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Investigation of aggression levels of methamphetamine users in probation

Denetimli serbestlik tedbiri bulunan metamfetamin kullanıcılarının saldırganlık düzeylerinin incelenmesi

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ABSTRACT

Aim: The use of methamphetamine is a global health concern that profoundly impacts individual well-being, potentially resulting in severe health consequences and mortality. Probation, a prevalent legal substitute for imprisonment, is essential in the oversight and rehabilitation of methamphetamine-related probationers. This study aimed to identify the characteristics of methamphetamine users and assess their aggression levels.

Materials and Methods: The sample for this descriptive cross-sectional study comprises 200 adult probationers (27 females, 173 males). The study utilized personal and criminological information forms, the Addiction Profile Index (API), and the Buss-Perry Aggression Questionnaire (BPAQ).

Results: The mean age of the probationers was 32.32 ± 8.41 years (Female: 30.07 ± 7.14; Male: 32.67 ± 8.55). It was determined that 52.5% were unmarried, 36.5% had experienced traumatic events (including earthquakes, violence, or death), 39% had a history of incarceration, 18% had attempted suicide, and 39% exhibited self-injurious behaviors. Upon analyzing the addiction profiles of probationers, it was shown that 40% had engaged in drug use for a duration of 1 to 5 years, while 64.5% exhibited polydrug usage. The average overall aggressiveness score of probationers was 76.36±20.47, whereas the average total API score was 9.08±3.99. The correlation study indicated a somewhat positive and statistically significant association between probationers' levels of hostility and addiction ($p<0.05$).

Conclusion: Acknowledging the traits of methamphetamine users and their aggression levels during probation may enhance the efficacy of probation practices and aid in diminishing drug consumption.

Keywords: Crime, Methamphetamine, Probation, Substance Use, Aggression

This research is an extended version of the oral presentation at the 33rd Congress of Psychology held in Prague between 21-26 July.

ÖZ

Amaç: *Bu çalışmada madde kullanım davranışı ile ilgili takip ve tedavi sürecinde önemli bir yere sahip olan denetimli serbestlik müdürlüklerinde, metamfetamin kullanıcılarının özelliklerini ortaya koyarak saldırganlık düzeylerinin belirlenmesi ve metamfetamin kullanımı ile ilişkin faktörlerin ortaya konulması amaçlanmıştır.*

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Gereç ve Yöntem: *Tanımlayıcı kesitsel desendeki bu araştırmanın örneklemini 200 (27 kadın, 173 erkek) yetişkin yükümlü oluşturmaktadır. Çalışmada yükümlülerin kişisel ve kriminolojik bilgilerini içeren bilgi formu, Bağımlılık Profil İndeksi (BAPİ) ve Buss-Perry Saldırganlık Ölçeği (BPSÖ) kullanılmıştır.*

Bulgular: *Veriler değerlendirilirken tanımlayıcı istatistikler ve pearson korelasyon analizi kullanılmıştır. Metamfetamin kullanımı olan yükümlülerin yaş ortalaması 32,32 ± 8,41 (K:30,07±7,14; E:32,67±8,55) olup %52,5'i bekâr, %39,5'i ortaokul mezunu olduğu, %36,5'inin travmatik olay geçmişinin (deprem, şiddet, ölüm vb.) olduğu, %33'ünün birden fazla denetimli serbestlik tedbirinin bulunduğu, %39'unun ceza infaz kurumu öyküsünün olduğu, %68,5'inin ailesinin, %71'inin arkadaşının denetimli serbestlik tedbirinin bulunduğu, %18'inin intihar girişiminin olduğu ve %39'unun kendine zarar verme davranışının bulunduğu sonucuna ulaşılmıştır. Metamfetamin kullanımı olan yükümlülerin bağımlılık özellikleri incelendiğinde %40'ının 1-5 yıldır madde kullandığı, %64,5'inin ise çoklu madde kullanımı olduğu sonucuna ulaşılmıştır. Yükümlülerin toplam saldırganlık puan ortalamaları 76,36±20,47; BAPİ toplam puan ortalamalarının ise 9,08 ±3,99 olduğu ve %86,5'inin yüksek bağımlılık şiddetinde riskli kullanımının olduğu saptanmıştır. Araştırmada hipotezleri test etmek için pearson korelasyon analizi yapılmıştır. Yapılan analiz sonucuna göre yükümlülerin saldırganlık ve bağımlılık düzeyleri arasında orta düzeyde pozitif ve anlamlı bir ilişki bulunmuştur (p<0.05).*

Sonuç: *Metamfetamin kullanıcıların özellikleri ve saldırganlık düzeylerinin denetimli serbestlik sürecinde yürütülen iyileştirme faaliyetlerinin odağında tutulması denetimli serbestlik uygulamalarının başarısının arttırılmasında ve madde kullanımının azaltılmasında etkili olabileceği düşünülmektedir.*

Anahtar sözcükler: *Suç; Metamfetamin; Denetimli Serbestlik; Madde Kullanımı; Saldırganlık*

INTRODUCTION

Substance use disorders, characterized as a neurological condition necessitating a biopsychosocial approach, represent a significant public health concern demanding urgent attention in numerous jurisdictions. In the context of combating substance use, diverse strategies are utilized, encompassing demand and production reduction, drug trafficking regulation, and rehabilitation initiatives, with addiction treatment varying based on the substance type, usage duration, and potential complications. In many communities, substance-use disorders are perceived as a deterioration, a threat, and a stigmatization of the individual, leading to a marginalized and often illegal existence (2). Concerns surrounding the accessibility and utilization of methamphetamine have been escalating for an extended period. The rising prevalence of methamphetamine misuse in recent years has led to a heightened workload for addiction clinics. Methamphetamine-related disorders present a substantial issue for people, their families, and society as a whole (3).

Methamphetamine, commonly known as meth, is a powerful and highly addictive stimulant that can have severe consequences for individuals and communities. According to research, short and long-term use of methamphetamine causes circulatory, respiratory, and neurological problems, as well as mental health problems ranging from anxiety, aggression, and depression to acute paranoid psychosis (4). Also, methamphetamine is commonly associated with psychosis. This may be a factor in frequent criminal justice referrals and lengthy treatment required by meth users (5; 6). Despite the lack of precise epidemiological data, efforts to struggle with the rapidly increasing misuse of these substances in Turkey, as in other countries, have been implemented, with various sanctions outlined (7; 8; 9). Probation acts as an alternative to imprisonment for certain types of offenders, primarily those involved in less severe crimes. It is particularly significant and commonly utilized in countries with high incarceration rates, owing to a greater awareness of the costs of imprisonment and the increased cost-effectiveness of probation (10). With the establishment of supervised release in the Turkish Penal Code in 2004, a new era began in the field of addiction (11). A supervision plan is prepared for the probationer for whom a supervised release cautionary decision is issued, and it is ensured that he/she participates in the programs (individual interview, group work, seminars) planned to raise awareness on addiction within the scope of educational improvement studies (12;13). Methamphetamine abuse is increasingly

emerging as a major public health issue, with devastating effects on both individuals and their communities (14). Its abuse is linked to numerous mental health disorders and negatively impacts cognitive functioning, resulting in various detrimental behavioral changes and, ultimately, social isolation. (15). Methamphetamine is linked to a range of mental health disorders and adversely affects cognitive functioning, leading to numerous negative behavioral changes and, ultimately, social isolation (15). Mental disorder symptoms include depression, anxiety, anger, aggression, hallucinations, and delusions, while cognitive impairment encompasses deficiencies in learning, memory, attention, decision-making, social cognition, executive function, and working memory (16; 17). Also, methamphetamine is a drug closely associated with intense aggressive behavior, and the psychoactive nature of the substance leads to high rates of violence and violent crimes (18, 19; 20).

Violence is a significant social issue in numerous countries. Methamphetamine use disorder is a long-term, recurring condition increasingly linked to a range of harms, including mental and physical health issues, intimate partner violence, family disruption, homelessness, crime, and mortality (21). A review of the literature shows that while topics such as anxiety, self-efficacy, problem-solving skills, and stigma are explored among probationers (22; 23; 24), and there are studies on probation measures related to cannabis use (25), research specifically focusing on probationers under supervised release due to methamphetamine use is relatively limited. The research question of the study was *" Is there a relationship between aggression and methamphetamine use in the probation sample ?"* In this context, the study aims to identify the substance use characteristics of methamphetamine users in probation samples and to determine their levels of aggression. Thus, it also aims to contribute to treatment and rehabilitation by revealing the factors associated with methamphetamine use. Considering the original value of the research, it is believed that rehabilitative interventions targeting the concepts of aggression associated with substance use will contribute to a more effective effort to protect the health and well-being of both individuals and society.

MATERIALS AND METHODS

This study, designed in a cross-sectional, was conducted with persons over the age of 18 who were given probation measures within the scope of Article 191 of the Turkish Penal Code (2004) due to the offense of "buying, accepting or possessing drugs or stimulants for use or using drugs or stimulants."

Sample

The study sample, selected by random sampling, included 200 probationers with a history of methamphetamine use who were receiving treatment and probationary measures at the İzmir Probation Office from July 2023 to September 2023. The study's dependent variable is aggressiveness scores. The independent factors include the probationers' socio-demographic traits, substance use patterns, and criminal history.

Procedure

The study was conducted after obtaining permission for the research application from the Directorate of Probation of the Ministry of Justice. Face-to-face interviews were conducted with the probationers. An average of 30 to 50 minutes was spent on each" probationer's session.

Data Collection Tools

Personal Information Form: The form consists of two parts: socio-demographic questions,obtaining data such as age, occupation, education level, employment status, number of siblings, criminal history, and a clinical data form querying psychiatric history and substance use-related characteristics was used.

Buss-Perry Aggression Questionnaire (BPAQ): The BPAQ is a self-report instrument consisting of 29 items, answered on a 5-point Likert-type scale, ranging from 1 (*extremely uncharacteristic of me*) to 5 (*extremely characteristic of me*). The BPAQ assesses four dimensions of aggression: Physical Aggression (nine items), Verbal Aggression (five items); Anger (seven items), and Hostility (eight items) (26). The validity and reliability study of the Turkish version of the scale was tested by Madran (27). The score obtained for each scale sub-factor indicates the individual's aggressive attitudes towards that factor.

Addiction Profile Index (API): The scale consists of 37 questions and five subscales. The validity

and reliability study of the scale was conducted by Ögel and colleagues in 2012.Symptoms related to severe craving and cessation motivation are questioned for the past week, while other categories are assessed for the past year (28).

Data Analysis

The SPSS (Statistical Package for Social Sciences) for Windows 25.0 program was used for statistical analysis. Pearson Correlation Analysis, Independent t-test, and One-Way Analysis of Variance were used as hypothesis tests. The results were evaluated in the 95% confidence interval, and the significance was assessed as $p < 0.05$.

RESULTS

A total of 200 probationers in the study, consisting of 27 females and 173 males, aged between18 and 65 years old, with a mean age of 32.32 ± 8.41. 13.5% of the probationers were female (mean age: 30.07 ± 7.14), and 85.5% were male (mean age: 32.67 ± 8.55). Regarding education level, 39.5% had completed middle school, 52.5% were single, 33% were married, and 14.5% were divorced, 46% of the probationers were parents. 68% were currently employed, 36.5% had a history of traumatic events, 32% had a history of divorce within their families, 31.5% had a history of domestic violence, and 31.5% had experienced childhood neglect. 11% had a history of psychological treatment, 39% had engaged in self-harming behaviors, and 18% had attempted suicide. Furthermore, 39% had previously received a sentence for a crime, and 55.5% described themselves as "calm" (Table-1).

Results Regarding Probationers' Substance Use Characteristics

Probationers with methamphetamine use have a lifetime substance use rate that was determined to be 100%. The mean age at which probationers first tried a substance was found to be 20.65 ± 7.70 years old, with 65% trying marijuana for the first time and 22.5% trying methamphetamine. It was found that 68.5% of probationers had people in their family and environment who used substances, 33% were repeat offenders under probation, 71% had a friend under probation, and 64.5% engaged in multiple substance use. When the distribution of the probationers according to the duration of substance use is analyzed, It was observed that 40% had substance use between 1-5 years, 16% had substance use between 5-10 years, and 27% had substance use more than 10 years. The" probationer' Addiction Profile Index (API) average score was 9.08 ±3.99. In this study, it was found that all participants had low addiction severity. Although the severity of addiction of the participants was low, the rate of high-risk substance use behaviors was found to be 86% (Table-2).

Results Related to Aggression Levels of Probationer

The total score obtained from the Buss-Perry Aggression Questionnaire (BPAQ) was found to be 76.36 ± 20.47. The mean score of the physical aggression sub-dimension of the BPAQ was 22.28, the mean score of the verbal aggression sub-dimension was 14.09, the mean score of the anger sub-dimension was 18.10, the mean score of the hostility sub-dimension was 21.89. The highest mean score of the probationer was obtained from the physical aggression sub-scale. There was a statistically significant difference between the education levels of probationers and BPAQ verbal aggression sub-dimension scores ($F=3.067$; $p = 0.01 < 0.05$). According to the results of Post Hoc analysis, when the verbal aggression levels of probationers were analyzed according to their educational levels, it was found that the average of university graduates ($\bar{x}=15.42$) was higher than high school graduates ($\bar{x}=14.71$). Similarly, there was a significant difference between 'probationer's education levels and anger sub-dimension scores ($F=2.464$; $p<0.05$).

There was a statistically significant difference between the total score obtained from BPAQ and having a history of traumatic events ($t=3.118$; $p<0.05$), domestic violence ($t = 6.113$; $p <0.05$), childhood neglect ($t=6.385$; $p<0.05$), self-harming behavior ($t=5.450$; $p<0.05$), suicide attempt ($t=3.958$; $p<0.05$), presence of substance users in family and surroundings ($t=3.819$; $p<0.05$) and Polysubstance use ($t=0.944$; $p<0.05$). There was a statistically significant difference in all sub-dimensions (physical aggression, verbal aggression, hostility, anger) of the BPAQ for the variables that have a history of traumatic events, domestic violence, childhood neglect, self-harming behavior, suicide attempt, presence of substance users in family and surroundings and Polysubstance use. There was a statistically significant difference between the total score

obtained from BPAQ and the number of polysubstance use (t=.944; p<0.05), as well as physical aggression (t=4.942; p<0.05), verbal aggression (t=-2.903; p<0.05), the hostility (t=-3.879; p<0.05) and anger (t=- 3.407; p<0.05) sub-dimensions. In other words, it was found that the total aggression levels of multiple substance use of probationer ($\bar{x}$=18.15) were higher than single substance use of probationer ($\bar{x}$=15.25) (Table-3).

The relationship between the probationer' BPAQ total score ($\bar{x}$=76.36, sd=20.47) and API total score levels ($\bar{x}$=9.08, sd=3.99) was evaluated by Pearson Correlation. A moderate, positive and significant relationship was found between these variables ($r_{(198)}$= .552, p=.000). It was concluded that there was a statistically moderate, positive and significant relationship between physical aggression, which is one of the sub-dimensions of BPAQ, and API total score ($r_{(198)}$= .486, p=.000), API- Substance Use Characteristics ($r_{(198)}$= .498, p=.000), API diagnosis ($r_{(198)}$= .525, p=.000), API effect on life ($r_{(198)}$= .463, p=.000) and API craving dimensions ($r_{(198)}$= .548, p=.000). In other words, as physical aggression increases, substance use total score, substance use characteristics, substance use diagnosis status, adverse effects of substance use on life and substance use desire increase (Table-4).

Table-1. Socio-demographic data of participants (n=200)

	Probationers with Methamphetamine Use (N=200)	
	Mean ± SD	
Age	32.32±8.41	
	N	**%**
Sex		
Female	27	13.5
Male	173	86.5
Total	**200**	**100**
Education		
Literate	7	3.5
Primary School Graduate	37	18.5
Middle School Graduate	79	39.5
High School Graduate	70	35
University Graduate	7	3.5
Total	**200**	**100**
Marital Status		
Single	105	52.5
Married	66	33
Divorced	29	14.5
Total	**200**	**100**
Having Children		
Yes	92	46
No	108	54
Total	**200**	**100**
Employment Status		
Employed	136	68
Working irregularly	44	22
Unemployed	20	10
Total	**200**	**100**
History of Traumatic Events		
Yes	73	36.5
No	127	63.5
Total	**200**	**100**
Family Divorce History		
Yes	64	32
No	136	68
Total	**200**	**100**
Domestic Violence History		
Yes	**63**	**31.5**
No	137	68.5
Total	**200**	**100**

Childhood Neglect Experience		
Yes	63	31.5
No	137	68.5
Total	**200**	**100**
Psychological Treatment History		
Yes	**22**	11
No	178	89
Total	**200**	**100**
Self-Harming Behavior		
Yes	**78**	39
No	122	61
Total	**200**	**100**
Suicide Attempt		
Yes	36	18
No	164	82
Total	**200**	**100**
How do you describe yourself?		
Calm	111	55.5
Hyperactive	23	11.5
Irritable	17	8.5
Social	25	12.5
Introverted	24	12
Total	**200**	**100**
Previous Incarceration Status		
Yes	78	39
No	122	61
Total	**200**	**100**

Table-2. Substance use characteristics of offenders with methamphetamine use

	Probationers with Methamphetamine Use (N=200)	
	Mean ± SD	
	N	**%**
Lifetime Substance Use		
Yes	200	100
Total	**200**	**100**
Presence of Substance Users in Family and Surroundings		
Yes	137	68.5
No	63	31.5
Total	**200**	**100**
Previous Probation Measure Status		
Yes	66	33
No	134	67
Total	**200**	**100**
Friend's Probation Measure Status		
Yes	142	71
No	58	29
Total	**200**	**100**

Lifetime Substance Use Duration		
Less than 1 year	34	17
1-5 years	80	40
5-10 years	32	16
More than 10 years	54	27
Total	**200**	**100**
Substance Use Frequency		
Almost every day	43	21.5
Most days of the week	39	19.5
Several days a week	67	33.5
Several days a month	44	22
Several days a year	7	3.5
Total	**200**	**100**
Marijuana Use Frequency		
Never	40	20
At least one use	19	9.5
Three or more	141	70.5
Total	**200**	**100**
Polysubstance Use		
Single Substance	71	35.5
Multiple Substances	129	64.5
Total	**200**	**100**
Addiction Profile Index (API) Severity of Addiction		
Low Addiction Severity	7	3.5
Moderate Addiction Severity	20	10
High Addiction Severity	173	86.5
Total	**200**	**100**

Table-3. Comparison of probationers' aggression scores by some variables

Demographic Characteristics	**n**	**BPAQ Total Score**	**Physical Aggression**	**Verbal Aggression**	**Hostility**	**Anger**
Sex		**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**
		78.66 ±22.69	22.14 ±6.99	13.92 ±4.49	22.85 ±6.67	19.74 ±7.61
Female	27	76 ±20.15	22.30 ±6.92	14.11 ±3.57	21.75 ±6.85	17.84 ±5.56
Male	173		-.106	-.247		1.55
t		.62	.916	.805	.786	.121
p		.531			.433	

Education		**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**
Literate	7	80.71±24.06	23.14±7.38	15.42±4.96	22.85±7.94	19.28±4.49
Elementary School	37	78.21±15.07	22.08±5.29	14.72±3.11	22.24±6.43	19.16±4.00
Gra.Middle School	79	71.78±20.12	21.62±6.95	13±3.47	20.63±6.88	1653±5.78
GraduateHigh School	70	79.44±22.32	22.85±7.46	14.71±3.96	22.65±6.87	19.21±6.62
Graduate University	7	83.14±21.82	24.14±8.97	15.42±4.96	25.57±5.44	18±6.40
Graduate						
F		1.757	0.458	3.067	1.473	2.464
p		0.139	0.767	**0.01**	0.21	**0.04**
PostHoc				**4>3 (p<0.05)**		**4>3 (p<0.05)**
History of Traumatic Events		**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**
Yes	73	82.19 ±20	23.72±6.96	15±3.77	23.67±6.77	19.79±5.92
No	127	73.01±20.05	21.44±6.78	13.56±3.57	20.86±6.66	17.13±5.67
t		3.118	2.264	2.677	2.847	3.140
p		**0.002**	**0.025**	**0.008**	**0.005**	**0.002**
Domestic Violence		**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**
Yes	63	88.36±17.58	25.61±6.57	16.04±3.52	25.34±5.60	21.34±5.19
No	137	70.84±19.36	20.74±6.54	13.18±3.43	20.29±6.76	16.61±5.60
t		6.113	4.886	5.422	5.163	5.675
p		**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Childhood Neglect Experience		**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**
Yes	63	88.80±18.33	25.76±7.37	16.04±3.29	25.23±5.76	21.76±5.18
No	137	70.64±18.85	20.67±6.08	13.18±3.53	20.35±6.74	16.42±5.43
t		6.385	5.123	5.422	4.976	6.543
p		**0.000**	**0.000**	**0.00**	**0.000**	**0.000**
Psychological Treatment History		**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**
Yes	22	86±19.66	24.81±5.79	15.50±4.04	24.63±6.67	21.04±7.02
No	178	75.17±20.30	21.96±6.99	13.91±3.63	21.55±6.78	17.74±5.65
t		2.367	1.835	1.906	2.015	2.512
p		**0.019**	0.068	0.058	**0.045**	**0.013**
		Mean ±SD	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**
Self-harming Behavior		85.58±18.46	25.97±6.15	15.29±3.37		
Yes	78	70.46±19.55	19.91±6.34	13.31±3.70	23.83±6.43	20.48±5.31
No	122	5.450	6.663	3.803	20.64±6.80	16.58±5.76
t		**0.000**	**0.000**	**0.000**	3.298	4.817
p					**0.001**	**0.000**

Suicide Attempt		**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**
Yes	36	88.16±17.52	25.72±5.71	15.44±3.82	25.55±6.36	21.44±5.44
No	164	73.77±20.20	21.52±6.94	13.79±3.61	21.08±6.67	17.37±5.75
t		3.958	3.381	2.455	3.667	3.883
p		**0.000**	**0.001**	**0.015**	**0.000**	**0.000**
Presence of SubstanceUsers in Family and Surroundings		**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**
Ye	137	79.99±20.02	23.26±6.87	14.65±3.60	22.90±6.61	19.16±5.76
s	63	68.47±19.31	20.14±6.57	12.85±3.64	19.68±6.81	15.79±5.55
No		3.819	3.022	3.271	3.171	3.890
t		**0.000**	**0.003**	**0.001**	**0.002**	**0.000**
p						
Lifetime Substance Use Duration		**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**
Less than 1 year	34	61.32±17.17	16.70±5.92	12.73±3.51	17.64±6.80	14.23±4.94
1-5 years	80	74.58±18.72	21.47±6.15	13.73±3.70	21.57±6.06	17.80±5.90
5-10 years	32	87.50±17.32	26.03±6.18	15.75±3.16	24.81±5.87	20.90±5.54
More than 10 years	54	81.87±20.88	24.75±6.59	14.48±3.78	23.29±7.22	19.33±5.41
F				**4.312**		**9.140**
p		**12.672**	**16.171**	**0.006**	**7.896**	**0.000**
PostHoc		**0.000**	**0.000**	**3>1**	**0.000**	**2>1, 3>1,**
		3>1,4>1	**2>1, 3>1,**	**(p<0.05)**	**3>1, 4>1**	**4>1**
		(p<0.05)	**4>1(p<0.05)**		**(p<0.05)**	**(p<0.05)**
PolySubstance Use		**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**
Single Substance	71	67.97±19.44	19.19±6.34	13.08±3.76	19.45±6.71	16.23±5.30
Multiple Substances	129	80.98±19.60	23.97±6.65	14.64±3.55	23.23±6.53	19.13±5.97
t		.944	4.942	-2.903	-3.879	-3.407
p		**.000**	**0.000**	**.004**	**.000**	**0.001**
Addiction Profile Index(API) Severity of Addiction		**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**
	7	63.28±18.21	20.14±6.06	11.42±1.90	17.57±7.97	14.14±4.48
Low Addiction Severity	20	63.65±15.10	17.80±5.88	12.70±3.61	18.45±5.06	14.70±4.49
Moderate AddictionSeverity	173	78.36±20.45	22.88±6.88	14.35±3.70	22.46±6.81	18.65±5.91
High Addiction Severity		**6.445**	**5.416**	**3.777**	**4.717**	**5.962**
		0.002	**0.005**	**0.025**	**0.010**	**0.003**
F		**3>2**	**3>2**	**3>1**	**3>2**	**3>2**
p		**(p<0.05)**	**(p<0.05)**	**(p<0.05)**	**(p<0.05)**	**(p<0.05)**
PostHoc						
Total	**200**					

F: Anova Test; t: Independent Samples T-Test; PostHoc:Tukey, LSD

Table-4. Correlation between Variables

	Mean	Sd	API-Total	API- Substance Use Characteristics	API-Diagnosis	API-Effects on Life	API-Craving	API-Motivation	BPAQ Total Score	Physical Aggression	Verbal Aggression	Hostility	Anger
API-Total	9.0892	3.99683	1										
API-Substance Use Characteristics	1.9068	1.59429	.708**	1									
API-Diagnosis	10.332	6.15325	.894**	.620**	1								
API-Effects on Life	21.27	11.46579	.886**	.559**	.804**	1							
API-Craving	5.14	4.54021	.829**	.591**	.738**	.680**	1						
API-Motivation	9.005	3.38114	.496**	.075	.262**	.312**	.150*	1					
BPAQ Total Score	76.365	20.47285	.552**	.540**	.525**	.463**	.548**	.075	1				
Physical Aggression	22.28	6.91961	.486**	.498**	.489**	.421**	.509**	-.016	.887**	1			
Verbal Aggression	14.09	3.70141	.441**	.424**	.385**	.368**	.396**	.139*	.790**	.580**	1		
Hostility	21.89	6.82722	.498**	.460**	.455**	.409**	.494**	.114	.888**	.666**	.676**	1	
Anger	18.105	5.89642	.493**	.490**	.481**	.410**	.483**	.059	.907**	.770**	.654**	.720**	1

**p<0.01; *p<0.05

**Correlation is significant at the 0.01 level (2-tailed).

DISCUSSION

The supervised probation program in Turkey, established in 2006, plays a crucial role in managing substance use disorders by focusing on socio-demographic factors, criminal records, and treatment outcomes (29). This program aims to correct criminal behavior, prevent recidivism, and rehabilitate substance abusers through regular urine analysis and psychosocial evaluations (30). Studies have shown that most individuals in these programs are male, young, with low education levels, and primarily use marijuana as their substance of choice (29, 31). Additionally, research highlights the importance of early education on substance abuse, social awareness, and the need for detailed psychological assessments for individuals with multiple substance use (29). Similar results were obtained in this study conducted to determine the aggression levels and substance use characteristics of methamphetamine users on probation.

The study found that 85.5% of the probationers were male. When reviewing research in the field of addiction, it's evident that substance use is more prevalent among males compared to females (32; 33). Similarly, in some studies conducted with individuals under probation (34; 35), it's noteworthy that there is a higher proportion of male participants, with some samplesconsisting entirely of males. According to the 2021 data from TUBIM regarding methamphetamine use disorder in Turkey, it's shown that methamphetamine use is more common among males, with a rate of 92.9% (36). A study indicates that the proportion of women under probation increased from 31% in 2000 to 36% in 2010 (37). According to the 2023 profile research results of the General Directorate of Security, it's stated the that proportion of women among methamphetamine users is higher compared to other drug users. The same report also notes an increase in the proportion of women in the sample compared to the previous year in 2022. Therefore, there is a need for more research involving women in this context (36). When examining the rates of high severity of substance use obtained from API, it was found that 86.5% of the participants had high addiction severity. However, the total score averages from

API were found to be low, with a mean of 9.08 ± 3.99. Considering this finding, it is observed that individuals using methamphetamine are aware of the addictive potential and harms of the substance, but they may not accurately reflect how they use it due to efforts to present themselves positively. Therefore, their levels of dependency may appear low. According to the research results, the average scores obtained from the API-effects of life subscale of methamphetamine users were higher at 21.27 ± 11.46 compared to other subscales. It is concluded that probationers have low insight into the harms of the substance and have low motivation for change. A study by Levin et al. (2006) examining the motivations of cocaine and marijuana users found that motivation varied depending on the type of substance used (38).

The results obtained from the study show a significant difference between the total aggression scores with all subscales and traumatic event history, domestic violence, childhood neglect experiences, self-harm behaviors, suicide attempts, the presence of substance use in family and environment and the amount of substance use among individuals who are under probation due to methamphetamine use. In a study in 2009, it was found that children with a history of substance use in their parents are more likely to exhibit problematic behaviors (39). In a study examining the relationship between childhood trauma and aggression, it was reported that individuals exhibit aggressive behaviors to get rid of negative emotions (40). Gomez, in a study in 2011 examining the effect of childhood experiences on violent behavior in young adults, suggests that childhood traumatic experiences result in suicide attempts and involvement in violence-related crimes in adulthood (41).

The intricate and multifaceted connections between substance use and psychiatric or behavioral disorders have been a subject of significant interest for a long time and remain an active area of investigation, given the well-established impact of substances on user behavior. The connection between substance use and aggressive or impulsive behaviors is of particular significance. According to the results of the study, as the aggression scores of probationers increase, their levels of severity of addiction also increase. In a study conducted by Akan et al. (2019) for probationers, it is emphasized that practices that will reduce the level of aggression and change the view of violence are very important rather than imposing sanctions on men who commit violence (42). In a study in 2016, examining the relationships between anger, depression, anxiety, and addiction severity in substance users, a positive correlation between BPAQ and API subscales was observed (43). It was found that as BPAQ scores increase, there is an increase in the subscale scores related to the impact of substance use on life, the intense desire for substance use, and motivation to quit substance use. Our findings are parallel with previous studies. It is observed that there is a significant difference between API high-risk substance use rates and total aggression scores, as well as scores for physical aggression, verbal aggression, hostility, and anger sub-dimensions among probationers. Additionally, it was determined that the total aggression and sub-dimension scores of probationers with high addiction severity were higher than those of probationers with moderate addiction severity. As the severity of addiction increases, health problems and problems in work and social life also increase. As the cost of substance use increases in the individual's life, acceptance of the problem may be more likely. However, it is thought that some of the probationers in the study may have experienced a decrease in the severity of addiction because some of them started probation measures within the first 3 days after the penal institution and some of them started probation measures after Alcohol and Substance Abuse Treatment Center (AMATEM) treatment. Therefore, it can be said that treatment or execution is effective in reducing the severity of addiction. Another explanation for the low addiction severity data obtained from our study could be that the participants were unable to respond to the questions impartially. It is considered possible that individuals under probation, whose judicial processes have not yet been finalized, may have provided biased answers out of fear that their probation might be terminated due to violations. Some limitations of our study should be acknowledged. Firstly, the assessment of aggression levels and substance use characteristics relied on self-report measures, which may be subject to recall bias or social desirability bias. Secondly, the sample size was limited, which may affect the generalizability of the findings. Thirdly, there was a smaller number of female participants compared to male

participants, which may limit the generalizability of the results to the broader population

CONCLUSION

In conclusion, methamphetamine is considered more dangerous due to its high potential for dependence, acute complications, and long-term neurotoxicity. Additionally, our findings suggest that methamphetamine increases aggression and leads to similar outcomes among individuals under probation. It is noteworthy that individuals who use methamphetamine may not disclose accurate information about their usage patterns, levels, and durations to avoid disclosure and exclusion, leading to lower reported dependence levels but higher risk usage. Therefore, incorporating forensic/analytical toxicological approaches alongside subjective reports could provide more reliable and concrete information about substance use. Furthermore, given the increased suicide risk among methamphetamine users with a history of past treatment, family and environmental substance use, and probation, comprehensive evaluations for addiction and suicide risk are essential to decrease these risks. Moreover, understanding the riskfactors associated with substance use and preventing substance dependence and promoting willingness to quit and seek treatment are crucial in probation sampling. While larger, longitudinal, multicenter studies are needed in this regard, it is believed that our research will also shed light on future studies.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Conflicts of interest: Authors declared no conflict of interest.

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