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The Prevalence of Post-Traumatic Stress Disorder among Inpatients Receiving Substance Detoxification in Baghdad, Iraq: A Two-Center Cross-Sectional Study

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Abstract: Background: Posttraumatic stress disorder (PTSD) and substance use disorders (SUDs) are often chronic and relapsing conditions. They frequently co-occur, and there are clear neurobiological connections. This is associated with a more complex and costly clinical course when compared with either disorder alone, so identification and treatment of both illnesses in individuals with comorbidity is essential to optimize clinical care. This is of increased importance since people in Iraq have experienced a continuing traumatic history during the last six decades. Methods: A descriptive cross-sectional study was conducted among 100 inpatients in two centres admitted for detoxification from different substance use disorders. Convenience sampling was used, and data collection took place from March 2023 to November 2023. The questionnaire included demographic data, the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), and the Arabic PTSD Checklist for DSM-5 (PCL-5). The PCL-5 was used to obtain a provisional PTSD diagnosis and assess overall and symptom-cluster severity. Statistical analysis was performed using IBM SPSS, with $p<0.05$ considered statistically significant. Results: A total of 100 inpatients were included in the study, with a mean age of 31.28 ± 8.79 years; 93% were male. Amphetamine-type stimulants and alcohol were the most common substances prompting admission (55% and 30%, respectively). Sixty-five percent had a provisional PTSD diagnosis (95% CI 55.3–73.6), and approximately 86% of these had high symptom severity. Overall PTSD symptom severity was high among 62 patients and low among 38 patients. Avoidance symptoms (cluster C) were severe among 43 patients, followed by negative alterations in cognition and mood (cluster D) among 32, re-experiencing symptoms (cluster B) among 23, and hyperarousal (cluster E) among 21. PTSD symptom severity was significantly associated with divorced marital status ($p=0.014$) and high alcohol-related ASSIST risk ($p=0.03$). PTSD was also significantly associated with divorced marital status ($p=0.048$) and high alcohol-related ASSIST risk ($p=0.006$). Conclusions: The prevalence of PTSD in inpatients with SUDs was high. There was a significant association between PTSD, high symptom severity, and divorced marital status. High alcohol-related ASSIST risk was significantly associated with PTSD and high symptom severity.

Keywords: Post-traumatic stress disorder; substance use disorder; detoxification; alcohol; amphetamine-type stimulants; Iraq.

INTRODUCTION

PTSD and substance use disorders (SUDs) are often chronic and relapsing conditions. They frequently co-occur. Among individuals seeking treatment for SUDs, about 30% to 50% meet criteria for lifetime PTSD. Several theories have been posited to explain the functional relationship between these disorders, and there are clear neurobiological connections. Research has revealed a more complicated clinical course and worse treatment outcomes in people with PTSD and SUDs, compared with persons with either disorder alone [Back, S. E. *et al*., 2024; Hien, D. A. *et al*., 2024; Hien, D. A. *et al*., 2023].

Individuals with this comorbidity demonstrate more severe symptoms of both disorders, a greater risk of suicidal ideation and past suicide attempts, and more comorbid disorders than those with only one disorder. This is associated with a more complex and costly clinical course, so identification and treatment of both illnesses are essential to optimize clinical care [Back, S. E. *et al*., 2024; Hien, D. A. *et al*., 2024; Hien, D. A. *et al*., 2023]. This is of increased importance in Iraq, where repeated conflict and social disruption have occurred over several decades [Charlson, F. *et al*., 2019].

Estimates of the prevalence of PTSD depend on both sample characteristics and study methods. Sample characteristics include the population being studied, whether individuals were treatment-seeking or not, and the type and amount of trauma exposure. Studies in inpatient substance-use treatment settings have reported different rates of PTSD symptoms and provisional diagnosis [Gielen, N. *et al*., 2012; Proescholdt, M. G. *et al*., 2018; Ten Holt, J. *et al*., 2022]. Drug and alcohol use in Iraq has also changed over time, especially as amphetamines have become a significant concern [Al-Hemiery, N. *et al*., 2017; Al-Hemiary, N. J. *et al*., 2014; Al-Ka'aby, H. *et al*., 2025].

This study aimed to find out the prevalence of PTSD among inpatients admitted for substance use disorders in Baghdad, and to assess the association

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between the clinical and sociodemographic characteristics of these inpatients and the presence and severity of PTSD symptoms.

METHODS

Study Design and Setting

A descriptive cross-sectional study was conducted in two centres: the substance use disorders ward at Ibn Rushud Training Hospital and Al-Qanat Center for Social Rehabilitation, which is part of the Medical City Directorate. Both centres are in Baghdad, Iraq. Data collection took place from March 2023 to November 2023. Reporting was structured with reference to the STROBE statement [20].

Participants and Recruitment

A total of 100 inpatients who were admitted for detoxification from different substances were included at different times during their admission. Convenience sampling was used. Inclusion criteria were those who were 18 years or older, admitted for detoxification of one or more substances, and free of severe cognitive impairment. Severe cognitive impairment was assessed by a senior psychiatrist before admission and checked through the medical record.

Data were collected through direct interviews with inpatients using a structured questionnaire. The sample represented the number recruited during the study period. Data collection was conducted over nine months, at a rate of approximately once per week. In each centre, patients underwent a psychiatric interview and examination as part of routine clinical assessment, with investigations, including toxicology testing, when clinically indicated.

Measures

Demographic data: The questionnaire included age, sex, marital status, occupation, education, residency/province, and the number of admissions for detoxification. The main substances that led to the current admission were also recorded.

Alcohol, Smoking and Substance Involvement Screening Test (ASSIST): This test was developed under the guidance of the World Health Organization to screen for psychoactive substance use and associated problems [Humeniuk, R. *et al*., 2010]. The ASSIST (version 3.1) is an eight-item questionnaire administered by a healthcare professional. It determines a risk score for each substance, which falls into a low, moderate, or high-risk category. Scoring is done by adding the scores of questions 2 to 7. Regarding alcohol assessment, scores of 0–10 indicate low risk, 11–26 for moderate risk, and 27 or higher indicate high risk. For other substances, scores of 0–3 indicate low risk, 4–26 denote moderate risk, and 27 or higher signify high risk. In this study, pregabalin was included under the 'other drugs' category. These categories reflect substance-related risk and are not diagnostic grades of dependence.

Provisional PTSD: The Arabic PCL-5 is a self-report measure that consists of 20 items that were derived from the DSM-5, where it assesses PTSD symptoms during the previous month [Weathers, F. W. *et al*., 2013; Ibrahim, H. *et al*., 2018]. Every item is scored from 0 (not at all) to 4 (extremely), yielding a total score from 0 up to 80. Criterion A exposure was assessed in a clinical interview according to DSM-5 criteria [American Psychiatric Association, 2022]. For the primary outcome, items rated 2 or higher were treated as endorsed. A provisional PTSD diagnosis required the following: at least one intrusion symptom, one symptom related to avoidance, two symptoms for negative alterations in cognition or mood, and two symptoms indicating hyperarousal/reactivity. Because the PCL-5 is a screening instrument and the full DSM-5 criteria were not established using a structured diagnostic interview, this outcome is termed provisional PTSD rather than diagnosed PTSD.

Overall PTSD symptom severity was estimated using the total score of the PCL-5 (sum of 20 items, each scored 0–4; possible range from 0 to 80). A study-defined cutoff of 40 divided scores into low severity (0–39) and high severity (40–80). Symptom-cluster severity was assessed separately for intrusion (criteria B, items 1 to 5), avoidance (criteria C, items 6 to 7), negative alterations in cognition and mood (criteria D, items 8 to 14), and arousal/reactivity (criteria E, items 15 to 20). For each cluster, the sum of item scores was divided by the number of items, and the mean was rounded to the nearest whole number. Rounded scores were classified as none (0), mild (1), moderate (2), and severe (3 or 4). These are study-defined descriptive categories rather than validated PCL-5 severity thresholds.

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Study-Defined Severity Scoring Schedule

Measure	Calculation	Classification
Overall PCL-5 severity	Sum of 20 items (0–80)	Low 0–39; high 40–80
Cluster B: intrusion	Mean of items 1–5, rounded	0 none; 1 mild; 2 moderate; 3–4 severe
Cluster C: avoidance	Mean of items 6–7, rounded	0 none; 1 mild; 2 moderate; 3–4 severe
Cluster D: cognition/mood	Mean of items 8–14, rounded	0 none; 1 mild; 2 moderate; 3–4 severe
Cluster E: arousal/reactivity	Mean of items 15–20, rounded	0 none; 1 mild; 2 moderate; 3–4 severe

Statistical Analysis

Microsoft Excel 2010 and IBM SPSS version 26 were used for data entry, management, and analysis. Descriptive analyses of the variables were expressed as frequencies and percentages for categorical data. While mean of standard deviation was used for quantitative data that is normally distributed, represented by figures and tables. To compare qualitative variables, we utilized the chi-square test, and we used $P< 0.05$ to determine statistical significance.

Ethics

This study was approved by the ethics committee of the Iraqi Board for Medical Specializations, the Iraqi Ministry of Health, and the administrations of Ibn Rushud Training Hospital and Al-Qanat Center for Social Rehabilitation. Verbal consent was obtained from the patients. An ethics approval reference number and documentation of the verbal-consent procedure were not available for confirmation.

RESULTS

Table 1. Participant characteristics and substances prompting admission (N=100)

Age, years	Mean (SD)	31.28 (8.79)	
Age group	<40 years	81	81.0
	40 years or older	19	19.0
Sex	Men	93	93.0
	Women	7	7.0
Marital status	Single	36	36.0
	Married	53	53.0
	Divorced	11	11.0
Occupation	Employed	20	20.0
	Self-employed	61	61.0
	Unemployed	19	19.0
Residence	Baghdad	81	81.0
	Other governorate	19	19.0
Education	No formal schooling	40	40.0
	Primary	34	34.0
	Middle school	10	10.0
	High school	7	7.0
	College or higher	9	9.0
Detoxification admissions	Once	65	65.0
	Twice	27	27.0
	3 or more times	8	8.0
Substances in current admission*	Amphetamine-type stimulants	55	55.0
	Alcohol	30	30.0
	Sedatives/sleeping pills	12	12.0
	Pregabalin	11	11.0
	Opioids	10	10.0
Number of current substances	One	85	85.0
	Two	12	12.0

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	Three	3	3.0

*Data are n (%) unless otherwise indicated. *Categories are not mutually exclusive because 15 participants were admitted for more than one substance.*

Table 2. Substance-specific ASSIST risk categories (N=100)

Tobacco products	3 (3.0)	96 (96.0)	1 (1.0)
Alcohol	54 (54.0)	15 (15.0)	31 (31.0)
Cannabis	93 (93.0)	7 (7.0)	0 (0.0)
Cocaine	99 (99.0)	1 (1.0)	0 (0.0)
Amphetamine-type stimulants	41 (41.0)	12 (12.0)	47 (47.0)
Inhalants	99 (99.0)	1 (1.0)	0 (0.0)
Sedatives/sleeping pills	71 (71.0)	16 (16.0)	13 (13.0)
Hallucinogens	99 (99.0)	1 (1.0)	0 (0.0)
Opioids	83 (83.0)	6 (6.0)	11 (11.0)
Pregabalin	79 (79.0)	9 (9.0)	12 (12.0)

ASSIST=Alcohol, Smoking and Substance Involvement Screening Test. For alcohol, scores of 0-10 indicate low risk, 11-26 moderate risk, and 27 or higher high risk. For all other substances, scores of 0-3 indicate low risk, 4-26 moderate risk, and 27 or higher high risk.

Table 3. Unadjusted associations with provisional PTSD diagnosis

Overall	All participants	65/100 (65.0)	-
Age group	<40 years	49/81 (60.5)	0.063
	40 years or older	16/19 (84.2)	
Sex	Men	63/93 (67.7)	0.090
	Women	2/7 (28.6)	
Marital status	Single	19/36 (52.8)	0.048
	Married	36/53 (67.9)	
	Divorced	10/11 (90.9)	
Occupation	Employed	14/20 (70.0)	0.730
	Self-employed	40/61 (65.6)	
	Unemployed	11/19 (57.9)	
Residence	Baghdad	52/81 (64.2)	0.790
	Other governorate	13/19 (68.4)	
Education	No formal schooling	28/40 (70.0)	0.180
	Primary	25/34 (73.5)	
	Middle school	4/10 (40.0)	
	High school	4/7 (57.1)	
	College or higher	4/9 (44.4)	
Detoxification admissions	Once	42/65 (64.6)	0.890
	Twice	17/27 (63.0)	
	3 or more times	6/8 (75.0)	
Alcohol ASSIST risk	Low	29/54 (53.7)	0.006
	Moderate	9/15 (60.0)	
	High	27/31 (87.1)	
Amphetamine-type stimulant risk	Low	27/41 (65.9)	0.480
	Moderate	6/12 (50.0)	
	High	32/47 (68.1)	

*Pearson chi-square or Fisher exact test as reported in the study. Tests were unadjusted, and no correction was made for multiple comparisons. Provisional PTSD diagnosis denotes the PCL-5 DSM-5 symptom-cluster rule, not a clinician-confirmed diagnosis.

Table 4. PTSD symptom-cluster severity categories (N=100)

Cluster	**None**	**Mild**	**Moderate**	**Severe**
B: Intrusion	10 (10%)	36 (36%)	31 (31%)	23 (23%)

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C: Avoidance	15 (15%)	31 (31%)	11 (11%)	43 (43%)
D: Cognition/mood	3 (3%)	31 (31%)	34 (34%)	32 (32%)
E: Arousal/reactivity	5 (5%)	40 (40%)	34 (34%)	21 (21%)

Table 5. High/low PTSD symptom severity by marital status and alcohol-related ASSIST risk

Group	**Low**	**High**	**p-value***
Single (n=36)	15 (41.7%)	21 (58.3%)	0.014*
Married (n=53)	23 (43.4%)	30 (56.6%)	
Divorced (n=11)	0 (0%)	11 (100%)	
Alcohol low (n=54)	25 (46.3%)	29 (53.7%)	0.03*
Alcohol moderate (n=15)	7 (46.7%)	8 (53.3%)	
Alcohol high (n=31)	6 (19.4%)	25 (80.6%)	

Note for Tables 4–5: Overall severity was categorized as low (PCL-5 total 0–39) or high (40–80). Cluster severity was categorized from rounded mean item scores as none (0), mild (1), moderate (2), or severe (3–4). These are study-defined, not validated, PCL-5 severity categories. *Original p-values apply to the full comparison and are unadjusted.

Supplementary Appendix

Supplementary Table S1. Other substance-specific ASSIST risk categories and provisional PTSD diagnosis

Tobacco	Low	2/3 (66.7)	1.000
	Moderate	62/96 (64.6)	
	High	1/1 (100.0)	
Cannabis	Low	61/93 (65.6)	0.690
	Moderate	4/7 (57.1)	
Cocaine	Low	65/99 (65.7)	0.350
	Moderate	0/1 (0.0)	
Inhalants	Low	64/99 (64.6)	1.000
	Moderate	1/1 (100.0)	
Sedatives/sleeping pills	Low	42/71 (59.2)	0.090
	Moderate	14/16 (87.5)	
	High	9/13 (69.2)	
Hallucinogens	Low	65/99 (65.7)	0.350
	Moderate	0/1 (0.0)	
Opioids	Low	53/83 (63.9)	0.390
	Moderate	3/6 (50.0)	
	High	9/11 (81.8)	
Pregabalin	Low	52/79 (65.8)	0.470
	Moderate	7/9 (77.8)	
	High	6/12 (50.0)	

**Pearson chi-square or Fisher exact test as reported. Categories with no participants were omitted. All analyses were unadjusted and exploratory.*

Participant Characteristics

A total of 100 inpatients were included in the study with a mean age of 31.28 ± 8.79 years. The most common age group was less than 40 years (81%). Males were predominant (93%), with a male-to-female ratio of 13.3:1. Fifty-three percent were married, while single and divorced participants represented 36% and 11%, respectively. The most common occupation was self-employment (61%). Eighty-one percent were from Baghdad. Forty percent were illiterate, and 34% had primary-school education. Sixty-five patients had been admitted once for detoxification, while the others had been admitted twice or more (Table 1).

The most common substances prompting the current admission were amphetamine-type stimulants (55%) and alcohol (30%). Eighty-five patients were admitted for one substance and the others for two or more substances. Amphetamine-type stimulants and alcohol were the most common substance types in the high-risk ASSIST categories (47% and 31%, respectively) (Tables 1–2).

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Provisional PTSD

Sixty-five percent of patients acquired a provisional PTSD diagnosis according to the PCL-5 symptom-cluster rule (65/100; 95% CI 55.3–73.6). This represents a provisional diagnosis based on screening rather than a clinician-confirmed PTSD diagnosis.

Sixty-five percent of patients had a provisional PTSD diagnosis, and approximately 86% of them had high symptom severity. Re-experiencing symptoms (cluster B) were severe among 23 patients, avoidance symptoms (cluster C) among 43, negative alterations in cognition and mood (cluster D) among 32, and hyperarousal (cluster E) among 21. Overall PTSD symptom severity was high among 62 patients and low among 38 patients (Table 4). The high/low and cluster classifications were defined for this study.

Exploratory Associations

Provisional PTSD diagnosis was significantly more frequent among divorced patients (p=0.048). It was observed in 19/36 single patients (52.8%), 36/53 married patients (67.9%), and 10/11 divorced patients (90.9%). Provisional PTSD diagnosis was also significantly more frequent among participants in the high alcohol-related ASSIST risk category (p=0.006): 29/54 (53.7%) in the low-risk group, 9/15 (60.0%) in the moderate-risk group, and 27/31 (87.1%) in the high-risk group. No other examined variable showed a statistically significant association in the reported unadjusted comparisons (Table 3 and Supplementary Table S1).

PTSD symptom severity was significantly higher among divorced patients (p=0.014). All 11 divorced patients were classified as having high severity, compared with 21/36 single patients and 30/53 married patients. PTSD symptom severity was also significantly higher among participants with high alcohol-related ASSIST risk (p=0.03). High symptom severity was present in 29/54 patients in the low-risk group, 8/15 in the moderate-risk group, and 25/31 in the high-risk group (Table 5). These comparisons were unadjusted.

DISCUSSION

Principal Findings

The most common cause of admission, and the substance type most frequently classified as high risk according to the ASSIST in the study sample, was amphetamine-type stimulants. These accounted for more than half of admissions, while alcohol was second, accounting for less than one-third. More than three-quarters of patients were admitted for a single substance, although they might have been using other substances. These findings differ from some studies in which alcohol or opioid use was the most common reason for admission [Gielen, N. *et al*., 2012; Herzog, E.. *et al*., 2016]. Substance use patterns have changed in Iraq, where crystal methamphetamine has become an important clinical concern [Al-Hemiery, N. *et al*., 2017; Al-Hemiary, N. J. *et al*., 2014; Al-Ka'aby, H. *et al*., 2025].

The current results demonstrated that 65% of recruited patients fulfilled the PCL-5 symptom rule for a provisional PTSD diagnosis, with more than three-quarters of those patients scoring high symptom severity. These rates were higher than those reported in some previous studies. Proescholdt and colleagues reported that 38.1% of screened inpatients undergoing detoxification in Germany and Switzerland met PTSD screening criteria, while other studies also reported lower proportions [Gielen, N. *et al*., 2012; Proescholdt, M. G. *et al*., 2018; Ten Holt, J. *et al*., 2022]. Differences in populations, study settings, instruments, and the timing of assessment may contribute to these findings.

Comparison with Previous Research

Among the studied inpatients, 62 had high PTSD symptom severity, with avoidance symptoms (cluster C) taking the lead in severity, followed by negative alterations in cognition and mood (cluster D). Higher symptom scores might be affected by withdrawal symptoms and medications being used for detoxification, especially when a patient has recently stopped using a substance [Herzog, E.. *et al*., 2016]. It is also worth mentioning that the assessment of PTSD relies on symptoms that occurred during the previous month; therefore, some symptoms reported by patients may have occurred while they were still using substances.

There was no statistically significant association between the provisional PTSD diagnosis and age, sex, education, previous admissions, or substances other than alcohol. The same applied to the severity comparisons for education level and substances other than alcohol. A similar absence of association for several sociodemographic variables has been described in other inpatient studies [Gielen, N. *et al*., 2012; Proescholdt, M. G. *et al*., 2018; Ten Holt, J. *et al*., 2022].

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Alcohol-Related Risk and Provisional PTSD Diagnosis

A significant association was found between high alcohol-related ASSIST risk and both a provisional PTSD diagnosis and high PTSD symptom severity. A systematic review by Debell and colleagues found a clear association between PTSD and alcohol misuse across different study designs and populations [Debell, F. *et al*., 2014]. Alcohol's sedative and anxiolytic effects may help some individuals manage or avoid intrusive or arousal symptoms, as described by the self-medication theory [Luciano, M. T. *et al*., 2022]. However, alcohol use and PTSD may also be related through shared vulnerability or traumatic exposures.

Marital Status

In the present study, a significant association was found between being divorced and both a provisional PTSD diagnosis and high PTSD symptom severity. A meta-analytic review by Birkley and colleagues reported that PTSD symptoms were associated with relationship difficulties and impaired functioning [Birkley, E. L. *et al*., 2016]. Emotional numbing and avoidance may reduce emotional closeness between partners, while relationship difficulties may also increase distress. Because only 11 patients in this sample were divorced, this finding should be interpreted cautiously.

Clinical and Public-Health Implications

Clinicians ought to be aware of the relationship between PTSD and SUD, particularly among patients with high alcohol-related risk and those with a history of divorce. This study advocates for routine screening for comorbidity in patients with one of the two conditions, using an appropriate screening tool. A provisional PTSD diagnosis should be followed by a fuller clinical assessment rather than considered a definitive diagnosis.

Patients with co-occurring PTSD and SUD may benefit from receiving therapy for both conditions concurrently. Patients who do not receive treatment for PTSD may miss out on a potentially better prognosis [Back, S. E. *et al*., 2024; Hien, D. A. *et al*., 2024; Hien, D. A. *et al*., 2023; Department of Veterans Affairs, 2019]. Further attention to this comorbidity is important when planning psychiatric and substance-use services in Baghdad.

Strengths

This study provides clinical data from two inpatient treatment centres in Baghdad. The use of the ASSIST and Arabic PCL-5 allowed the assessment of substance-related risk, provisional PTSD diagnosis, overall PTSD symptom severity, and symptom-cluster severity [Humeniuk, R. *et al*., 2010; Weathers, F. W. *et al*., 2013; Ibrahim, H. *et al*., 2018].

Limitations

Using a one-time assessment for patients, as adding another assessment for inpatients after discharge would increase the accuracy of measuring the severity of PTSD. Not using a detailed tool for trauma assessment, as different types of trauma might correlate with different substances of use, including a small proportion of females in the study sample that might affect the generalizability of the results. All of these factors were hindered by the limited duration of the study.

Future Research

Future studies should consider larger samples from additional treatment centres, further assessment of trauma, and follow-up after detoxification. A structured clinical interview could help clarify the prevalence of confirmed PTSD in this population, and studies of concurrent treatment may identify effective approaches for managing this comorbidity.

CONCLUSION

The prevalence of a provisional PTSD diagnosis in inpatients with SUDs was high. There was a significant association between a provisional PTSD diagnosis, high PTSD symptom severity, and divorced marital status. High alcohol-related ASSIST risk was significantly associated with having a provisional PTSD diagnosis and with high symptom severity.

DECLARATIONS

Ethics approval and consent to participate: Ethical approval was reported from the ethics committee of the Iraqi Board for Medical Specializations, the Iraqi Ministry of Health, and the administrations of Ibn Rushud Training Hospital and Al-Qanat Center for Social Rehabilitation. Verbal informed consent was obtained from participants. An ethics approval reference number and documentation of the verbal-consent procedure were not available for confirmation.

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Competing interests: The authors declare no competing interests.

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Author contributions (CRediT taxonomy):
Sadiq Abdulelah Sadiq: Conceptualization, Investigation, Writing – original draft.
Hameed Younus Hameed: Conceptualization, Writing – review & editing.
Sumaya Faris Ahmed: Conceptualization, Formal analysis.
All authors reviewed and approved the final manuscript.

Data availability: The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to ethical approval and applicable patient confidentiality and data protection requirements.

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