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RECEIVED 29 July 2025

ACCEPTED 22 September 2025

PUBLISHED 09 October 2025

CITATION

Ergelen Yalçın M and Paltun SC (2025)
Methamphetamine-related psychiatric
emergencies in Türkiye: clinical features,
risk factors, and follow-up results from
a tertiary mental health center.
Front. Psychiatry 16:1675959.
doi: 10.3389/fpsyt.2025.1675959

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Methamphetamine-related psychiatric emergencies in Türkiye: clinical features, risk factors, and follow-up results from a tertiary mental health center

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Objectives: Methamphetamine (MA) use is a growing public health issue in Türkiye, leading to an increasing number of psychiatric emergencies. There is limited information on the clinical features and outcomes of MA users in non-Western countries.

Methods: This retrospective cohort study included 423 patients with confirmed MA use among 12,501 psychiatric emergency department (PED) admissions at a tertiary mental health center in Istanbul, Türkiye, between January and June 2022. Data on demographics, clinical presentation, comorbidities, and follow-up outcomes were collected from electronic medical records.

Results: Most patients were young adult males (84.2%). Psychotic symptoms (65.5%), agitation (65.7%), and insomnia (60.8%) were common. Depression (OR = 18.0, 95% CI: 3.7–88.1) and self-harm (OR = 26.5, 95% CI: 7.1–98.9) were the strongest predictors of suicide attempts. Psychotic symptoms (OR = 2.6, 95% CI: 1.5–4.7), agitation (OR = 2.2, 95% CI: 1.3–3.7), and self-harm (OR = 3.5, 95% CI: 1.9–6.6) were linked to aggression. Prior psychiatric hospitalization (OR = 7.4, 95% CI: 4.4–12.3) and comorbid psychiatric disorders (OR = 2.2, 95% CI: 1.3–3.6) predicted frequent PED visits. Within one year, 33.3% of patients were hospitalized.

Conclusions: MA users admitted to psychiatric emergency services in Türkiye often present with severe symptoms, high rates of comorbidity, and polysubstance use. Recognizing key risk factors may help guide early intervention and integrated care for this vulnerable group. These findings add new knowledge from a non-Western context and may inform clinical practice and policy in similar settings worldwide.

KEYWORDS

methamphetamine, suicide, psychosis, comorbidity, emergency services, psychiatric, Türkiye

1 Introduction

The illicit use of methamphetamine (MA)—a powerful stimulant often referred to as ‘crystal meth’, ‘ice’, or ‘speed’—has become a significant public health concern worldwide (1). Its pharmacological properties, including rapid onset, long half-life, and strong central nervous system stimulation, have contributed to its widespread misuse and the complex clinical challenges (2). As a result, MA use creates significant burdens for psychiatric emergency departments (PEDs) due to its psychiatric and behavioral consequences. Rising rates of MA use have led to increased PED presentations globally. This global surge is particularly evident in Türkiye, which accounted for a significant proportion of methamphetamine treatment admissions in Europe in 2021. In 2022, amphetamines or methamphetamines similarly accounted for at least 15% of first-time treatment entrants in Türkiye and neighbouring or regional countries such as Bulgaria and several Central and Eastern European states (3). These figures underline Türkiye’s position as one of the key countries affected by MA use in the wider region, making it essential to examine its local impact in detail.

The COVID-19 pandemic has further strained psychiatric care and addiction treatment systems, intensifying the burden of stimulant-related emergencies (4). In countries such as Türkiye, the availability and increased potency of MA have contributed to growing numbers of individuals presenting with acute psychiatric disturbances (5, 6).

MA use produces a wide spectrum of psychiatric and behavioral effects. Adverse outcomes include dysphoria, anxiety, insomnia, depression, and suicidal ideation. Studies have documented that a significant proportion of individuals develop psychotic symptoms such as delusions, paranoia, and hallucinations (7, 8). In addition, hostility, deliberate self-harm, and aggressive or violent behavior are frequently reported in this population (9, 10). While these manifestations are well documented, their severity and pattern vary considerably across patients. Factors such as comorbid psychiatric disorders and concurrent use of other substances further influence the clinical presentation (11, 12).

Importantly, these psychiatric consequences of MA use have also been documented in non-Western contexts. In Iran, MA use has become one of the most pressing substance related public health challenges, with persistently high rates of MA induced psychosis reported in treatment settings (7). Data from China indicate that more than half of individuals with MA use present with at least one psychiatric symptom — most commonly psychosis, depression, or anxiety — highlighting the substantial clinical burden (13). Reports from Saudi Arabia also describe high levels of suicidality and aggression among MA users (10, 14), further underscoring the severity of presentations in Middle Eastern populations.

The rising prevalence of MA use in diverse sociocultural contexts has placed increasing pressure on psychiatric emergency departments (PEDs). PEDs often serve as the first point of contact for individuals experiencing acute psychiatric symptoms—including agitation, psychosis, and severe mood disturbances—related to MA (15). These emergencies are frequently

accompanied by behavioral dysregulation and psychotic features that endanger patient safety and complicate acute management. Consequently, MA-related presentations create substantial challenges for mental health professionals, driving increased use of prehospital, emergency, and inpatient services, and contributing to recurrent episodes of violence directed at staff (16–19).

Literature shows a marked escalation in MA-related admissions to treatment facilities and emergency departments over the past decade (20, 21). Compared to non-users, MA users exhibit increased frequency of visits, longer hospital stays, elevated in-hospital mortality rates, more involuntary psychiatric holds, greater use of physical restraints, and overall greater healthcare resources (21–23). These patterns are largely driven by comorbidities such as psychotic disorders, substance-related psychosis, concurrent use of other illicit drugs, suicidal ideation or attempts, aggression, and deliberate self-harm, all of which worsen clinical outcomes and increase service needs (15, 19, 24–28). Understanding these factors is essential to improving care quality in psychiatric emergency settings (1), including reducing violence, promoting safety, minimizing the use of restrictive measures like chemical and physical restraints and supporting more effective therapeutic relationships (29). Such efforts may ultimately enhance adherence and outcomes in conditions like psychotic and substance-induced psychotic disorders, as well as suicidality. Beyond acute psychiatric effects, MA use is linked to significant social consequences, including stigma, reduced access to non-acute healthcare due to confidentiality concerns, housing instability, and criminal justice involvement, exacerbating social and health disparities (1).

This study was conducted at a tertiary mental health center in Istanbul, a major referral institution for psychiatric emergencies in the region. Given Türkiye’s unique position bridging Europe and Middle East, examining the clinical characteristics and outcomes of MA users in this context can offer valuable insights for both regional and international mental health strategies for PEDs, especially in countries facing similar public health challenges.

Specific data on the clinical presentation and risk factors among methamphetamine (MA) users remain limited in non-Western regions, particularly in Türkiye. As the country undergoes rapid sociocultural change and rising substance abuse, it faces significant mental health challenges and thus warrants special attention (30). At the same time, emerging evidence from neighboring non-Western settings—including Iran, China, and Saudi Arabia—already documents severe psychiatric and social consequences of MA use (7, 10, 13, 14). Türkiye’s strategic location, influenced by both Middle Eastern and European cultures, shapes unique societal norms and contributes to the stigma surrounding mental health and substance use. Identifying the clinical patterns and risk factors associated with MA use in this setting is essential for improving patient care, informing policy, and allocating healthcare resources effectively.

Accordingly, the present study investigates the demographic characteristics, acute psychiatric manifestations, comorbidities, and clinical outcomes of MA users admitted to a psychiatric emergency department (PED) in Türkiye. We hypothesized that (i) psychotic symptoms would be predominant in the majority of patients

presenting to a tertiary PED in Türkiye due to MA-related reasons, and that (ii) age, gender, polydrug use, and the presence of psychotic symptoms at admission would be related to short- and medium-term adverse outcomes of MA-related emergency visits, including suicidal ideation, suicide attempt, aggression, repeated PED visits, and one-year psychiatric hospitalization. Our objective was to delineate the clinical features and risk factors of MA-related psychiatric emergencies in Türkiye in order to inform tailored interventions and strengthen emergency mental health services.

2 Methods

This retrospective cohort study was conducted at the PED of Erenköy Mental and Nervous Diseases Training and Research Hospital (ERSHEAH) in Istanbul, Türkiye. ERSHEAH is a major mental health center serving a catchment area of approximately 6.3 million people and includes a dedicated Alcohol and Substance Use Disorders Detoxification Centre (ASUDDC). The PED receives around 25,000 visits annually from individuals who present voluntarily, via emergency medical services, or through compulsory referrals.

Electronic medical records from January 1 to June 30, 2022, were reviewed. During this period, 12,501 patient records were screened, and 423 individuals aged 18 years or older who presented with MA use were included in the study. MA use was established on the basis of a documented positive urine toxicology screen when available, or otherwise on a clear patient self-report of MA use recorded in the medical file. No additional exclusion criteria were applied. The study period (January-June 2022) was selected as it represented a post-COVID-19 pandemic interval, minimizing the influence of major public health restrictions and other significant external events on psychiatric emergency admissions.

Data were extracted between September and October 2024. For each patient, sociodemographic features, mode of arrival, presenting symptoms, concurrent substance use, comorbidities, criminal history, and clinical features at admission and after one year were documented. The frequency of emergency visits, suicidal ideation or behavior, and aggression at admission were also recorded. The assignment of symptoms was based on the explicit clinical findings recorded by the attending clinicians in the hospital charts during routine psychiatric examinations. Follow-up variables were extracted from the same electronic medical registry and included subsequent PED visits, hospitalizations, and diagnostic updates recorded within one year after the index admission of each patient, but symptom-level detail was not consistently available at follow-up. The variable 'three or more PED visits' was coded to include the index admission as well as any subsequent PED presentations during the one-year follow-up period.

Diagnoses were classified according to the International Classification of Diseases, 10th Revision (ICD-10). Psychotic disorders were coded as F20–F29, depressive disorders as F32 and F33, and anxiety disorders as F40 and F41. Bipolar disorder diagnoses included all relevant mood episodes and remission states.

All statistical analyses were performed using SPSS (IBM Corp., Armonk, NY, USA). Continuous variables are presented as means

and standard deviations, while categorical variables are reported as percentages. Associations between categorical variables were assessed using Pearson's Chi-square test. Logistic regression analyses were conducted to identify factors associated with suicidal ideation and attempts, self-harm, aggressive behavior, frequent PED visits, psychiatric hospitalization within one year of PED admission, and substance-induced psychosis at one-year follow-up. The selection of predictor variables for each logistic regression model was guided by both clinical relevance and univariate associations, reflecting the distinct conceptual and empirical underpinnings of outcomes such as suicidality versus non-suicidal self-harm. Results are reported as odds ratios (OR) with 95% confidence intervals (CI). Statistical significance was set at $p < 0.05$.

3 Results

3.1 Sociodemographic and admission characteristics

A total of 423 patients were included in the study, with 84.2% ($n=356$) being male and 15.8% ($n=67$) female. The mean age was 30.1 years ($SD = 7.2$). Among the patients, 27.9% ($n=118$) arrived by ambulance, and 19.1% ($n=81$) were brought in by police referral. At admission, 80.6% ($n=341$) of the patients were accompanied by a relative, while 19.4% ($n=82$) presented alone.

3.2 Clinical presentation at PED admission

Psychotic symptoms were present in 65.5% ($n=277$) of the patients. Visual hallucinations were observed in 19.1% ($n=81$), auditory hallucinations in 38.8% ($n=164$), and tactile hallucinations in 0.2% ($n=1$). Persecutory delusions were detected in 54.8% ($n=232$), delusions of reference in 31.7% ($n=134$), grandiose delusions in 6.4% ($n=27$), somatic delusions in 1.7% ($n=7$), and jealous delusions in 6.6% ($n=28$). Dissociative symptoms were present in 21.7% ($n=92$), with amnesia in 1.2% ($n=5$), depersonalization in 16.1% ($n=68$), and derealization in 4.5% ($n=19$). Suicidal ideation was present in 9.9% ($n=42$) and suicide attempt in 5% ($n=21$) of the patients. Aggression was observed in 34.3% ($n=145$), including personal aggression (28.4%, $n=120$), property damage (27.7%, $n=117$), and self-harm (14.4%, $n=61$). Insomnia was seen in 60.8% ($n=257$) and agitation in 65.7% ($n=278$).

3.3 Use patterns and psychiatric comorbidities

Among MA users, 16.5% used alcohol, 38.5% used cannabis, 29.8% used synthetic cannabinoids, 12.3% used heroin, and 6.6% used cocaine. Additionally, 9.7% of the patients were using three or more psychoactive substances. Of the patients, 55.8% ($n=236$) had a

TABLE 1 Clinical characteristics of the patients at the PED admission (n=423).

Variable	Group	n	%
Gender	Woman	67	15.8
	Man	356	84.2
Admission	Alone	82	19.4
	with Relatives	341	80.6
Ambulance referral	Yes	118	27.9
	No	305	72.1
Law enforcement referral	Yes	81	19.1
	No	342	80.9
Symptoms at the PED admission			
One or more psychotic symptom	Yes	277	65.5
	No	146	34.5
Auditory hallucination	Yes	164	38.8
	No	259	61.2
Visual hallucination	Yes	81	19.1
	No	342	80.9
Tactile hallucination	Yes	1	0.2
	No	422	99.8
Persecutory delusion	Yes	232	54.8
	No	191	45.2
Delusion of reference	Yes	134	31.7
	No	289	68.3
Grandiose delusion	Yes	27	6.4
	No	396	93.6
Somatic delusion	Yes	7	1.7
	No	416	98.3
Delusion of jealousy	Yes	28	6.6
	No	395	93.4
Dissociative symptom	No	331	78.3
	Amnesia	5	1.2
	Depersonalization	68	16.1
	Derealization	19	4.5
Suicidal ideation	Yes	42	9.9
	No	381	90.1
Suicide attempt	Yes	21	5.0
	No	402	95.0
Aggression	Yes	145	34.3
	No	278	65.7
Self-Harm	Yes	61	14.4
	No	362	85.6
Insomnia	Yes	257	60.8
	No	166	39.2
Agitation	Yes	278	65.7
	No	145	34.3
Concurrent alcohol and drug use			
Concurrent drug use with MA	Yes	324	76.6
	No	99	23.4
Use of three or more drug	Yes	41	9.7
	No	382	90.3

(Continued)

TABLE 1 Continued

Variable	Group	n	%
Concurrent alcohol and drug use			
Alcohol use	Yes	70	16.5
	No	353	83.5
Cannabis use	Yes	163	38.5
	No	260	61.5
Synthetic cannabinoid use	Yes	126	29.8
	No	297	70.2
Heroin use	Yes	52	12.3
	No	371	87.7
Cocaine use	Yes	28	6.6
	No	395	93.4
Use of other drugs	Yes	50	11.8
	No	373	88.2
Other clinical characteristics of the patients			
Comorbidity of psychiatric disorder	No		
	Schizophrenia	187	44.2
	Bipolar disorder	7	1.7
	Depression	34	8.0
	Anxiety disorder	39	9.2
	Substance-induced psychosis	11	2.6
	Psychotic disorder not otherwise specified	38	9.0
	Other (personality disorders, obsessive compulsive related disorders, eating disorders etc.)	65	15.4
Chronic medical illness	Yes	22	5.2
	No	401	94.8
Criminal history	Yes	127	30.0
	No	296	70.0

PED, Psychiatric Emergency Department; n, Number; MA, Methamphetamine.

psychiatric disorder comorbidity. Specifically, 1.7% (n=7) had schizophrenia, 8% (n=34) had bipolar disorder, 9.2% (n=39) had depression, 2.6% (n=11) were diagnosed with an anxiety disorder, 15.4% (n=65) had other psychotic disorders, 9% (n=38) had substance-related psychosis, and 9.9% (n=42) had other psychiatric disorders. These comorbidities represent previously established diagnoses documented in the medical records prior to the index admission and confirmed during the emergency evaluation. Table 1 presents the clinical characteristics of the patients at PED admission.

3.4 Treatment and short-term outcomes

Among the treatments given in the emergency department, 63.1% (n=267) of patients were administered parenteral antipsychotics (APs), 21% (n=89) were given benzodiazepines, 3.1% (n=13) were prescribed oral APs, and 12.8% (n=54) received other pharmacologic treatments. Physical restraint was required for 23.6% (n=100) of patients, and observation was necessary for 71.1% (n=300).

Analysis of the treatment outcomes for patients in the emergency department revealed that 63.5% (n=180) were referred to the outpatient clinic of the Alcohol and Substance Use Disorders

Detoxification Centre (ASUDDC) of the hospital, 33.9% (n=143) were mandated for compulsory hospitalization, and 2.6% (n=11) opted for voluntary hospitalization.

3.5 One-year follow-up outcomes

During follow-up, 33.3% (n=114) of patients required psychiatric hospitalization within one year. Among those with available follow-up data (n=342), 24.6% (n=84) had no psychiatric diagnosis, 2.6% (n=9) were diagnosed with schizophrenia, 9.9% (n=34) with bipolar disorder, 7.6% (n=26) with depression, 2.0% (n=7) with anxiety disorder, 25.4% (n=87) with other psychotic disorders, 3.5% (n=12) with other psychiatric disorders, and 24.3% (n=83) with substance-induced psychosis. Table 2 presents the clinical characteristics of patients at PED admission and at one-year follow-up.

3.6 Previous treatment history

Upon analyzing the past treatment history, 43.5% (n=184) had visited the emergency department for the first time, 24.8% (n=105)

TABLE 2 Clinical characteristics at the PED admission (n=423).

Variable	Group	n	%
Pharmacological treatment applied in the PED	Oral AP	13	3.1
	Parenteral AP	267	63.1
	Benzodiazepine	89	21.0
	Other	54	12.8
Physical restraint	Yes	100	23.6
	No	323	76.4
Observation	Yes	300	71.1
	No	122	28.9
Treatment outcome	Specialized ASUDDC referral	268	63.5
	Compulsory hospitalization	143	33.9
	Voluntary hospitalization	11	2.6
Clinical characteristics at the end of one year follow-up after PED admission (n=342)			
Psychiatric hospitalization within one year of PED admission	Yes	114	33.3
	No	228	66.6
Psychiatric diagnosis after one year follow-up	No		
	Schizophrenia	84	24.6
	Bipolar disorder	9	2.6
	Depression	34	9.9
	Anxiety disorder	26	7.6
	Substance-induced psychosis	7	2.0
	Psychotic disorder not otherwise specified	83	24.3
	Other (personality disorders, obsessive compulsive related disorders, eating disorders etc.)	87	25.4
		12	3.5

PED, Psychiatric Emergency Department; n, Number; AP, Antipsychotic; ASUDDC, Alcohol and Substance Use Disorders Detoxification Center.

had visited once or twice, and 31.7% (n=134) had visited three or more times. Additionally, 64.3% (n=272) had previously visited the ASUDDC outpatient clinic, and 29.4% (n=124) had received inpatient treatment in a psychiatric service before their current emergency visit.

3.7 Predictors of suicidal ideation

Multivariate logistic regression analysis revealed a statistically significant relation between suicidal ideation and the presence of psychotic symptoms (OR = 4.83, 95% CI: 1.65–14.19, $p = .004$), depression (OR = 15.63, 95% CI: 5.30–46.12, $p < .001$), and self-mutilation (OR = 5.40, 95% CI: 2.41–12.10, $p < .001$) among patients with methamphetamine use (Table 3).

3.8 Predictors of suicide attempt

For suicide attempts, multivariate analysis showed that depression (OR = 18.01, 95% CI: 3.68–88.09, $p < .001$), comorbidity of psychiatric disorder (OR = 0.16, 95% CI: 0.03–0.80, $p = .026$), and self-mutilation (OR = 26.54, 95% CI: 7.12–98.87, $p < .001$) were significant predictors (Table 4).

3.9 Predictors of self-harm

The concurrent use of drugs with MA (OR = 2.05, 95% CI: 1.08–3.88, $p = .028$), the presence of one or more psychotic

TABLE 3 Multivariate logistic regression analysis of independent risk factors for suicidal ideation.

Predictors of suicidal ideation	β	S.E.	Wald	p	OR	95% CI
Age	-.003	.025	.012	.911	.997	[.950-1.046]
Gender	-.275	.534	.264	.607	.760	[.267-2.166]
Concurrent drug use with MA	-.082	.438	.035	.852	.922	[.391-2.172]
Use of more than three drugs	.612	.617	.983	.322	1.846	[.550-6.173]
One or more psychotic symptom	1.575	.550	8.213	.004*	4.832	[1.645-14.191]
Auditory hallucination	-.542	.400	1.833	.176	.582	[.266-1.274]
Insomnia	-.057	.402	.020	.887	.944	[.430-2.076]
Agitation	-.236	.413	.325	.569	.790	[.352-1.776]
Self-harm	1.685	.412	16.733	.000*	5.395	[2.406-12.097]
Comorbidity of psychiatric disorder	.031	.398	.006	.938	1.032	[.473-2.252]
Depression	2.749	.552	24.800	.000*	15.631	[5.297-46.122]
Substance-induced psychosis	.675	.811	.692	.405	1.963	[.401-9.602]
Three or more PED visits	-.184	.385	.228	.633	1.202	[0.565-2.557]

PED, Psychiatric Emergency Department; MA, Methamphetamine. * $p < 0.05$; bold values also indicate statistical significance.

TABLE 4 Multivariate logistic regression analysis of independent risk factors for suicide attempt.

Predictors of suicide attempt	β	S.E.	Wald	p	OR	95% CI
Age	.053	.041	1.624	.203	1.054	[.972-1.143]
Gender	-.106	.744	.020	.887	.900	[.209-3.867]
Use of concurrent drug with MA	.051	.673	.006	.939	1.053	[.282-3.935]
Use of more than three drugs	1.295	.921	1.979	.159	3.650	[.601-22.222]
One or more psychotic symptom	1.480	.959	2.385	.123	4.395	[.671-28.769]
Auditory hallucination	.488	.649	.565	.452	1.629	[.456-5.818]
Insomnia	-.764	.622	1.506	.220	.466	[.138-1.578]
Agitation	-.901	.651	1.919	.166	.406	[.113-1.454]
Self-Harm	3.279	.671	23.866	.000*	26.536	[7.122-98.872]
Comorbidity of psychiatric disorder	1.866	.837	4.970	.026*	6.452	[1.253-33.333]
Depression	2.891	.810	12.735	.000*	18.006	[3.680-88.088]
Substance-induced psychosis	.279	.870	.103	.748	1.322	[.240-7.272]
Three or more PED visits	.433	.567	.582	.445	1.540	[0.508-4.695]

PED, Psychiatric Emergency Department; MA, Methamphetamine. * $p < 0.05$; bold values also indicate statistical significance.

symptoms (OR = 2.25, 95% CI: 1.13–4.46, $p = .020$), insomnia (OR = 2.60, 95% CI: 1.30–5.22, $p = .007$), and agitation (OR = 2.93, 95% CI: 1.38–6.19, $p = .005$) were found to be significant independent predictors of self-harm (Table 5).

3.10 Predictors of aggression

Multivariate regression analysis identified psychotic symptoms (OR = 2.65, 95% CI: 1.49–4.72, $p = .001$), agitation (OR = 2.24, 95% CI: 1.34–3.74, $p = .002$), and self-mutilation (OR = 3.54, 95% CI: 1.89–6.63, $p < .001$) as significant predictors of aggression (Table 6).

3.11 Predictors of physical restraint

The presence of psychotic symptoms (OR = 6.10, 95% CI: 2.96–12.59, $p < .001$), self-harm (OR = 4.47, 95% CI: 2.32–8.63, $p < .001$), and agitation (OR = 3.21, 95% CI: 1.68–6.15, $p < .001$) were significant predictors of the need for physical restraint (Table 7).

3.12 Predictors of frequent PED visits

Comorbidity of psychiatric disorder (OR = 2.15, 95% CI: 1.27–3.63, $p = .004$) and prior history of in a closed psychiatric ward (OR

TABLE 5 Multivariate logistic regression analysis of independent risk factors for self-harm.

Predictors of self-harm	β	S.E.	Wald	p	OR	95% CI
Age	.036	.021	2.849	.091	1.037	[.994-1.081]
Gender	-.423	.423	.997	.318	.655	[.286-1.502]
Concurrent drug use with MA	.717	.326	4.850	.028*	2.049	[1.082-3.876]
Use of more than three drugs	.900	.645	1.947	.163	2.458	[.695-8.696]
One or more psychotic symptom	.810	.349	5.381	.020*	2.247	[1.134-4.455]
Comorbidity of psychiatric disorder	.259	.321	.650	.420	1.295	[0.690- 2.432]
Insomnia	.956	.356	7.238	.007*	2.602	[1.297-5.224]
Agitation	1.074	.382	7.892	.005*	2.926	[1.383-6.189]
Substance-induced psychosis	.283	.602	.221	.638	.891	[.408-4.321]
Criminal history	-.630	.358	3.090	.079	.533	[.264-1.075]
Three or more PED visits	-.105	.326	.104	.747	1.490	[0.475- 1.704]

PED, Psychiatric Emergency Department; MA, Methamphetamine. * $p < 0.05$; bold values also indicate statistical significance.

TABLE 6 Multivariate logistic regression analysis of independent risk factors for aggression.

Predictors of aggression	β	S.E.	Wald	p	OR	95% CI
Age	.017	.016	1.147	.284	1.018	[.986-1.050]
Gender	-.307	.338	.825	.364	.735	[.379-1.427]
Concurrent drug use with MA	.240	.282	.721	.396	1.271	[.731-2.211]
Use of more than three drugs	-.118	.377	.098	.755	0.889	[0.424- 1.863]
One or more psychotic symptom	.974	.295	10.932	.001*	2.649	[1.487-4.718]
Auditory hallucination	.277	.260	1.139	.286	1.319	[.793-2.195]
Insomnia	.285	.243	1.375	.241	1.329	[.826-2.139]
Agitation	.807	.261	9.567	.002*	2.240	[1.344-3.735]
Self-Harm	1.264	.320	15.579	.000*	3.540	[1.890-6.633]
Substance-induced psychosis	-.115	.391	.087	.768	.891	[.414-1.919]
Criminal history	.472	.249	3.588	.058	1.603	[.984-2.612]
Three or more PED visits	.399	.241	2.739	.098	1.490	[0.929- 2.392]

PED, Psychiatric Emergency Department; MA, Methamphetamine. * $p < 0.05$; bold values also indicate statistical significance.

= 7.35, 95% CI: 4.39–12.31, $p < .001$) were significant predictors of three or more PED visits (Table 8).

3.13 Predictors of psychiatric hospitalization within one year

Older age (OR = 1.04, 95% CI: 1.01–1.08, $p = .017$) and prior history of hospitalization in a closed psychiatric ward (OR = 4.48, 95% CI: 2.67–7.58, $p < .001$) were significant predictors of psychiatric hospitalization within one year after PED admission (Table 9).

3.14 Predictors of substance-induced psychosis at one-year follow-up

Male gender (OR = 0.23, 95% CI: 0.09–0.63, $p = .004$), the presence of psychotic symptoms at admission (OR = 2.96, 95% CI: 1.52–5.74, $p = .001$), agitation (OR = 2.04, 95% CI: 1.12–3.74, $p = .020$), aggression (OR = 1.84, 95% CI: 1.08–3.15, $p = .026$), and a prior history of closed ward (OR = 1.92, 95% CI: 1.12–3.30, $p = .018$) were significant predictors of substance-induced psychosis at one-year follow-up (Table 10).

TABLE 7 Multivariate logistic regression analysis of independent risk factors for physical restraint.

Predictors of physical restraint	β	S.E.	Wald	p	OR	95% CI
Age	.005	.018	.065	.798	1.005	[.970-1.041]
Gender	.610	.364	2.815	.093	1.841	[.903-3.754]
Concurrent drug use with MA	.040	.319	.016	.899	.488	[.557-1.946]
Use of more than three drugs	.292	.441	.438	.508	1.399	[.564-3.180]
One or more psychotic symptom	1.808	.370	23.929	.000*	6.099	[2.955-12.586]
Comorbid psychiatric disorder	.069	.288	.057	.811	1.072	[0.609- 1.887]
Self-Harm	1.498	.335	19.984	.000*	4.472	[2.319-8.625]
Insomnia	1.167	.332	12.368	.782	.924	[.529-1.615]
Agitation	1.167	.332	12.368	.000*	3.212	[1.676-6.154]
Substance-induced psychosis	-.306	.450	.461	.497	.737	[.305-1.779]
Criminal history	.464	.286	2.634	.105	1.590	[.908-2.784]
Three or more PED visits	.465	.278	2.797	.094	1.594	[0.923- 2.747]

PED, Psychiatric Emergency Department; MA, Methamphetamine. * $p < 0.05$; bold values also indicate statistical significance.

TABLE 8 Multivariate logistic regression analysis of independent risk factors for frequent PED visit (three or more PED visits).

Predictors of Three or more PED visits	β	S.E.	Wald	p	OR	95% CI
Age	-.002	.017	.010	.920	0.998	[0.966- 1.033]
Gender	.306	.338	.819	.365	1.359	[0.700- 2.638]
Concurrent drug use with MA	.347	.301	1.330	.249	1.415	[0.784- 2.551]
Use of more than three drugs	.331	.413	.644	.422	1.393	[.620-3.130]
One or more psychotic symptom	.060	.273	.048	.826	.942	[.551-1.609]
Comorbid psychiatric disorder	.766	.267	8.300	.004*	2.150	[1.274-3.628]
Self-Harm	.003	.358	.000	.994	1.003	[0.497- 2.024]
Insomnia	-.043	.263	.027	.871	0.958	[0.573- 1.603]
Agitation	-.213	.272	.613	.434	0.808	[0.475- 1.377]
Aggression	.341	.272	1.574	.210	1.406	[0.825- 2.392]
Drug-induced psychosis	.113	.416	.073	.787	1.120	[0.495- 2.525]
Criminal history	-.022	.274	.006	.937	0.978	[0.571- 1.675]
Prior history of hospitalization in a closed psychiatric ward	1.995	.263	57.579	.000*	7.350	[4.391-12.305]

PED, Psychiatric Emergency Department; MA, Methamphetamine. *p < 0.05; bold values also indicate statistical significance.

4 Discussion

4.1 Sociodemographic and admission characteristics of MA users in PED

The present study provides a comprehensive overview of the clinical characteristics of methamphetamine (MA) users admitted to a psychiatric emergency department (PED) in a major mental health center in Türkiye. Our findings highlight the high prevalence of acute psychotic symptoms, a wide spectrum of hallucinations and

delusions, significant psychiatric comorbidity, and frequent use of three or more drugs among this population.

A significant majority of MA-related PED visits involved young males (84.2%), which is consistent with previous research (23, 31, 32). The predominance of male patients in our sample is consistent with international data indicating a higher prevalence of MA use among men (33, 34). In Türkiye, sociocultural barriers and stigma further limit women’s access to treatment, contributing to their underrepresentation in clinical samples (35). In our cohort, a large proportion of MA-related PED visits involved younger individuals,

TABLE 9 Multivariate logistic regression analysis of independent risk factors for psychiatric hospitalization in a closed ward within one year of PED admission.

Predictors of psychiatric hospitalization within one year of PED admission	β	S.E.	Wald	p	OR	95% CI
Age	.043	.018	5.663	.017*	1.044	[1.008-1.081]
Gender	.027	.332	.007	.935	1.028	[.536-1.970]
Concurrent drug use with MA	.213	.294	.524	.469	1.237	[.696-2.200]
Use of more than three drug	.076	.424	.032	.857	1.079	[.470-2.476]
One or more psychotic symptom	.175	.272	.415	.519	1.191	[.699-2.030]
Comorbid psychiatric disorder	.348	.264	1.737	.188	1.417	[0.844- 2.381]
Self-Harm	.533	.333	2.551	.110	1.703	[.886-3.275]
Agitation	.024	.265	.008	.068	2.244	[.609-1.722]
Aggression	.434	.262	2.759	.097	1.544	[.925-2.578]
Substance-induced psychosis	.808	.443	3.333	.068	2.244	[.942-5.346]
Criminal history	.348	.264	1.738	.187	1.416	[.844-2.377]
Prior history of hospitalization in a closed psychiatric ward	1.502	.266	31.904	.000*	4.484	[2.667- 7.576]

PED, Psychiatric Emergency Department; MA, Methamphetamine. *p < 0.05; bold values also indicate statistical significance.

TABLE 10 Multivariate logistic regression analysis of independent risk factors for substance-induced psychosis diagnosis at one year follow-up.

Predictors of substance-induced psychosis diagnosis at follow-up	β	S.E.	Wald	p	OR	95% CI
Age	.035	.019	3.385	.066	1.036	[.998-1.076]
Gender	-1.457	.511	8.132	.004*	.233	[.086-.634]
Concurrent drug use with MA	.312	.335	.865	.352	1.366	[.708-2.633]
Use of more than three drugs	.041	.418	.010	.922	1.042	[.459-2.364]
One or more psychotic symptom	1.084	.339	10.224	.001*	2.956	[1.521-5.744]
Self-Harm	-.340	.375	.825	.364	.712	[.341-1.483]
Agitation	.715	.308	5.388	.020*	2.043	[1.118-3.735]
Aggression	.612	.274	4.984	.026*	1.843	[1.077-3.153]
Criminal history	.053	.276	.037	.848	1.054	[.614-1.811]
Prior history of hospitalization in a closed psychiatric ward	.653	.276	5.582	.018*	1.919	[1.117- 3.300]

PED, Psychiatric Emergency Department; MA, Methamphetamine. * $p < 0.05$; bold values also indicate statistical significance.

supporting earlier findings in the literature (20, 23, 31, 32, 36, 37). In our sample, a considerable proportion of MA-related PED presentations arrived via ambulance. Prior studies have similarly reported higher rates of ambulance use among substance-related psychiatric emergencies compared to other patient groups (38, 39).

These findings suggest that MA use continues to pose a significant challenge for PEDs particularly among young male individuals and highlight the importance of targeted prevention and intervention strategies for this demographic.

4.2 Clinical characteristics of MA users in PED

The clinical presentation of MA users admitted to the PED was characterized by a high prevalence of acute psychiatric symptoms. About two-thirds (65.5%) presented with psychotic symptoms, most commonly hallucinations and various delusion types. This finding is consistent with prior reports on the high frequency of psychosis in MA users (2, 40). The diversity and complexity of hallucinations and delusional content observed in this cohort reflect the heterogeneity of psychotic manifestations associated with MA intoxication, as described in the literature (41, 42). Dissociative symptoms, including depersonalization and derealization, were also commonly reported, further supporting the notion that MA use can profoundly disrupt perceptual and self-referential processes (43).

In addition to psychosis, rates of suicidal ideation (9.9%), attempts (5%), and self-harm (14.4%) were comparable to Turkish and international reports (24, 32, 44, 45). Insomnia (60.8%) and agitation (65.7%) further underline MA's broad neuropsychiatric impact and the need for careful clinical management.

Use of three or more drugs was another notable feature in this population, with approximately 10% of patients using three or more psychoactive substances concurrently. Alcohol, cannabis, synthetic cannabinoids, opioids, and cocaine were among the substances most frequently used alongside MA, a pattern that is consistent

with previous research (1, 20, 21, 46). The combined and potentially synergistic effects of these substances are likely to exacerbate neurotoxicity and intensify psychiatric symptoms, thereby complicating clinical management and outcomes (47, 48). For instance, the use of MA in individuals with opioid use disorder has the potential to exacerbate the adverse medical and social effects of psychoactive substance use. Moreover, it has been demonstrated that this practice can impede treatment outcomes, elevate rates of psychiatric and medical complications, and heighten the risks of infectious diseases and other adverse outcomes (36).

The presence of comorbid psychiatric disorders, including schizophrenia spectrum and psychotic disorders not otherwise specified, bipolar disorder, depression, anxiety, and substance-related psychosis, further complicates the clinical picture (1, 7, 23, 42, 47, 49, 50). In this sample, nearly 56% had a comorbid psychiatric disorder, including 26.1% with a psychotic spectrum disorder and 17.2% with a mood disorder. This high comorbidity in MA users has significant treatment implications, as co-occurring psychotic disorders and mood disorders are known to worsen clinical outcomes and increase the risk of emergency psychiatric admissions and hospitalization (16, 23). Beyond Türkiye, similar trends have been documented in other non-Western settings. A large-scale study from China reported that 57.6% of MA users presented with at least one psychiatric symptom, including psychosis, depression, and anxiety, while 8.3% exhibited all three simultaneously, underscoring the substantial burden of comorbidity in this population (13). Likewise, reports from Iran also emphasize the rising burden of MA-related psychosis as a major public health issue, suggesting that the psychiatric consequences of MA use are a widespread challenge beyond Western contexts (7).

In terms of acute management, parenteral APs (63.1%) and benzodiazepines (21%) were commonly administered, reflecting the severity of psychiatric disturbances in this population. Physical restraint was needed in about one-fourth of cases, reflecting the level of agitation and potential for violence, and underscoring the need for both pharmacological and non-pharmacological interventions in the acute management of MA-induced psychiatric

symptoms, as well as the importance of staff training in de-escalation and non-coercive management strategies (23).

The data reveal a notable shift in clinical outcomes over the course of one year. While 33.9% of patients required hospitalization at their initial emergency department visit, a similar proportion—33.3% of those with available follow-up—were hospitalized within a year. This persistence in hospitalization rates suggests that, for many individuals, the challenges associated with methamphetamine use do not resolve after the first crisis but instead tend to recur. At the same time, there is a clear increase in the proportion of patients diagnosed with psychotic disorders. At admission, 9.0% of patients were diagnosed with substance-induced psychosis and 15.4% with other psychotic disorders, totaling 24.4%. By the end of the follow-up period, these rates had risen to 24.3% and 25.4%, respectively, among those with available data—meaning nearly half of the patients (49.7%) had a diagnosis of either substance-induced or other psychotic disorder after one year. This marked rise indicates that MA exposure is associated with a significant risk of developing persistent or new-onset psychotic symptoms over time. The proportion of patients without a psychiatric diagnosis at follow-up (24.6%) suggests that some may experience stabilization or remission, yet the majority continue to struggle with ongoing symptoms or new diagnoses. These patterns highlight the need for ongoing, individualized care and suggest that early intervention alone may not be sufficient to prevent future relapses or hospitalizations. Hence, implementation of routine mental health screening and referral protocols in PEDs could facilitate early intervention and reduce the risk of chronic psychiatric morbidity for. These findings highlight the importance of multidisciplinary approaches addressing both substance use and psychiatric comorbidities (1, 21, 47, 51). The variation in referral rates to the hospital's ASUDDC further emphasizes the importance of individualized treatment pathways. Addressing both substance use and co-occurring psychiatric comorbidities in specialized, multidisciplinary settings appears critical for improving long-term outcomes in this population.

4.3 Predictors of suicidality and self-harm in MA users admitted to PED

A retrospective study of considerable scale, employing National Health Insurance Research Datasets (NHIRD) in Taiwan, revealed that MA users exhibited an elevated level of risk with respect to psychiatric comorbidities, such as depressive disorders, sleep disorders, medication-induced mental disorders, schizophrenia, and bipolar disorder (51). Accordingly, the prevalence ratio of hospital admissions involving both suicidal ideation and MA use is reported to be increased substantially, rising 16-fold between 2008 and 2019 (52). Suicide attempts are far more common among MA users, contributing to 25–50% of deaths in this group (53). The present study identified comorbid depression and self-harm as the strongest predictors for suicidal ideation and attempts. Furthermore, the presence of psychotic symptoms and comorbid psychiatric disorders were also associated

with suicidality, consistent with findings reported in the broader literature (28, 42, 52, 54–56). These findings are not limited to Western populations. A study from Iraq demonstrated that crystal methamphetamine users face significantly elevated risks of suicidal ideation, particularly when presenting with visual hallucinations, episodes of aggression, or concurrent use of other illicit substances (54). Data from Saudi Arabia consistently indicate that MA users exhibit particularly high levels of suicidal behavior, with methamphetamine use identified as a strong independent predictor of suicidality (10, 14).

Psychiatric comorbidity was confirmed as a significant predictor of suicide attempts in our sample with comorbid mood and psychotic disorders being especially prominent. This is consistent with recent studies showing that MA users who die by suicide have higher rates of psychiatric comorbidities, particularly depression, psychosis, and bipolar disorder (19, 25, 57). Given the high prevalence of these comorbidities in our sample from Türkiye, structured psychiatric assessments are essential for early identification and intervention.

In our cohort, self-harm was the strongest predictor of suicide attempts (OR = 26.5), serving as a direct marker of imminent suicide risk. This finding is consistent with broader evidence showing that prior self-harm is one of the most robust predictors of future suicidal behavior across populations (56). Factors such as insomnia, agitation, and the presence of psychotic symptoms, along with concurrent polysubstance use, were also strongly associated with self-harm in our sample. Supporting this finding, a previous study from Türkiye reported significantly higher levels of self-harm among MA users with psychotic symptoms compared to those without (32). These observations highlight the need for comprehensive evaluation and integrated care addressing depression, psychosis, sleep problems, agitation, and polysubstance use in order to reduce suicidality risks.

Although depression, psychotic symptoms, insomnia, agitation, and self-harm are well-known predictors of suicidality in general psychiatric populations (58, 59), recent studies indicate that these factors are especially pronounced among individuals with MA use disorder (47, 51). In MA users, such symptoms often present more acutely and with greater severity, particularly during intoxication or withdrawal, and may lead to sudden suicidal ideation or self-harm (60, 61). The neurobiological effects of MA, including its impact on mood regulation and impulse control, appear to amplify these risks beyond what is typically seen in other groups (47, 60). Additionally, frequent use of three or more drugs use and fluctuating mental states complicate risk assessment and intervention (15, 51). While these predictors are not unique to MA users, their intensity and the clinical challenges they create in emergency settings highlight the need for tailored assessment and management strategies.

4.4 Predictors of aggression and physical restraint in MA users admitted to PED

The findings, supported by multivariate logistic regression analyses (see Tables 6 and 7), reveal that the presence of

psychotic symptoms, agitation, and self-harm are the most robust predictors for both aggressive behavior and the need for physical restraint during acute presentations. Consistent with international literature, psychotic symptoms significantly increased the odds of aggression (OR = 2.65) and physical restraint (OR = 6.10). Agitation was also a strong independent predictor for both outcomes (aggression: OR = 2.24; restraint: OR = 3.21, respectively). Self-harm, often under-recognized as a marker of acute behavioral dysregulation, was associated with a more than threefold increase in the risk of aggression (OR = 3.54) and a more than fourfold increase in the risk of physical restraint (OR = 4.47). These findings are in line with previous studies indicating that MA-induced psychosis and agitation are key drivers of violence and coercive interventions in PEDs (44, 47, 61–64). Regional data, including reports from Saudi Arabia and Iran, similarly highlight severe aggression among MA users, ranging from impulsivity to violent behavior (10, 65). Accordingly, the higher rates of comorbid psychiatric disorders and use of three or more drugs use observed in this cohort should not be underestimated in this context. Although these factors did not consistently emerge as statistically significant predictors in the multivariate models, their presence likely contributes to an elevated overall risk environment and should be carefully considered during clinical risk assessment. The heterogeneity of psychotic and dissociative symptoms further complicates risk management, underscoring the need for individualized interventions. The link between self-harm and outward aggression reflects the complex interplay of internalizing and externalizing violence seen in MA users (66). However, the high rates of physical restraint observed in the present study and others in this field raise ethical and practical concerns. There is an ongoing need for staff training in non-coercive management strategies, as well as the development of less restrictive alternatives.

4.5 Predictors of frequent PED visits, psychiatric hospitalization in a closed ward within one year of PED admission, and substance-induced psychosis in MA users admitted to PED

Consistent with international evidence, comorbid psychiatric disorders and a history of previous psychiatric hospitalization were strong predictors of frequent PED visits (67, 68). This mirrors evidence that diagnostic complexity and prior service use drive recurrent emergency department visits. These patterns are also reflected in Taiwanese data, where national studies showed high medical utilization among MA users (19), and emergency department studies further highlighted gender differences in drug-related presentations, including those associated with MA use (37). Unlike some North American and European cohorts, factors such as homelessness, polysubstance use, and female sex did not emerge as independent predictors in our analyses. It should be noted, however, that homelessness could not be assessed in our dataset as housing

status was not routinely documented in our emergency department records and the low proportion of female patients may have limited the ability to detect sex-related effect. This divergence may be attributable to both methodological and contextual factors. In Türkiye, homelessness is relatively rare compared to Western countries, largely due to strong extended family structures, cultural expectations regarding familial support, and social safety nets that reduce the risk of individuals becoming unsheltered. As a result, emergency departments do not routinely document housing status, and the low prevalence of homelessness in both the general and clinical populations may have limited the ability to detect its association with frequent PED visits. Additionally, the underrepresentation of women in treatment-seeking populations may further contribute to these differences (69).

In the present study, older age and prior closed-ward admission are found to be predictors of psychiatric hospitalization within one year. The latter finding aligns with global evidence that inpatient “career” trajectories perpetuate further admissions (70–73). However, while international data often highlight younger age as a risk factor for hospitalization (73), the present findings indicate that, in Türkiye, older age was more strongly related to psychiatric hospitalization. This discrepancy may be explained by the unique dynamics of the Turkish healthcare and social context. Although the Turkish Civil Code grants physicians the authority to make involuntary admission decisions, in practice, clinicians frequently take family preferences into account. Studies have shown that Turkish families are closely involved in the decision-making process regarding psychiatric hospitalization, and concerns about stigma and the perceived burden of mental illness often influence these decisions (74–76). While direct data on age-specific attitudes are limited, clinical experience and some qualitative reports suggest families may be especially reluctant to hospitalize younger patients, due to concerns about stigma and future social consequences. This tendency may contribute to the lower hospitalization rates observed among younger individuals in our setting. These findings underscore the importance of considering local cultural norms and health system practices when interpreting age-related risk factors for psychiatric hospitalization.

In the cohort of the study, a subsequent diagnosis of substance-induced psychosis after one year was independently associated with male sex, the presence of psychotic symptoms at initial presentation, agitation, aggression, and a history of closed-ward psychiatric admission. However, the magnitude of the male excess observed in the sample and the emergence of agitation and aggression as longitudinal predictors diverge from most international studies. Baseline psychotic symptoms and prior hospitalization consistently predict later psychosis in MA users, underscoring the role of early morbidity and acute symptom severity (60, 77). Reports from Iran caution that psychotic symptoms in MA users may persist in a subset of patients, making the distinction between transient and persistent forms of methamphetamine-associated psychosis (MAP) increasingly important (7). Consistent with these findings, our results also suggest that MA-related psychiatric sequelae often extend beyond short-lived

episodes, with a substantial risk of chronicity, recurrence or progression, in line with previous research on methamphetamine-associated psychosis (1, 8, 12). Prior research including evidence from non-Western countries such as China and Taiwan, more commonly identifies early-onset MA use, cannabis co-use, and family history of psychosis as primary risk factors for substance induced psychosis (78–81). Longitudinal data from Taiwan also demonstrate the severe trajectory of MAP. In one cohort, nearly 40% of patients required rehospitalization during follow-up, over one-third received a schizophrenia diagnosis due to persistent psychosis, and more than half experienced relapse of psychotic symptoms, underscoring the substantial risk of chronic or recurrent MAP (82). Male predominance in our cohort may have inflated risk estimates, a limitation also reported in other regional samples (69, 83).

4.6 Implications for psychiatric emergency policy and long-term care pathways

Our study stands out as one of the first to show, through one-year follow-up data, that psychotic disorders and hospital admissions among MA users not only persist but may even increase after the initial emergency department visit. This pattern highlights a pressing need for more than just acute crisis management; it calls for the creation of structured, long-term follow-up and care pathways within PEDs—an area that has received little attention in previous research. In light of these findings, the authors suggest that health policymakers and administrators focus on early identification, rapid triage, and the development of integrated care models tailored to the unique needs of this vulnerable group. It will also be crucial to invest in staff training for de-escalation, foster multidisciplinary teamwork, and ensure that mental health and addiction services are closely linked within emergency settings. By putting these evidence-based recommendations into practice PEDs can improve patient outcomes, make better use of resources, and play a more effective role in addressing the growing public health challenge posed by MA use.

4.7 Strengths and limitations

To our knowledge, this study represents one of the most comprehensive examinations of methamphetamine users admitted to a psychiatric emergency department in Türkiye—a nation uniquely positioned between Europe and Asia. Drawing on a large and diverse patient population from a leading mental health center, our findings are both relevant and broadly applicable. The systematic extraction of data from electronic health records enabled a thorough assessment of sociodemographic, clinical, and treatment-related characteristics. Notably, the inclusion of a one-year follow-up period allowed us to evaluate both acute presentations and longer-term outcomes, such as hospitalization and repeated emergency visits. Employing multivariate analyses to

identify independent predictors of adverse outcomes further strengthened the study's methodological rigor. By reflecting the real-world complexity of clinical practice—including high rates of comorbidity and frequent use of multiple substances—this research addresses a significant gap in the regional literature and offers evidence to inform both clinical care and health policy in psychiatric emergency settings.

Nevertheless, several limitations should be considered. The retrospective design may have resulted in underreporting of certain symptoms, and the absence of structured diagnostic interviews introduces the possibility of missing or inaccurately recorded information in the electronic health records. Due to the acute nature of emergency department admissions, detailed information on the duration and cumulative pattern of MA use was not consistently available, limiting our ability to analyze its impact on clinical outcomes. As a single-center study, the findings may not be fully generalizable to other settings with different healthcare systems or patient populations. Furthermore, because the sample was drawn exclusively from a tertiary psychiatric emergency department in Istanbul, it may be biased toward individuals with more acute and disruptive presentations. Accordingly, the findings cannot be generalized to all MA users in Türkiye. Nevertheless, ERSHEAH serves a metropolitan catchment area of over 6 million people and is the only public psychiatric hospital with a PED on the Asian side of Istanbul, accepting referrals from surrounding provinces. This provides an important, though still regionally limited, picture of MA users requiring psychiatric emergency care. The generalizability of our findings is limited by the demographic composition of the sample, which was predominantly male (84.2%). Consequently, the conclusions may not be applicable to women, adolescents, or older adults. The relatively high prevalence of polysubstance use in our sample also complicates efforts to isolate the specific effects of methamphetamine. Diagnoses were based on ICD-10 codes assigned during routine clinical care, rather than structured research interviews, which may affect diagnostic reliability. Additionally, the cross-sectional nature of the admission data limits our ability to draw causal inferences between methamphetamine use and the psychiatric outcomes observed, and longitudinal research is needed to better understand symptom progression and the effectiveness of various treatment approaches over time. Given the number of statistical tests performed, the possibility of Type I error cannot be excluded. Finally, although 2022 was selected as a representative year, it followed the peak of the COVID-19 pandemic, which may have influenced mental health trends and patterns of service utilization.

5 Conclusions

Patients admitted to PE in Türkiye—a country bridging Europe and Asia—frequently present with severe acute psychiatric symptoms, often in the context of polysubstance use and significant psychiatric comorbidities. Routine screening for

depression and self-harm in methamphetamine users at PEDs may facilitate earlier intervention and improved clinical outcomes. The high rates of recurrent emergency visits and hospitalizations observed in this population underscore the chronic and relapsing nature of MA-related psychiatric disturbances. The prevalence of psychiatric comorbidities and repeated emergency presentations indicates an urgent need for integrated clinical pathways and targeted interventions within emergency settings, as psychiatric comorbidity has been identified as a key predictor of adverse outcomes. These findings highlight the necessity for care models that address both acute symptoms and long-term management. Long-term care for MA users should encompass not only substance use treatment but also ongoing management of psychiatric comorbidities, as both are critical for optimizing patient outcomes. Further research is warranted to evaluate interventions that may enhance outcomes and reduce the burden on PEDs for this high-risk group.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The study was approved by the Ethics Committee of Erenköy Mental and Nervous Diseases Training and Research Hospital, and informed consent was waived due to the retrospective design.

Author contributions

ME: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. SP: Data curation, Formal Analysis, Investigation, Methodology, Resources, Visualization, Writing – review & editing.

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Funding

The author(s) declare that no financial support was received for the research and/or publication of this article.

Acknowledgments

The authors would like to express their sincere appreciation to Assoc. Prof. Murat Yalçın of Erenköy Mental and Nervous Diseases Training and Research Hospital for his invaluable guidance and insightful advice throughout the course of this study.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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