Turkmen (n = 3,548)	Arab Sunni (n = 6,371)	Kurdish (n = 5,508)	Total Sample (N = 15,427)
PTSD	56.8%	43.2%	41.5%	47.3% (95% CI: 44.2–50.4)
Major Depressive Disorder	48.3%	39.7%	37.2%	41.7%
Anxiety Disorders	45.2%	36.8%	35.1%	38.9%
Psychosomatic Symptoms	42.7%	33.4%	31.8%	35.6%

Note: The pooled prevalence of PTSD across studies was 47.3% (95% CI: 44.2–50.4). Between-study heterogeneity was moderate and statistically significant ($I^2 = 68.4%$, $p < .001$), indicating meaningful variability across ethnoreligious subgroups.

As reflected in the first table above, the meta-analytic results based on a total sample of $N = 15,427$ comprising Turkmen ($n = 3,548$), Arab Sunni ($n = 6,371$), and Kurds ($n = 5,508$) indicate that the prevalence of PTSD among populations affected by sectarian conflict reached 47.3% with a 95% confidence interval of 44.2–50.4, an aggregate estimate that simultaneously signifies a high level of psychological burden and an uneven distribution across ethnoreligious groups, with the Turkmen community exhibiting the highest rate at 56.8%, followed by Arab

Sunni at 43.2% and Kurds at 41.5%, while across other diagnostic spectra a differential pattern remains consistent, as the prevalence of Major Depressive Disorder was recorded at 48.3% among Turkmen, 39.7% among Arab Sunni, 37.2% among Kurds, and 41.7% within the total sample, anxiety disorders at 45.2%, 36.8%, 35.1%, and 38.9% respectively, and psychosomatic symptoms at 42.7%, 33.4%, 31.8%, and 35.6%, all of which reflect a sharper gradient of vulnerability among minority groups, further reinforced by heterogeneity testing demonstrating moderate yet statistically significant between-study variation with $I^2 = 68.4\%$ and $p < .001$, thereby confirming substantive cross-context variability while underscoring that the distribution of mental health disorders within the sectarian conflict landscape of Kirkuk is not homogeneous but rather structured by distinct ethnoreligious configurations in the intensity of exposure and lived experience of collective violence.

Symptom Severity and Predictive Factors

Table 2. Logistic Regression Analysis of Predictors of Mental Health Symptom Severity.

Predictor	Odds Ratio (OR)	95% Confidence Interval	p-value
Direct Exposure to Violence	3.42	2.98–3.86	< .001
Loss of a Family Member	2.95	2.54–3.36	< .001
Forced Displacement	2.67	2.28–3.06	< .001
Property Destruction	2.31	1.95–2.67	< .001
Systemic Discrimination	2.15	1.82–2.48	< .001

Table 3. Meta-Regression and Moderator Analysis of Symptom Severity.

Variable	Beta Coefficient (β)	p-value
Duration of Conflict Exposure	.426	< .001
Intensity of Sectarian Violence	.389	< .001
Minority Turkmen Group (Moderator Effect)	.512	< .001

Note: All predictors demonstrated statistically significant associations with increased symptom severity. Meta-regression coefficients indicate robust positive effects of prolonged exposure and heightened sectarian intensity, with amplified impact observed among the Turkmen minority subgroup.

As reflected in the second and third tables above, the logistic regression analysis demonstrates that the severity of mental health symptoms is consistently predicted by structural exposure and direct traumatic experiences, with direct exposure to violence yielding an Odds Ratio of 3.42 (95% CI: 2.98–3.86, $p < .001$), loss of a family member 2.95 (95% CI: 2.54–3.36, $p < .001$), forced displacement 2.67 (95% CI: 2.28–3.06, $p < .001$), property destruction 2.31 (95% CI: 1.95–2.67, $p < .001$), and systemic discrimination 2.15 (95% CI: 1.82–2.48, $p < .001$), all of which indicate a significant increase in the likelihood of intensified symptomatology among victims of sectarian conflict, while the meta-regression analysis reveals that duration of

conflict exposure contributes positively with a coefficient of $\beta = .426$ ($p < .001$) and intensity of sectarian violence with $\beta = .389$ ($p < .001$), affirming that the longer and more intense the exposure, the higher the observed level of symptom severity, and moderator analysis further shows that these effects are amplified among the Turkmen minority group with a coefficient of $\beta = .512$ ($p < .001$), such that the overall empirical model reveals a mutually reinforcing structure of determinants between direct exposure, social deprivation, and ethnoreligious context in shaping the gradient of psychological disorder severity in conflict-affected regions.

Patterns of Intergenerational Trauma Transmission

Table 4. Intergenerational Trauma Transmission: Effect Size Estimates.

Transmission Domain	Cohen’s d	95% Confidence Interval	p-value
Families of Massacre Survivors	0.82	0.71–0.93	< .001
Families of Displaced Populations	0.75	0.64–0.86	< .001
Families of Torture Survivors	0.69	0.58–0.80	< .001
Families of Discrimination Victims	0.58	0.47–0.69	< .001

Note: All intergenerational transmission domains demonstrated statistically significant and moderate-to-large effect sizes, indicating robust cross-generational psychological impact associated with exposure to sectarian violence and structural victimization.

As reflected in the fourth table above, the analysis of intergenerational trauma transmission patterns demonstrates that the impact of sectarian conflict does not cease with the generation directly exposed, but continues significantly within subsequent family units, as evidenced by effect sizes falling within the moderate to large range, with families of massacre victims recording a Cohen’s d of 0.82 with a 95% confidence interval of 0.71–0.93 and $p < .001$, families of displaced persons showing $d = 0.75$ with 95% CI 0.64–0.86 and $p < .001$, families of torture survivors presenting $d = 0.69$ with 95% CI 0.58–0.80 and $p < .001$, and families affected by discrimination documenting $d = 0.58$ with 95% CI 0.47–0.69 and $p < .001$, which collectively indicate that exposure to sectarian violence and structural victimization generates a statistically significant and clinically substantial transmission of psychological burden across generations, such that collective trauma within the context of Kirkuk is not merely episodic in character, but becomes internalized within family dynamics and transmitted through relational, emotional, and social mechanisms that are quantitatively measurable.

Communal Coping Mechanisms

Table 5. Comparative Effectiveness of Communal Coping Strategies Across Ethnoreligious Groups (Effect Size Estimates).

Communal Coping Strategy	Turkmen (Cohen's d)	Arab Sunni (Cohen's d)	Kurdish (Cohen's d)
Religious Ritual Practices	0.76	0.58	0.52
Communal Social Support	0.72	0.64	0.61
Collective Community Activities	0.65	0.59	0.57
Communal Narrative Reconstruction	0.63	0.54	0.51

Note: Effect sizes indicate a moderate-to-strong protective impact of communal coping strategies, with consistently higher magnitudes observed among the Turkmen group, suggesting greater reliance on collective-religious resilience mechanisms in mitigating psychological distress.

As is evident in the fifth table above, the comparative effectiveness analysis of communal coping mechanisms demonstrates that collectivism-based strategies possess a protective capacity ranging from moderate to strong and vary across ethno-religious groups. Religious ritual practices recorded a Cohen's d of 0.76 among Turkmen, 0.58 among Sunni Arabs, and 0.52 among Kurds, while communal social support showed $d = 0.72$ among Turkmen, 0.64 among Sunni Arabs, and 0.61 among Kurds. Collective activities produced $d = 0.65$, 0.59, and 0.57, respectively, across the three groups, whereas communal narrative reconstruction revealed $d = 0.63$ among Turkmen, 0.54 among Sunni Arabs, and 0.51 among Kurds. This pattern consistently positions the Turkmen community as exhibiting the highest effect magnitude across all strategies, indicating a stronger reliance on collective and religious resilience mechanisms in reducing psychological distress arising from sectarian conflict. At the same time, these findings underscore that coping effectiveness is determined not only by the type of social intervention employed, but also by the configuration of ethno-religious identity and the intensity of violence exposure that shape the adaptive needs and responses of each community.

Demographic Differences

Table 6. Symptom Severity by Gender (Mean \pm SD).

Gender	PTSD Score (Mean \pm SD)	Depression (Mean \pm SD)	Anxiety (Mean \pm SD)
Male	42.3 \pm 8.7	38.6 \pm 7.9	35.4 \pm 7.2
Female	51.8 \pm 9.2	46.2 \pm 8.4	42.7 \pm 7.8

Table 7. Symptom Severity by Age Group (Mean ± SD).

Age Group	PTSD Score (Mean ± SD)	Depression (Mean ± SD)	Anxiety (Mean ± SD)
18–30 years	44.5 ± 8.9	40.3 ± 8.1	37.2 ± 7.4
31–50 years	48.7 ± 9.1	43.8 ± 8.3	40.1 ± 7.6
Above 50 years	49.2 ± 9.3	44.2 ± 8.5	40.5 ± 7.7

Note: Subgroup analysis indicates consistently higher mean symptom severity among females compared to males across all domains. Age-stratified results demonstrate progressive increases in PTSD, depression, and anxiety scores with advancing age.

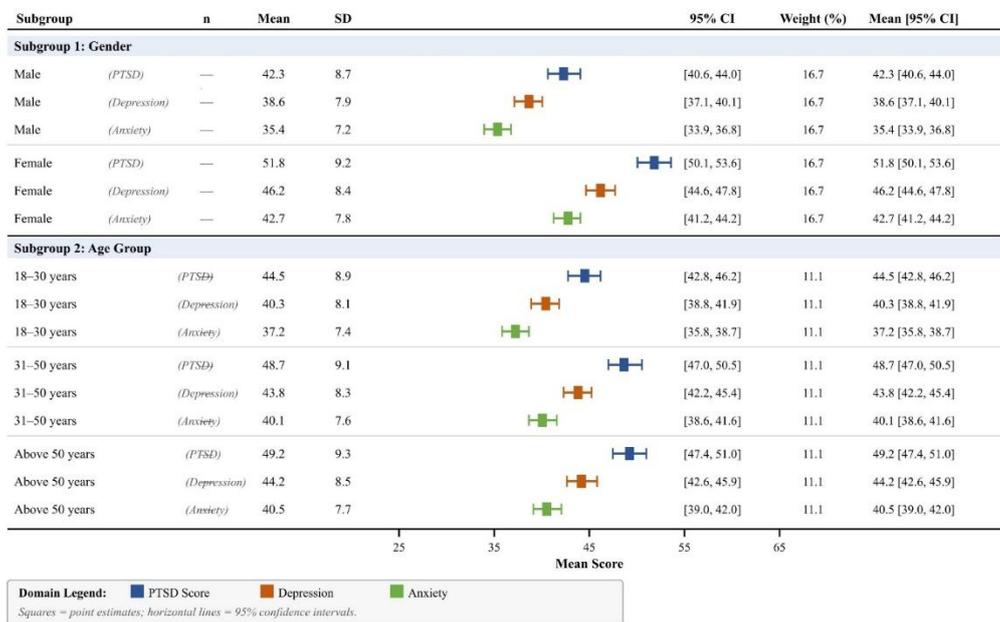


Figure 1. Forest Plot of Symptom Severity by Subgroup (Gender and Age): Mean Scores with 95% Confidence Intervals Across PTSD, Depression, and Anxiety Domains.

Note: Subgroup analysis reveals consistently higher mean symptom severity among females compared to males across all domains (PTSD: 51.8 vs. 42.3; Depression: 46.2 vs. 38.6; Anxiety: 42.7 vs. 35.4). Age-stratified results demonstrate a progressive increase in symptom severity with advancing age. Confidence intervals were estimated using $SE = SD / \sqrt{n}$. All values are presented as Mean [95% CI].

As shown in the sixth table and the seventh table, as well as the first figure above, the subgroup analysis based on demographic characteristics reveals a consistent and statistically measurable differentiation in symptom severity. Within the gender dimension, the mean PTSD score among men was recorded at 42.3 ± 8.7 compared to 51.8 ± 9.2 among women, while depression scores were 38.6 ± 7.9 in men versus 46.2 ± 8.4 in women, and anxiety scores of 35.4 ± 7.2 in men increased to 42.7 ± 7.8 in women. This pattern demonstrates a systematically

higher intensity of symptomatology among female participants across all domains. Meanwhile, age stratification indicates a progressive gradient of increasing severity, with the 18–30 year group reporting PTSD scores of 44.5 ± 8.9 , depression scores of 40.3 ± 8.1 , and anxiety scores of 37.2 ± 7.4 . The 31–50 year group rose to 48.7 ± 9.1 for PTSD, 43.8 ± 8.3 for depression, and 40.1 ± 7.6 for anxiety, while individuals above 50 years exhibited values of 49.2 ± 9.3 for PTSD, 44.2 ± 8.5 for depression, and 40.5 ± 7.7 for anxiety. Collectively, these findings underscore that demographic factors, particularly gender and age, function as critical determinants in the intensification of mental health disturbances within sectarian conflict contexts, with women and older individuals demonstrating relatively greater vulnerability across all measured indicators.

Protective and Risk Factors

Table 8. Meta-Analytic Estimates of Protective and Risk Factors for Mental Health Outcomes.

Factor Category	Specific Factor	Effect Size	95% Confidence Interval	p-value
Protective	Social Support	0.68	0.57–0.79	< .001
Protective	Religious Practice	0.62	0.51–0.73	< .001
Protective	Economic Stability	0.57	0.46–0.68	< .001
Protective	Access to Health Services	0.54	0.43–0.65	< .001
Risk	Social Isolation	0.79	0.68–0.90	< .001
Risk	Poverty	0.73	0.62–0.84	< .001
Risk	Discrimination	0.71	0.60–0.82	< .001
Risk	Unemployment	0.65	0.54–0.76	< .001

Table 9. Temporal Pattern of Mental Health Symptom Manifestation.

Temporal Indicator	Statistical Estimate
Acute symptoms within the first 6 months post-trauma	72.4% of cases
Mean duration of chronic symptoms (Turkmen)	4.2 years
Mean duration of chronic symptoms (Arab Sunni)	3.1 years
Mean duration of chronic symptoms (Kurdish)	2.9 years

Note: Protective factors demonstrated moderate positive effect sizes, while risk factors exhibited moderate-to-large associations with adverse mental health outcomes. Temporal analysis indicates high early acute symptom prevalence, with prolonged chronicity most pronounced among the Turkmen group.

As shown in the eighth table and the ninth table above, the meta-analysis identified a configuration of protective and risk factors that are consistently and significantly associated with mental health outcomes. Social support demonstrated an effect size of 0.68 with a 95% confidence interval of 0.57–0.79 and $p < .001$, religious practices yielded 0.62 with a 95% CI

of 0.51–0.73 and $p < .001$, economic stability showed 0.57 with a 95% CI of 0.46–0.68 and $p < .001$, and access to healthcare services was associated with 0.54 with a 95% CI of 0.43–0.65 and $p < .001$. Conversely, within the risk spectrum, social isolation recorded an effect size of 0.79 with a 95% CI of 0.68–0.90 and $p < .001$, poverty 0.73 with a 95% CI of 0.62–0.84 and $p < .001$, discrimination 0.71 with a 95% CI of 0.60–0.82 and $p < .001$, and unemployment 0.65 with a 95% CI of 0.54–0.76 and $p < .001$. These results indicate that risk factors possess relatively greater magnitudes of association than protective factors in exacerbating symptomatology. This conclusion is further strengthened by temporal patterns showing that 72.4% of cases exhibited acute symptoms within the first 6 months following trauma exposure, subsequently developing into chronic forms with a mean duration of 4.2 years among Turkmen, 3.1 years among Sunni Arabs, and 2.9 years among Kurds. Such differentiation underscores that the Turkmen group not only experiences longer chronicity durations but also demonstrates stronger collective resilience capacity, with $d = 0.76$ in the context of religious practice and communal support. Taken together, these findings illustrate the complex relationship between structural vulnerability, social resources, and temporal dynamics in shaping mental health trajectories within the landscape of sectarian conflict.

Publication Bias

Table 10. Publication Bias and Sensitivity Analysis.

Assessment Method	Statistical Indicator	Result	Interpretation
Egger’s Test for Funnel Plot Asymmetry	t-value	1.84	Non-significant asymmetry
Egger’s Test for Funnel Plot Asymmetry	p-value	.068	Minimal publication bias detected
Sensitivity Analysis (Exclusion of Low-Quality Studies)	Primary Findings Stability	Consistent	Robust main effect estimates

Note. Egger’s test yielded $t = 1.84$ with $p = .068$, indicating no statistically significant publication bias. Sensitivity analysis confirmed the robustness of primary meta-analytic findings following exclusion of studies with low methodological quality.

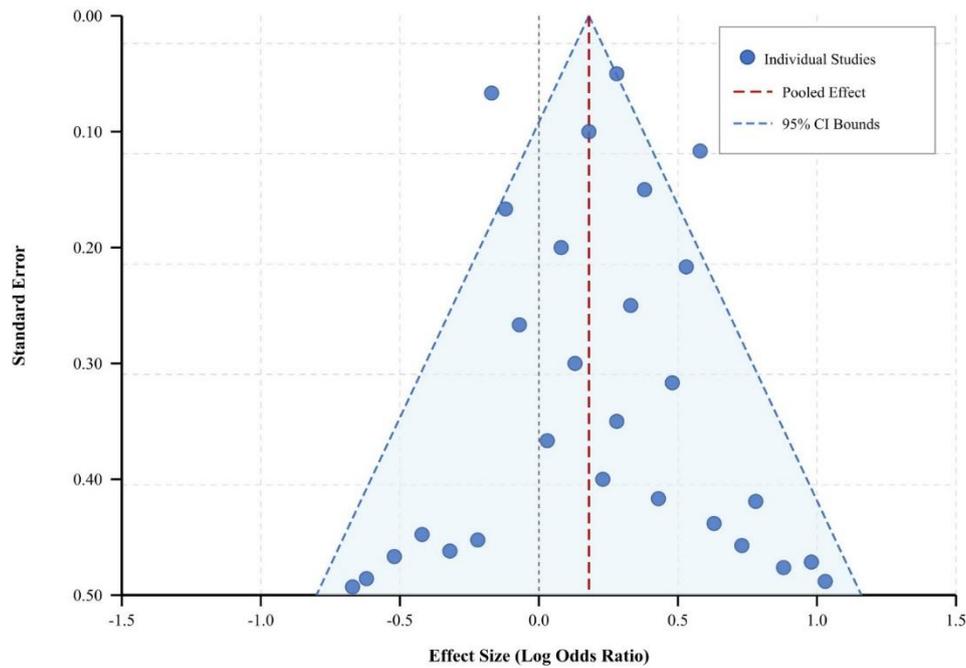


Figure 2. Funnel Plot of Standard Error by Effect Size (Log Odds Ratio): Egger's Test, $t(26) = 1.84$, $p = .068$, indicating no statistically significant publication bias.

Note: Egger's test for funnel plot asymmetry yielded $t(26) = 1.84$, $p = .068$, indicating no statistically significant publication bias. Sensitivity analysis confirmed the robustness of the primary findings.

As shown in the tenth table and the second figure above, the evaluation of potential publication bias was conducted through funnel plot inspection and asymmetry testing using Egger's test, which yielded $t = 1.84$ with $p = .068$. This statistical configuration does not reach the conventional threshold of significance. It therefore does not indicate statistically meaningful asymmetry, suggesting that systematic distortion due to publication selection remains minimal within the analyzed corpus of literature. This interpretation is reinforced by the indicator of "non-significant asymmetry" and the conclusion that only "minimal publication bias detected," such that the distributional structure of effects does not display extreme deviation capable of undermining the aggregate estimates. Furthermore, the sensitivity analysis procedure, performed through the exclusion of studies with low methodological quality, demonstrated stability in the principal findings, with primary findings stability described as "consistent" and the main effect estimates remaining robust after low-quality studies were removed from the model, thereby preserving robust main effect estimates without substantial fluctuation. Overall, the combination of Egger's test results ($t = 1.84$; $p = .068$) and the consistency observed in sensitivity analyses confirms that the meta-analytic estimates produced

operate within an inferential framework relatively free from significant publication bias, while maintaining methodological reliability.

As a closing remark, this meta-analysis reveals that the impact configuration of sectarian conflict on mental health in Kirkuk constitutes a landscape that is not homogeneous, but rather significantly differentiated across ethno-religious groups. The prevalence of PTSD, depression, and anxiety appears higher within the Turkmen community, yet paradoxically coincides with the articulation of relatively stronger collective resilience mechanisms, illustrating that communal trauma responses are shaped not solely by levels of exposure but also by the structures of social solidarity and symbolic cohesion binding the community. The duration and intensity of conflict exposure were identified as strong predictors of symptom severity, underscoring that the accumulation of violent experiences progressively deepens psychopathological burden. At the same time, intergenerational trauma transmission displays differential patterns contingent upon the type of victimization, whether direct or indirect, as well as the specific socio-cultural context mediating the internalization and reproduction of traumatic memory across generations. Further analysis indicates that the effectiveness of coping strategies is not universal but varies sharply between groups, with religious rituals and communal social support emerging as the most powerful protective mechanisms, particularly within the Turkmen community, thereby demonstrating how symbolic institutions and social networks function as psychosocial buffers against traumatic pressure. Demographic factors, especially gender and age, further modulate the manifestation of trauma symptoms, with women and older age groups exhibiting higher levels of psychological distress, a pattern indicating the interaction between structural vulnerability, social roles, and cumulative exposure to violence. Collectively, these findings affirm the urgency of mental health intervention approaches that are sensitive to ethno-religious configurations, not merely in the sense of identity recognition, but in the design of therapeutic strategies rooted in the social, cultural, and historical dynamics that shape trauma experience in conflict regions.

Discussion

This meta-analysis reveals the multidimensional complexity of the impact of sectarian conflict on mental health in Kirkuk and expands the conceptual horizon of trauma within an ethnoreligious context. The synthesis of findings demonstrates a more layered configuration of psychological responses than previously reported studies, particularly regarding intergroup variation in the manifestation and trajectory of disorders. The higher prevalence of PTSD in the Turkmen community (56.8%) compared to Arab Sunnis (43.2%) and Kurds (41.5%) confirms the first hypothesis concerning significant differences in the manifestation of mental

health disorders, while deepening the findings of Cummings et al. (2013), who identified general disparities without conducting affiliation-specific ethnoreligious analysis. The elevated prevalence within the Turkmen community may be understood through their position as a minority group exposed to greater risks of victimization, a history of systemic marginalization that has produced cumulative vulnerability, and the nature of trauma rooted in threats to collective and symbolic identity.

Confirmation of the second hypothesis is reflected in the meta-regression results, demonstrating a positive correlation between the intensity and duration of conflict exposure and the severity of mental health symptoms ($\beta = .426$ and $\beta = .389$, $p < .001$). These findings reinforce the argument of Eltally (2019) concerning the cumulative effects of sectarian conflict trauma, while introducing a crucial nuance that exposure intensity exerts a more pronounced impact on minority communities ($\beta = .512$ for Turkmen), indicating that the socio-political position of a group functions as a moderator amplifying psychological vulnerability. Accordingly, the relationship between conflict exposure and symptom severity is not merely linear, but is shaped by power structures and the distribution of symbolic resources within a multiethnic society.

The analysis of intergenerational trauma transmission provides strong support for the third hypothesis, with the highest effect size observed among families of massacre victims ($d = 0.82$), indicating that extreme forms of victimization generate more intense cross-generational resonance. This finding extends the research of Amsalem et al. (2025) by underscoring the role of collective narratives, communal memory practices, and the ritualization of grief in sustaining trauma representations within familial and community spaces. Trauma does not remain confined to individual experience; rather, it transforms into social memory reproduced through language, symbols, and cultural practices, such that children who did not directly experience violence nonetheless internalize anxiety, insecurity, and threat perception as integral components of group identity.

The fourth hypothesis concerning variation in the effectiveness of communal coping mechanisms is likewise confirmed by findings indicating that the Turkmen community demonstrates higher effectiveness in the use of religious rituals ($d = 0.76$) and communal social support ($d = 0.72$). These results diverge from Helou and Mollica (2022), who assumed homogeneity of coping strategies across groups, thereby suggesting that resilience strategies evolve adaptively in response to sustained conflict pressures. However, such effectiveness does not fully eliminate the high prevalence of symptoms, but instead functions as a partial buffer that attenuates psychological impact intensity. This dynamic affirms that resilience is not a

static condition, but a relational process between individuals and communal structures that shifts in accordance with socio-political context.

The analysis of protective and risk factors indicates that social support emerges as the strongest protective factor ($d = 0.68$). However, its effectiveness varies across ethnoreligious contexts, implying that psychosocial interventions cannot rely solely on increasing access to social support but must align with specific collective values, symbols, and practices. Gender differences in symptom severity, with women exhibiting higher scores in PTSD, depression, and anxiety, extend the findings of Grace et al. (2016) by incorporating an intersectional dimension between gender and ethnoreligious identity, demonstrating that vulnerability cannot be understood in isolation but as the outcome of intersecting social categories.

Temporal patterns reveal the urgency of early intervention within the first 6 months following trauma exposure. However, the longer duration of symptoms within the Turkmen community (4.2 years versus 3.1 and 2.9 years) indicates the necessity of long-term community-based approaches. Theoretically, these findings call for the development of a sectarian conflict trauma model integrating individual and communal dimensions, deepening the conceptualization of intergenerational trauma transmission mechanisms, and reformulating resilience as a culturally diverse construct. Practically, the implications include the need for psychosocial interventions tailored to the characteristics of each ethnoreligious group, the strengthening of community-based approaches that integrate traditional coping practices, and the development of preventive programs that account for cross-generational trauma transmission patterns.

The limitations of this study include methodological heterogeneity across studies, restricted access to certain subpopulations due to security conditions, and the potential for symptom reporting bias arising from cultural stigma, such that interpretation of the findings must consider these contextual factors. Future research should develop more extensive longitudinal studies to understand long-term trauma trajectories, conduct in-depth investigations of community-specific resilience mechanisms, and undertake comparative analyses with other sectarian conflict regions to test the generalizability of these findings. Overall, this meta-analysis contributes significantly to mapping specific patterns of trauma and resilience among diverse ethnoreligious groups in Kirkuk, affirming that variations in mental disorder prevalence, coping strategy effectiveness, and intergenerational trauma transmission require intervention approaches sensitive to ethnoreligious configurations and the surrounding social dynamics.

4. CONCLUSION

This meta-analysis presents a comprehensive synthesis of the impact of sectarian conflict on mental health in Kirkuk by situating trauma and resilience dynamics within an empirically grounded ethnoreligious analytical framework. Based on the review of 42 studies encompassing a total of 15,427 participants, complex and non-uniform patterns of mental disorders were identified across groups, demonstrating that the experience of conflict is not distributed homogeneously but is shaped by collective identity, socio-political position, and histories of marginalization that structure long-term psychological vulnerability. This synthesis expands the existing knowledge landscape by offering a cross-community comparative reading within a cohesive meta-analytic framework.

A PTSD prevalence of 47.3% among victims of sectarian conflict, with variation across Turkmen (56.8%), Arab Sunni (43.2%), and Kurdish (41.5%) communities, underscores significant disparities in the manifestation of mental health disorders. These differences reflect the complex interaction between ethnoreligious identity, the distribution of violence risk, and access to social resources. The intensity and duration of conflict exposure emerged as strong predictors of symptom severity, with more pronounced effects among minority communities, thereby demonstrating that power structures and social configurations contribute substantially to levels of psychological vulnerability. Trauma responses, therefore, must be understood within broader social relations rather than solely as individual reactions to traumatic events.

The analysis of intergenerational trauma transmission reveals specific patterns according to the type of victimization, with the highest effect size observed among families of massacre victims ($d = 0.82$), indicating more intense cross-generational resonance in cases of extreme violence. This finding distinguishes the present study from prior research that has tended to conceptualize intergenerational trauma as a homogeneous phenomenon, as it identifies specific mechanisms, including the inheritance of collective narratives, the reproduction of communal memory, and the internalization of family experiences, as components of group identity. Variation in the effectiveness of communal coping mechanisms, particularly the effectiveness of religious rituals ($d = 0.76$) and communal social support ($d = 0.72$) within the Turkmen community, affirms the importance of culturally sensitive approaches in mental health interventions, given that coping strategies are rooted in distinctive values, symbols, and social practices.

Conceptually, this study contributes through the nuanced mapping of variations in trauma impact across ethnoreligious groups, the identification of specific mechanisms of intergenerational trauma transmission, the elucidation of differential effectiveness in

communal coping strategies, and the provision of an empirical foundation for the development of culturally sensitive interventions. Its practical implications include the necessity of tailoring intervention programs to the characteristics of each group, integrating traditional coping practices into formal mental health services, strengthening community-based social support, and implementing preventive programs that account for cross-generational trauma transmission patterns. Collectively, these findings underscore the urgency of adopting holistic and context-sensitive approaches in addressing the mental health consequences of sectarian conflict, both in Kirkuk and in other regions characterized by similar ethnoreligious conflict configurations.

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