

Article

Prevalence and Predictors of Suicide Ideation, Depression, and Symptoms of Post-Traumatic Stress in Iraqi Adolescents: A Secondary School-Based Cross-Sectional Study

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Abstract

Adolescent mental health difficulties represent a significant public health concern. This study aimed to identify prevalence rates and predictors of suicide ideation, depressive symptoms, and symptoms of post-traumatic stress disorder (PTSD) among Iraqi adolescents. A cross-sectional quantitative survey design was used. A total of 469 adolescents aged 12–20 years ($M = 16.25$) participated across eight high schools in Baghdad. Multiple regression models were used to examine predictors. Mean depressive ($M = 12.99$) and PTSD ($M = 30.98$) symptom scores were in the 'moderate' range, with the majority of participants scoring in the 'moderate' or 'severe' range (73.1% and 75.5%, depressive and PTSD symptoms, respectively). A total of 12.6% of young people scored in the 'high risk' range for suicidal behavior. Females reported higher depressive symptoms and higher PTSD symptoms. Older age was negatively associated with suicide ideation but positively associated with PTSD symptoms. Quality of life emerged as the strongest and most consistent predictor across all models. Hopelessness predicted suicide ideation, while PTSD symptoms predicted depression. In summary, adolescents were experiencing clinically elevated rates of depressive and PTSD symptoms on average. A significant minority were also experiencing suicidal thoughts. Interventions that enhance functioning, reduce hopelessness, and incorporate trauma-informed approaches may be effective targets for prevention and early intervention.

Keywords: adolescent mental health; suicide ideation; quality of life; psychological predictors; PTSD; depression; Iraq

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1. Introduction

Mental health conditions represent a substantial share of the global disease burden among young people [1], with mental health difficulties affecting approximately 10–20% of children and adolescents. In particular, depression, post-traumatic stress disorder (PTSD), and suicide ideation represent key contributors to the overall burden of disease in this population [2]. Most lifetime mental health conditions emerge between the ages of 12 and 24, making this period a crucial point for intervention [3]. Poor mental health during this stage is strongly linked to multiple negative outcomes across the lifecourse, including lower educational attainment, quality of life, substance abuse, and violence [4]. Despite their significant impact on health and development, adolescent mental health needs remain largely unmet, particularly in low- and middle-income countries where service provision is limited. Recent population-based evidence from 82 countries revealed that around 14% of adolescents reported suicide ideation and 9% experienced anxiety symptoms within a 12-month period, with the highest prevalence observed in the African region [5]. These findings underscore the urgent need for early, culturally sensitive interventions to address global disparities in adolescent mental health and prevent long-term effects.

Exposure to traumatic events such as violence, displacement, or conflict is associated with elevated rates of PTSD, depression, and suicide ideation. Evidence from the UK indicates that nearly one-third of adolescents experience at least one traumatic event by age 18, with those meeting criteria for PTSD showing higher rates of self-harm, suicide attempts, and depression [6]. PTSD symptom severity is also associated with poorer health-related quality of life, including social, academic, and physical domains, which may reinforce hopelessness and psychological distress [7,8]. Research in adult populations also shows that adverse childhood experiences (ACEs), including trauma, have lasting effects on mental health and psychosocial functioning, including complex PTSD, highlighting the importance of trauma-informed assessments and interventions for individuals exposed to early-life stress [9].

Specifically in Iraq, prolonged exposure to war and social instability has significantly intensified psychological distress among internally displaced populations, with adolescents especially vulnerable due to repeated trauma, instability, and limited access to mental health care [10,11]. The disruption of social structures, repeated displacement, and traumatic exposure to violence have particularly affected young Iraqis' mental health [12,13], with those residing in camp settings experiencing markedly higher distress than peers in urban or host community accommodations [11]. The mental health of Iraqi adolescents is further shaped by unique sociocultural and environmental challenges, including ongoing conflict, economic hardship, and stigma surrounding psychological disorders, collectively exacerbating vulnerability to depression, anxiety, and PTSD [9–13]. However, the overall evidence base is still sparse, and much of what exists focuses only on vulnerable or internally displaced adult populations.

Key predictors of PTSD, depression, and suicide ideation include demographic factors such as age, sex and socioeconomic background, prior psychological disorders, and post-trauma variables, including perceived life threat, thought suppression, and aspects of the recovery environment [14]. Additional psychological and social determinants include hopelessness, low quality of life, low suicide literacy, and exposure to childhood trauma or ACEs such as abuse, bullying, parental loss, and violence [15–18]. Each additional ACE increases the likelihood of suicide ideation and attempts by 23 to 24 percent, even after accounting for later traumatic exposures [17]. Despite this evidence, most research in Iraq has focused on adults or clinical samples, leaving gaps in understanding the prevalence and predictors of mental health outcomes in adolescents. Thus, population-based studies are needed to gain a clearer picture of the difficulties affecting Iraqi

youth, in order to enable effective identification of at-risk individuals and guide subsequent early intervention and prevention strategies [14].

The Current Study

Given the high prevalence of mental health difficulties among adolescents in conflict-affected settings, and the unique sociocultural challenges in Iraq, there is a critical need for population-based studies to identify the prevalence and predictors of youth mental health difficulties in the wider community. Understanding the impact of childhood trauma, social stressors, and demographic factors is essential for early identification, intervention, and prevention. Building on previous research [13], the present study extends existing findings by including both male and female adolescents and examining PTSD symptoms alongside depression, suicidal ideation, quality of life, hopelessness, and suicide literacy, thereby providing a more comprehensive assessment of adolescent mental health vulnerability. By integrating multiple mental health indicators and demographic characteristics, this study aims to identify factors associated with psychological distress, suicidal ideation, and PTSD symptoms among adolescents in Baghdad. The findings are expected to inform culturally tailored prevention and intervention strategies and provide guidance for policy, clinical practice, and suicide risk reduction in high-trauma environments.

2. Methods

2.1. Study Design

This study employed a cross-sectional quantitative survey design to examine prevalence rates and predictors of suicide ideation, depression, and PTSD among Iraqi secondary school students in Baghdad. All procedures were approved by Imam Ja'afar Al-Sadiq University, College of Arts Ethical Approval Committee Ethical Approval Committee on 4 November 2024 (Ref: 2024-05).

2.2. Participants and Recruitment

Recruitment took place between January and March 2025. Schools were selected using a stratified random sampling procedure. Secondary schools were first stratified geographically into the Karkh and Rusafa sides of Baghdad. Within each geographical stratum, schools were further stratified by sex into male and female schools, resulting in four strata: Karkh-male, Karkh-female, Rusafa-male, and Rusafa-female. Two schools were randomly selected from each stratum, resulting in eight participating schools.

In Iraq, secondary schools comprise two educational stages: the intermediate stage, which includes Grades 1–3 following primary education, and the preparatory stage, which includes Grades 4–6, precedes university education. Secondary schools are single-sex schools, enrolling either male or female students. To ensure representation across the adolescent age range, one class from the intermediate stage and one class from the preparatory stage were selected in each school. Due to practical constraints during data collection, classes could not be randomly selected and were identified in coordination with the school administration.

Recruitment was conducted in two stages. During the first school visit, members of the research team and school staff entered the selected classroom and explained the purpose of the study, its objectives, and the research team responsible for conducting it. Students were then provided with parental/carers information sheets and consent forms, and asked to take them home for consideration and signature (this occurred regardless of age due to the study setting). During a subsequent visit, students whose parents/carers had provided consent and who themselves were willing to participate were invited to move

to a room designated by the school for data collection. To maintain participant privacy, female data collectors were assigned to female schools. Student assent was obtained before questionnaire completion. Participation was voluntary, and students were informed that they could decline participation or withdraw at any point without negative consequences. All students in the selected classes were eligible to participate.

Approximately 30% of initially approached students did not proceed to questionnaire completion because parental consent was not obtained, consent forms were not returned, or the student was absent on the day of data collection. After excluding incomplete questionnaires, a total of 469 adolescents from eight secondary schools in Baghdad were included in the study.

2.3. Measures

Participants provided demographic and psychological data through a structured survey. Demographic information included age, sex, and existing mental health conditions. Sex was coded as male or female. For mental health and neurodivergent conditions, participants were presented with a list of 12 possible diagnoses, and were asked to select anywhere they had received a diagnosis. Participants could select all that applied, and there was also the option to select “unsure/no diagnosis”. This was treated as a categorical variable for the purposes of the analysis.

Depressive symptoms were assessed using the Patient Health Questionnaire–9 [PHQ-9; [19]]. This 9-item measure assesses the frequency of depressive symptoms over the previous two weeks on a four-point scale (0 = Not at all to 3 = Nearly every day). PHQ-9 scores can range from 0 to 27, with higher scores indicating more severe depressive symptoms. Higher scores reflect greater depression severity, and severity classifications were also coded based on pre-existing clinical cut-offs (e.g., minimal, mild, moderate, moderately severe, severe) [19].

Suicide ideation was measured using the Suicide ideation Attributes Scale [SIDAS; [20]]. The SIDAS is a self-report measure designed to screen individuals in the community for presence of suicidal thoughts in the past month and assess the severity of these thoughts. It comprises five items, each assessing an attribute of suicidal thoughts: frequency, controllability, distress, closeness to attempt, and impact on daily functioning. Responses are measured on a 10-point scale. SIDAS scores were calculated using a total score approach (sum of the five items, with Item 2 reverse-scored). SIDAS scores have a possible range of 0 to 50, with higher scores indicating greater suicide ideation. Young people scoring equal to or above 21 are considered to be at high-risk for suicide ideation.

Post-traumatic stress symptoms were assessed with the Child PTSD Symptom Scale [CPSS-5; [21,22]]. CPSS consists of 27 items across five subscales, four mapped to DSM-5 criteria (intrusion, avoidance, changes in cognition and mood, and increased arousal and reactivity) and one focusing on functioning. Items are rated on a five-point scale of frequency and severity from 0 (not at all) to 4 (6 or more times a week/severe). The seven functioning items are rated on yes/no. Scores represent total symptom severity, ranging from 0 to 80, with higher values reflecting more severe post-traumatic stress, and severity classifications were also coded based on pre-existing cut-offs (e.g., minimal, mild, moderate, severe, very severe). A score of 31 or above indicates a probable PTSD diagnosis [21,23].

Quality of life was assessed using the Child Health Utility 9D [CHU9D; [24]], a nine-item measure, with five response levels per item, capturing health-related quality of life across domains such as worry, sadness, tiredness, and daily functioning. CHU9D total scores can range from 9 to 45 (unweighted item sum), with higher scores indicating poorer health-related quality of life.

Knowledge about suicide was assessed using an adapted version of the Literacy of Suicide Scale-short form [LOSS; [25,26]]. This contains 12 statements rated on a “true/false/don’t know” scale. Three items were excluded (items 1, 3, 10) and three items were updated (items 6, 7, 12) for this study as they were either deemed inappropriate for use with a school-aged population by the study team (e.g., references to the link between alcoholism and suicide) or used terminology that was considered stigmatizing/potentially harmful (e.g., “psychotic”). The revised items were changed to “You don’t have to be a professional to help someone who is suicidal”, “Most people who die by suicide are younger than 30”, and “Media coverage of suicide will influence other people to attempt suicide”. The correct response for items 4, 5, 7, 8, and 10 is “false” while items 2, 6, 9, 11, and 12 are correctly answered “true”. The number of correct responses is summed up to provide a total literacy score, where higher scores indicate greater suicide literacy.

Hopelessness was evaluated using the Brief Hopelessness Scale [BHS-Pos; [27]]. This is a two-item positively worded measure of hopelessness. Respondents indicate agreement on a five-point scale from “absolutely agree” (1) to “absolutely disagree” (5) (total range = 2–10), with higher scores indicating higher hopelessness.

2.4. Safeguarding

Safeguarding procedures were established in collaboration with the school prior to data collection to ensure appropriate support for participants. As all survey data, including SIDAS responses, were collected anonymously, individual students could not be identified or followed up in cases of elevated scores. A risk protocol was therefore implemented at the institutional level, whereby students were informed of available support and encouraged to seek help if completing the survey caused distress or raised personal concerns. A qualified school counsellor was on site throughout the study period, and any student who independently disclosed immediate or direct risk to school staff was managed according to the school’s existing safeguarding procedures.

2.5. Material Development

As the measures were originally developed in English, these were translated into Arabic by the research team in Iraq prior to the study beginning. A pilot was conducted to test the translation of the survey on a small group similar to the target population. The survey was then distributed within schools. See Box 1 in Alatrany et al. [13] for more information on the translation process.

2.6. Statistical Analyses

All statistical analyses were conducted in R ((R Core Team26) and RStudio 2024.12.0 “Kousa Dogwood” Release on a Windows platform). The dataset was shared in raw form with the UK team; it was subsequently scored and cleaned to address missing or inconsistent responses before proceeding with analysis.

Continuous variables were examined for normality, and descriptive statistics were calculated for all outcome measures, including suicide ideation, depressive symptoms (PHQ-9), PTSD symptoms (CPSS), quality of life (CHU9D), hopelessness, and suicide literacy. Gender differences in continuous variables were assessed using Welch’s two-sample *t*-tests, and associations between gender and categorical variables (diagnosis) were evaluated using Pearson’s chi-square tests. Effect sizes and 95% confidence intervals were reported for all comparisons.

Three multiple linear regression models were estimated to examine predictors of mental health outcomes. Model 1 predicted suicide ideation (SIDAS), Model 2 predicted depressive symptoms (PHQ-9), and Model 3 predicted PTSD symptoms (CPSS). Predictors included age, sex, self-reported mental health condition, hopelessness, quality of life,

suicide literacy, and, where appropriate, comorbid symptoms (e.g., PHQ-9 and SIDAS in the PTSD model). Regression assumptions were assessed via Shapiro–Wilk tests for normality and Studentized Breusch–Pagan tests for heteroscedasticity. Standardized (β) and unstandardized (B) coefficients, p -values, and overall model fit indices (R^2 , adjusted R^2 , F-statistics) were reported. Models with significant heteroscedasticity were interpreted cautiously, and robust standard errors were used. Tukey post-hoc analyses examined symptom severity across gender and diagnostic groups. We did not conduct Bonferroni corrections for multiple comparisons based on recommendations from Armstrong [28] and Rothman [29] that corrections for multiple comparisons in exploratory studies are not required, due to the increased likelihood of Type 2 errors. Effect sizes and confidence intervals are therefore presented to aid interpretation. Significance was set at $\alpha = 0.05$, two-tailed.

3. Results

3.1. Demographic Characteristics

The sample consisted of 469 adolescents, with a mean age of 16.25 years (range: 12–20). While most participants were aged 18 or under, a small minority ($n = 45$) were aged 19–20 if they had repeated Grades in school. The sample included 200 females (42.6%) and 269 males (57.4%). Regarding diagnostic categories (Table 1), 21.75% of participants were diagnosed with depression, while 31.34% were unsure of their diagnosis. Other diagnoses included anxiety (14.29%), OCD (5.54%), anorexia nervosa (4.26%), psychotic disorders (3.41%), PTSD (3.41%), autism spectrum disorder (3.41%), personality disorders (3.41%), ADHD (3.20%), bipolar disorder (3.20%), and substance use disorder (2.77%). Please note, participants could select multiple diagnostic categories.

Table 1. Number and percentage of participants reporting a mental health/neurodivergent condition.

Diagnosis Categories	<i>n</i>	%
Depression	102	21.75
Unsure/no diagnosis	147	31.34
Bipolar Disorder	15	3.20
Psychotic Disorder	16	3.41
Anorexia Nervosa	20	4.26
PTSD	16	3.41
Anxiety	67	14.29
Any Personality Disorder	16	3.41
ADHD	15	3.20
Autism	16	3.41
OCD	26	5.54
Substance Use Disorder	13	2.77

Regarding psychological measures (Table 2), PHQ scores ranged from 3 to 27, with a mean of 12.99 ($SD \approx 5$), indicating moderate depressive symptoms in the sample on average. In terms of severity, the majority (73.1%) were experiencing clinically significant symptoms, with 160 participants (34.1%) falling in the moderate range, 138 (29.4%) in the moderately severe range, and 45 (9.6%) in the severe range. Conversely, 104 (22.2%) participants were in the mild range, and 22 (4.7%) reported none or minimal symptoms. The mean PTSD score was 30.98 ($SD = 15$), corresponding to symptoms on the boundary of a probable PTSD diagnosis (score of 31 or above). A total of 51.8% ($n = 243$; 95% CI [47.3%, 56.3%]) of participants scored above the boundary for a probable PTSD diagnosis.

Symptom severity categorization showed the majority (75.5%) were experiencing moderate to severe levels of symptoms, with 233 participants (49.7%) in the moderate range, 107 (22.8%) in the severe range, and 14 (3.0%) in the very severe range. Conversely, 71 (15.1%) scored in the mild range, and 44 (9.4%) in the minimal range. Overall, 12.6% of young people ($n = 59$) scored at or above the SIDAS at-risk threshold (≥ 21 ; 95% CI [9.6%, 15.6%]). Table 3 shows the inter-correlations for all measures.

Table 2. Mean scores, standard deviation (SD), and ranges for psychological measures.

Psychological Measures	Mean (SD)	Possible Range	Observed Range
Depression (PHQ-9)	12.99 (5.1)	0–27	3–27
Suicide Ideation (SIDAS)	9.90 (9)	0–50	0–40
PTSD Symptoms (CPSS-PTSD)	30.98 (15)	0–80	0–80
Quality of Life (CHU9D)	20.49 (7.2)	9–45	9–43
Suicide Literacy (LOSS)	4.67 (1.7)	0–9	0–9
Hopelessness (BHS-Pos)	3.74 (2)	2–10	2–10

Table 3. Inter-correlations for psychological measures.

Variable	1	2	3	4	5	6
1. PHQ-9	—					
2. SIDAS	0.280 **	—				
3. CHU9D	0.414 **	0.334 **	—			
4. LOSS	0.108 *	−0.122 **	−0.105 *	—		
5. CPSS	0.327 **	0.237 **	0.493 **	−0.113 *	—	
6. Hop_Pos	0.111 *	0.238 **	0.234 **	0.049	0.114 *	—

* $p < 0.05$; ** $p < 0.01$.

3.2. Gender Differences

Welch's t -tests indicated that females reported higher depressive symptoms ($t = 3.75$, $p < 0.001$, $d = 0.35$) and higher PTSD symptoms ($t = 2.56$, $p = 0.011$, $d = 0.24$) than males. There were no significant gender differences in suicide ideation ($t = 0.49$, $p = 0.63$), hopelessness ($t = 0.66$, $p = 0.51$), or quality of life ($t = 1.70$, $p = 0.089$). Males scored higher on suicide literacy than females ($t = -3.84$, $p < 0.001$).

Pearson's chi-square test revealed a significant association between gender and type of mental health disorder ($\chi^2(11) = 20.53$, $p = 0.039$, Cramer's $V = 0.21$). Standardized residuals indicated that depression was more common among females, while males were more likely to report being "unsure" of their diagnosis. Other disorders (e.g., anxiety, ADHD, OCD) did not show significant gender differences.

3.3. Disorder-Based Analyses

A one-way ANOVA indicated significant differences in PTSD symptom severity across diagnostic groups, $F(11, 457) = 2.88$, $p = 0.001$. Post-hoc Tukey comparisons showed that adolescents with personality disorders reported higher PTSD symptoms than those who were unsure of their diagnosis ($p = 0.023$). No other pairwise differences reached statistical significance.

3.4. Predictors of Suicide Ideation, Depression, and PTSD Symptoms

Model 1 examined predictors of suicidal ideation. The overall model was statistically significant, $F(17, 451) = 6.46$, $p < 0.001$, explaining approximately 19.6% of the variance in SIDAS scores (adjusted $R^2 = 0.17$). Higher hopelessness ($B = 0.68$, $\beta = 0.16$, $p < 0.001$) and lower quality of life ($B = 0.28$, $\beta = 0.23$, $p < 0.001$) were significant predictors of higher

suicidal ideation. Younger age was also associated with higher suicidal ideation ($B = -0.45$, $\beta = -0.10$, $p = 0.023$). Sex, suicide literacy, PTSD symptoms, and self-reported mental health disorder categories were not significant predictors ($p > 0.05$).

Diagnostic tests indicated violations of model assumptions. Residuals deviated from normality (Shapiro–Wilk $W = 0.96$, $p < 0.001$), and evidence of heteroscedasticity was observed (Breusch–Pagan $BP = 56.60$, $p < 0.001$), suggesting that the estimated standard errors should be interpreted with caution.

Model 2 examined predictors of depressive symptoms. The model explained 25% of variance (adjusted $R^2 = 0.222$), $F(17, 451) = 8.87$, $p < 0.001$. Significant predictors were female sex ($B = 1.11$, $\beta = 0.11$, $p = 0.012$), self-reported anxiety disorder ($B = 2.41$, $\beta = 0.17$, $p = 0.037$), being unsure of diagnosis ($B = 2.60$, $\beta = 0.24$, $p = 0.017$), poorer quality of life (CHU9D; $B = 0.23$, $\beta = 0.32$, $p < 0.001$), and higher PTSD symptoms (CPSS; $B = 0.036$, $\beta = 0.11$, $p = 0.030$). Age, ADHD, depression, and hopelessness were not significant predictors. Residuals were approximately homoscedastic ($BP = 19.62$, $p = 0.29$), although slightly non-normal (Shapiro–Wilk $W = 0.988$, $p < 0.0001$).

Model 3 examined predictors of PTSD symptoms. The model explained 31% of variance (adjusted $R^2 = 0.282$), $F(18, 450) = 11.22$, $p < 0.001$. Significant predictors included older age ($B = 1.09$, $\beta = 0.14$, $p < 0.001$), lower quality of life ($B = 0.83$, $\beta = 0.40$, $p < 0.001$), and increased suicide ideation ($B = 0.13$, $\beta = 0.09$, $p = 0.050$). Depression, hopelessness, and suicide literacy were not significant predictors. Most self-reported disorder categories did not significantly predict PTSD symptoms after accounting for age, quality of life, and suicide ideation.

4. Discussion

This study examined the prevalence and predictors of suicide ideation, depressive symptoms, and PTSD severity among adolescents in Baghdad, considering demographic variables, mental health diagnoses, psychological factors, and quality of life. Findings indicated that the majority of adolescents in the sample were experiencing clinically significant levels of difficulties, with three-quarters scoring in the ‘moderate’ or ‘severe’ range for both depressive and PTSD symptoms. A total of 12% of young people also scored in the at-risk range for suicide ideation. One-fifth reported a diagnosis of depression, 14.3% reported a diagnosis of anxiety, and 3.4% reported a PTSD diagnosis.

Across all three models, quality of life consistently emerged as the strongest and most robust predictor of mental health outcomes, highlighting the critical role of overall functioning and wellbeing in adolescents, a pattern that has been widely documented in youth mental health research [24,30]. Hopelessness was a significant predictor of suicide ideation but did not independently predict depressive symptoms or PTSD severity, suggesting its specific relevance to suicidal risk. This finding aligns with cognitive and interpersonal models of suicide, which conceptualise hopelessness as a proximal driver of suicide ideation through negative future expectancies [13,27]. In addition, although PTSD symptoms were associated with depressive symptoms, they did not independently predict suicidal ideation when other psychological factors were included in the model.

Age and sex showed outcome-specific associations that are consistent with developmental and gender-based differences reported in previous research. Younger adolescents reported higher suicidal ideation, whereas older adolescents exhibited higher PTSD symptom severity. This pattern may suggest that the manifestation of psychological risk differs across stages of adolescence [14,31]. However, the cross-sectional design precludes conclusions regarding developmental progression or cumulative trauma exposure. Consequently, the higher PTSD symptoms observed among older adolescents should be interpreted as age-group differences rather than evidence of age-related increases in symptom burden. Longitudinal research is needed to determine whether PTSD symptoms

change over time or reflect differences in trauma exposure across age groups. Recent research has shown that suicidal ideation tends to peak during adolescence and decline into young adulthood [32]; however, less is known about how PTSD symptoms may co-occur with or diverge from these developmental patterns.

Males demonstrated higher suicide literacy, whereas females reported higher depressive and PTSD symptoms, reflecting documented sex differences in symptom expression, help-seeking, and trauma responses during adolescence [5,31]. Furthermore, while the diagnostic categories were not significantly associated with suicidal ideation in the multivariable models, several diagnostic groups were small, limiting statistical power to detect associations. Therefore, these findings should not be interpreted as indicating that diagnostic information is less important than symptom severity or quality-of-life measures. Rather, the present results suggest that quality of life and hopelessness showed significant associations with suicidal ideation within this sample. Nevertheless, adolescents with personality disorders reported elevated PTSD symptoms, consistent with research linking personality disorders to heightened trauma sensitivity and emotional dysregulation [10]. Overall, these findings underscore the complexity of adolescent mental health in Baghdad.

4.1. Clinical Implications and Recommendations

Interventions for adolescent mental health in Baghdad need to prioritise enhancing quality of life by supporting social, academic, and family functioning, which may buffer against depression, PTSD, and suicide ideation [5]. Efforts to reduce hopelessness through early cognitive-behavioural strategies focused on hope and problem-solving could further mitigate suicide risk [2]. Screening and intervention approaches should be sensitive to gender and age differences, recognising that males and females may present differently and younger adolescents may be at higher risk for suicide ideation [13]. Improving diagnostic awareness through psychoeducation and accessible assessment may increase engagement and adherence to treatment, particularly for adolescents uncertain about their mental health status. Trauma-informed care should be integrated for those presenting with depression or suicidality, given the observed comorbidity with PTSD symptoms. Finally, a multifactorial approach is recommended, considering the modest variance explained by individual predictors, to address the complex interplay of psychosocial, environmental, and psychological factors influencing adolescent mental health [4].

4.2. Limitations and Future Directions

Some limitations should be considered when interpreting these findings. First, the study relied on self-reported measures, which may be subject to reporting biases, particularly regarding sensitive topics such as suicide ideation and mental health diagnoses. Furthermore, mental health diagnostic criteria tend to originate in the West and are based on the English language, and so may not be transferable here. The cross-sectional design precludes causal inferences, limiting conclusions about the directionality of associations between predictors and mental health outcomes. All participants were also from Baghdad; experiences for participants living in rural areas may be different. Sample sizes for some diagnostic subgroups were small, which may have contributed to counterintuitive findings. Additionally, residuals in the suicide ideation model were non-normal and heteroscedastic, suggesting that standard errors for some predictors may be biased.

Although schools were selected using stratified random sampling, classes within schools could not be randomly selected because of practical constraints during data collection. In addition, exact numbers of students approached, parental consent forms returned, and students not participating were not systematically recorded. Consequently, a precise participation or response rate could not be calculated. Factors such as selection

and non-response bias may have been issues and should be considered when interpreting the generalisability of the findings. Finally, the study only included a relatively small number of schools with students from a limited number of classes. School- and class-level data were not collected, and so potential clustering could not be accounted for in analyses. This means there is some uncertainty around the results, and any group comparisons are exploratory.

Future research should consider longitudinal designs to examine temporal and causal relationships between quality of life, hopelessness, trauma, and mental health outcomes. Larger, more balanced samples across diagnostic categories would improve the reliability of subgroup comparisons. Integrating objective measures of mental health and functioning, alongside self-report, could reduce potential bias. Research could also explore mechanistic pathways, such as how quality of life mediates the effects of trauma and hopelessness on depression and suicide ideation, to inform targeted interventions. Finally, examining the impact of socioeconomic, cultural, and family factors may provide a more comprehensive understanding of adolescent mental health risk and resilience.

5. Conclusions

This study highlights the central importance of quality of life, psychological risk factors, and trauma-related symptoms in shaping suicide ideation, depression, and PTSD among adolescents in Baghdad, Iraq. These findings point toward the value of interventions that prioritize overall wellbeing, strengthen coping and hope, and integrate trauma-informed care across services. Addressing diagnostic uncertainty through psychoeducation and accessible assessment may also support earlier engagement and treatment effectiveness. Overall, the study highlights the complex interplay of psychosocial factors in adolescent mental health and suggests that prevention and early intervention efforts should adopt a holistic, multi-dimensional framework focused on functioning, trauma, and psychological risk, in addition to diagnostic labels in isolation.

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Institutional Review Board Statement: Ethical approval for this study was obtained from the relevant Human Research Ethics Committee on 4th November 2024 (Ref: 2024-05). All procedures performed in studies involving human participants were conducted in accordance with the ethical standards of the approving research ethics committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed Consent Statement: For participants under the age of 18 years, written parental consent and participant assent were obtained prior to participation.

Data Availability Statement: The data supporting the findings of this study are available from the first author upon request.

Conflicts of Interest: The authors confirm that there are no conflicts of interest or significant financial support that could have influenced this work. All authors have read and approved the manuscript, and no eligible contributors have been omitted. The order of authorship has been mutually agreed upon.

References

1. World Health Organization. World Mental Health Today and Mental Health Atlas 2024. WHO. 2025. Available online: <https://www.who.int/news/item/02-09-2025-who-releases-new-reports-and-estimates-highlighting-urgent-gaps-in-mental-health> (accessed on 3 March 2025).
2. Kieling, C.; Baker-Henningham, H.; Belfer, M.; Conti, G.; Ertem, I.; Omigbodun, O.; Rohde, L.A.; Srinath, S.; Ulkuer, N.; Rahman, A. Child and adolescent mental health worldwide: Evidence for action. *Lancet* **2011**, *378*, 1515–1525. [https://doi.org/10.1016/S0140-6736\(11\)60827-1](https://doi.org/10.1016/S0140-6736(11)60827-1).
3. Kessler, R.C.; Barker, P.R.; Colpe, L.J.; Epstein, J.F.; Gfroerer, J.C.; Hiripi, E.; Howes, M.J.; Normand, S.-L.T.; Manderscheid, R.W.; Walters, E.E.; et al. Screening for serious mental illness in the general population. *Arch. Gen. Psychiatry* **2003**, *60*, 184–189.
4. Patel, V.; Flisher, A.J.; Hetrick, S.; McGorry, P. Mental health of young people: A global public-health challenge. *Lancet* **2007**, *369*, 1302–1313. [https://doi.org/10.1016/S0140-6736\(07\)60368-7](https://doi.org/10.1016/S0140-6736(07)60368-7).
5. Biswas, T.; Scott, J.G.; Munir, K.; Renzaho, A.M.N.; Rawal, L.B.; Baxter, J.; Mamun, A.A. Global variation in the prevalence of suicide ideation, anxiety and their correlates among adolescents: A population based study of 82 countries. *eClinicalMedicine* **2020**, *24*, 100395. <https://doi.org/10.1016/j.eclinm.2020.100395>.
6. Lewis, S.J.; Arseneault, L.; Caspi, A.; Fisher, H.L.; Matthews, T.; Moffitt, T.E.; Odgers, C.L.; Stahl, D.; Teng, J.Y.; Danese, A. The epidemiology of trauma and post-traumatic stress disorder in a representative cohort of young people in England and Wales. *Lancet Psychiatry* **2019**, *6*, 247–256. [https://doi.org/10.1016/S2215-0366\(19\)30031-8](https://doi.org/10.1016/S2215-0366(19)30031-8).
7. Dams, J.; Rimane, E.; Steil, R.; Renneberg, B.; Rosner, R.; König, H.-H. Health-related quality of life and costs of posttraumatic stress disorder in adolescents and young adults in Germany. *Front. Psychiatry* **2020**, *11*, 697. <https://doi.org/10.3389/fpsy.2020.00697>.
8. Miller, C.R.; McDonald, J.E.; Grau, P.P.; Wetterneck, C.T. Quality of Life in Posttraumatic Stress Disorder: The Role of Posttraumatic Anhedonia and Depressive Symptoms in a Treatment-Seeking Community Sample. *Trauma Care* **2024**, *4*, 87–97. <https://doi.org/10.3390/traumacare4010008>. Correction in *Trauma Care* **2024**, *4*, 198–199. <https://doi.org/10.3390/traumacare4030016>.
9. Turgoose, D.; Murphy, D. Associations between adverse childhood experiences (ACEs) and Complex-PTSD, moral injury and perceived social support: A latent class analysis. *Eur. J. Trauma Dissociation* **2024**, *8*, 100463. <https://doi.org/10.1016/j.ejtd.2024.100463>.
10. Ahmed, D.R.; Mesbah, S.M.; Al Azzawi, M.A.D.; Heun, R. Trauma and mental health problems among Iraqi IDPs following the 2014 ISIS Invasion: A systematic review. *Med. Confl. Surviv.* **2024**, *40*, 366–387. <https://doi.org/10.1080/13623699.2024.2411651>.
11. Pham, P.N.; Fozouni, L.; Al-Saiedi, A.; Hassan, H.; Abass, A.; Karim, R.; Younis, S. Association between distress and displacement settings: A cross-sectional survey among displaced Yazidis in northern Iraq. *BMC Public Health* **2021**, *21*, 679. <https://doi.org/10.1186/s12889-021-10734-8>.
12. Al Juboori, R. Violence and child mental health outcomes in Iraq: Mapping vulnerable areas. *Psychiatry Int.* **2024**, *5*, 39–52. <https://doi.org/10.3390/psychiatryint5010004>.
13. Alatrany, S.S.; McCarthy, M.; Flaiyah, A.M.; Ashworth, E.; ALdrraji, H.A.S.; Alatrany, A.S.; Al-Jumeily, D.; Nadeem, S.; Robinson, J.; Saini, P. Rates of suicide ideation and associated risk factors among female secondary school students in Iraq. *Healthcare* **2025**, *13*, 1260. <https://doi.org/10.3390/healthcare13111260>.
14. Trickey, D.; Siddaway, A.P.; Meiser-Stedman, R.; Serpell, L.; Field, A.P. A meta-analysis of risk factors for post-traumatic stress disorder in children and adolescents. *Clin. Psychol. Rev.* **2012**, *32*, 122–138. <https://doi.org/10.1016/j.cpr.2011.12.001>.
15. Baldini, V.; Di Stefano, R.; Rindi, L.V.; Ahmed, A.O.; Koola, M.M.; Solmi, M.; Papola, D.; De Ronchi, D.; Barbui, C.; Ostuzzi, G. Association between adverse childhood experiences and suicidal behavior in schizophrenia spectrum disorders: A systematic review and meta-analysis. *Psychiatry Res.* **2023**, *329*, 115488. <https://doi.org/10.1016/j.psychres.2023.115488>.
16. Blair, D.-L.; Kingsbury, M.; Eccles, H.; Akther, A.; Siddiqi, S.; Condran, G.; Obeegadoo, I.; Murray, J.; Geoffroy, M.-C.; Menezes, A.M.B.; et al. Adverse childhood experiences and suicidality in low-income and middle-income countries: A systematic review and meta-analysis. *BMJ Glob. Health* **2025**, *10*, e018129. <https://doi.org/10.1136/bmjgh-2024-018129>.

17. Carroll, T.D.; Currier, J.M.; McCormick, W.H.; Drescher, K.D. Adverse childhood experiences and risk for suicidal behavior in male Iraq and Afghanistan veterans seeking PTSD treatment. *Psychol. Trauma* **2017**, *9*, 583–586. <https://doi.org/10.1037/tra0000250>.
18. De Bellis, M.D.; Zisk, A. The biological effects of childhood trauma. *Child Adolesc. Psychiatr. Clin. N. Am.* **2014**, *23*, 185–222. <https://doi.org/10.1016/j.chc.2014.01.002>.
19. Kroenke, K.; Spitzer, R.L.; Williams, J.B. The PHQ-9: Validity of a brief depression severity measure. *J. Gen. Intern Med.* **2001**, *16*, 606–613. <https://doi.org/10.1046/j.1525-1497.2001.016009606.x>.
20. van Spijker, B.A.J.; Batterham, P.J.; Caelear, A.L.; Farrer, L.; Christensen, H.; Reynolds, J.; Kerkhof, A.J.F.M. The Suicide ideation Attributes Scale (SIDAS): Community-based validation study of a new scale for the measurement of suicide ideation. *Suicide Life Threat. Behav.* **2014**, *44*, 408–419. <https://doi.org/10.1111/sltb.12084>.
21. Foa, E.B.; Johnson, K.M.; Feeny, N.C.; Treadwell, K.R.H. The Child PTSD Symptom Scale: A preliminary examination of its psychometric properties. *J. Clin. Child Adolesc. Psychol.* **2001**, *30*, 376–384. https://doi.org/10.1207/S15374424JCCP3003_9.
22. Foa, E.B.; Asnaani, A.; Zang, Y.; Capaldi, S. Psychometrics of the Child PTSD Symptom Scale for DSM-5 for Trauma-Exposed Children and Adolescents. *J. Clin. Child Adolesc. Psychol.* **2017**, *47*, 38–46.
23. ISTSS. Child PTSD Symptom Scale for DSM-5. 2026. Available online: <https://istss.org/clinical-resources/child-adolescent-trauma-assessments/child-and-adolescent-trauma-screen/child-ptsd-symptom-scale-for-dsm-5/> (accessed on 16 October 2026).
24. Stevens, K. Valuation of the Child Health Utility 9D Index. *Pharmacoeconomics* **2012**, *30*, 729–747. <https://doi.org/10.2165/11599120-000000000-00000>.
25. Batterham, P.J.; Caelear, A.L.; Christensen, H. Correlates of suicide stigma and suicide literacy in the community. *Suicide Life Threat. Behav.* **2013**, *43*, 406–417. <https://doi.org/10.1111/sltb.12026>.
26. Batterham, P.J.; Han, J.; Caelear, A.L.; Anderson, J.; Christensen, H. Suicide stigma and suicide literacy in a clinical sample. *Suicide Life Threat. Behav.* **2018**, *48*, 452–463. <https://doi.org/10.1111/sltb.12496>.
27. Fraser, L.; Burnell, M.; Currin Salter, L.; Fourkala, E.-O.; Kalsi, J.; Ryan, A.; Gessler, S.; Gidron, Y.; Steptoe, A.; Menon, U. Identifying hopelessness in population research: A validation study of two brief measures of hopelessness. *BMJ Open* **2014**, *4*, e005093. <https://doi.org/10.1136/bmjopen-2014-005093>.
28. Armstrong, R.A. When to use the Bonferroni correction. *Ophthalmic Physiol. Opt.* **2014**, *34*, 502–508.
29. Rothman, K.J. No adjustments are needed for multiple comparisons. *Epidemiology* **1990**, *1*, 43–46.
30. Kiss, E.; de Oliveira, O.R.; Wittmann, E.; Herczegh, Z.; Kapornai, K. The effect of psychological and behavioral problems on the quality of life of children and adolescents based on self-reports and proxy reports. *Health Qual. Life Outcomes* **2024**, *22*, 84. <https://doi.org/10.1186/s12955-024-02299-y>.
31. Sisk, L.M.; Gee, D.G. Stress and adolescence: Vulnerability and opportunity during a sensitive window of development. *Curr. Opin. Psychol.* **2022**, *44*, 286–292. <https://doi.org/10.1016/j.copsyc.2021.10.005>.
32. Chen, Y. Understanding suicidal ideation trajectories from adolescence to young adulthood: Influencing factors and latent growth patterns. *Res. Child Adolesc. Psychopathol.* **2025**, *53*, 1687–1698. <https://doi.org/10.1007/s10802-025-01372-4>.

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