Illicit substance use among persons admitted to probation polyclinic of a regional mental hospital in the Eastern Anatolia, Turkey

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ABSTRACT

الأهداف : التحقيق في اتجاهات استخدامات المواد المحضورة حسب الجنس والعمر في شرق تركيا، ايلازيج .

الطريقة : هذه دراسة استعادية مصممة لتقييم مدى انتشار تعاطي المواد المحضوره في الأشخاص الذين أدخلوا تحت المراقبة في عيادة المدينة في مستشفى ايلازيج للصحة العقلية، ايلازيج، تركيا، بين يناير 2011 وديسمبر 2014 . دُرست الاختبارات المعملية لفحص المخدرات باستخدام المقايسة المناعية المرتبط بالإنزيم .

النتائج : شملت الدراسة 10267 من الذكور (95.3%) و 510 من الإناث (4.7%)، مع متوسط العمر من 30.42±10.83 عاما. كان معدل انتشار للقنب الهندي 32.1% ، و 3.8% للمواد الأفيونية، 0.35% للكوكايين و 1.2% لاستخدام عقاقير متعددة . وكان انتشار القنب الهندي أعلى بكثير في الذكور (32.7%؛ p=0.000) . وبلغت نسبة انتشار تعاطي القنب أدنى مستوى له في الفئة العمرية من 59–50 في حين كان أعلى بكثير في الفئات العمرية من 29–20 و39–30 (p=0.000) . أظهر مدى انتشار استخدام المواد الأفيونية فرق كبير بين السنوات كان (p=0.000)، وهناك فرق كبير في انتشار تعاطي الكوكايين بين السنوات (p=0.02) . أظهر معدل انتشار استخدام عقاقير متعددة فرق كبير بين السنوات (p=0.000) .

الخاتمة : كان القنب الهندي المخدر المحضور الأكثر شيوعاً في شرق تركيا. ويلزم إجراء المزيد من الدراسات لمقارنة نتائج مناطق البلاد المختلفة وتطوير التدخل المبكر ومرافق المعالجة .

Objectives: To investigate the illicit substance use trends by gender and year in Eastern Turkey, Elazığ.

Methods: This is a retrospective study designed to assess the drug use prevalence in persons who admitted to the Probation Policlinic of Elazig Mental Health Hospital between January 2011 and December 2014 in Eastern Turkey, Elazığ. Laboratory screening tests for drugs were studied using the cloned enzyme donor immunoassay technique in urine.

Results: The study consisted of 10267 males (95.3%) and 510 females (4.7%), with a mean age of 30.42±10.83 years. Overall prevalence was 32.1% for cannabis, 3.8% for opiate, 0.35% for cocaine and 1.2% for polydrug usage. The prevalence of cannabis was significantly higher in males (32.7%, *p*=0.000). The prevalence of cannabis use was the lowest in the age group of 50-59 while it was significantly higher in the age groups of 20-29 and 30-39 (*p*=0.000). The prevalence of opiate use showed a significant difference among the years (*p*=0.000). There was a significant difference in the prevalence of cocaine use among the years (*p*=0.02). The prevalence of polysubstance use showed a significant difference among years (*p*=0.000).

Conclusion: Cannabis was the most common illicit drug in the east of the Turkey. Further studies are required for comparing the results of various regions of the country and developing early interventions and treatment facilities.

Illicit substance use is considered as a major health problem worldwide.[1] Worldwide, millions of people use illegal drugs, such as cannabis, amphetamines, cocaine, opiates, and hallucinogens.[2] The estimated number of illicit substance users is 200 million people worldwide. Cannabis is the most frequently used drug. Globally, approximately 125-203 million cannabis users, between the age 15 and 65, are reckoned. United Nations Office on Drugs and Crime (UNODC) world drug report in 2010 has explained that more than 15 million opioid users were present.[3] Worldwide, approximately 14-21 million people (0.3-0.5% of the population aged 15-65 years) use cocaine.[4] The extend of illicit substance use has been increasing in the United States of America and Europe over the past few years.[5,6] Unfortunately, substance use prevalence in Turkish youth has been increasing seriously.[5] Turkey is a secular Muslim country that becomes a regional power in Eurasia with its increased young population and rapidly growing economy. Use of social media and rapid globalization promotes illicit substance use in Turkey.[5,7] There are a limited number of studies regarding the prevalence of substance use in Turkey. Therefore, the prevalence of substance use in Turkish people has not been clearly established. For developing interventions to reduce the substance use, reliable, and comprehensive epidemiological studies are needed. Thus, studies with high-risk populations (adolescents and adults on probation) may be more precious due to reflecting the patterns of substance use. This study was carried out to determine the gender differences, changes substance use among years, and substance use patterns of cannabis, opiate, and cocaine.

Methods. The Mental Health Hospital is a state hospital with 488 beds in Eastern Anatolian region of Turkey. The hospital serves 18 cities in Eastern and Southeastern Anatolia. Screening tests for cannabis, opiate and cocaine was carried out among persons admitted to the Probation Polyclinic of Alcohol and Drug Research, Treatment and Training Center (AMATEM), Istanbul, Turkey. The laboratory records of the 10777 cases who gave at least one urine sample admitted to Probation Policlinic have been assessed retrospectively. Persons who are subject to probation application given a urine sample 3 times in every 15 days. The persons who have 3 consecutive negative test results and the timely participation in the psychiatric interview is considered as completed treatment. In probation treatment program, cannabis, methamphetamine, opiates, and cocaine are scanned in urine. Methamphetamine was excluded from the study due to the high rate of cross-reactivity. The positive results of cases who admitted more than

one have been recorded. Substance use characteristics were compared with the data regarding age groups, gender, and substance types among the 4 years (2011, 2012, 2013, and 2014) retrospectively. The study was approved by the Firat University Ethical Committee.

Laboratory examinations. Urine samples were analyzed for cannabis, opiate, and cocaine metabolites in the Clinical Laboratory of the hospital. All drug detection kits (CEDIA, Fremont, USA) were performed on the Olympus AU 400 (Diamond Diagnostics, Holliston, USA) with Cloned Enzyme Donor Immunoassay (CEDIA) technique. Urine samples were tested with a 50 ng/ml screen limits for cannabinoids; 300 ng/ml for opiate; and 300 ng/ml for cocaine. Any value which is above this cut-off values was considered as positive.

Statistical analysis. The urine datas of drug users were collected from the laboratory information system (LIS), and demographic data including age and gender were provided from hospital information system (HIS). Descriptive statistics were computed as mean ± standard deviation (SD), count, and percent of frequency in tables. Statistical analyzes were performed using the Statistical Package for the Social Sciences version 22 (IBM Corp., Armonk, NY, USA) The Pearson chi-square test was used for categorical comparisons of nominal values in different groups. If *p*-value was <0.05, it was considered statistically significant.

Results. Over the 4 year period between January 2011 and December 2014, 10777 patients in the Mental Health Hospital were screened for cannabis, opiate, and cocaine. There were 10267 (95.3%)

Table 1 - The prevalence of cannabis usage, according to gender, age groups, and years (n=10777).

Characteristics	Number of subjects (%)	Number of cannabis positive subjects	Prevalence (%)	P-value
Overall	10777	3461	32.1	
Gender				0.000*
Male	10267 (95.3)	3356	32.7	
Female	510 (4.7)	105	20.6	
Age group				0.000*
<20	1215 (11.3)	357	29.4	
20-29	4862 (45.11)	1715	35.3	
30-39	2720 (25.23)	867	31.9	
40-49	1244 (11.54)	344	27.7	
50-59	523 (4.85)	116	22.2	
>60	213 (1.97)	62	29.1	
Year				0.2
2011	2637 (24.47)	861	32.7	
2012	2393 (22.20)	791	33.1	
2013	2845 (26.4)	871	30.6	
2014	2902 (26.93)	938	32.3	
*significant difference at <0.05.				

males and 510 (4.7%) females, with a mean age of 30.42 ± 10.83 years. The overall substance use frequency was 32.11% for cannabis, 3.8% for opiate, and 0.35% for cocaine. During the 4 year period, 3461 cannabis positive cases were reported. The frequency of cannabis among genders was significantly higher in the males (*p*=0.000). The ratio of cannabis was the lowest in the age group of 50-59, while it was significantly higher in the age groups of 20-29 and 30-39 (*p*=0.000) (**Table 1**). There was no significant difference in the prevalence of cannabis among years. Opiate was detected as positive in 413 cases in 4 years. The prevalence of opiate use was not different among genders. There was no significant difference in the prevalence of opiate among age. The prevalence rates of opiate showed a significant difference

among the years (*p*=0.000) (**Table 2**). During the 4 year period, 38 cocaine positive cases were reported. The prevalence of cocaine use was not different among genders. There was no significant difference in the prevalence of cocaine among age. However, there was a significant difference in the prevalence of cocaine among the years (*p*=0.02) (**Table 3**). During this 4 year period, polydrug (2 or 3) use were detected as positive in 125 (1.2%) cases. The prevalence rate of multiple substance usage among genders and age was not different. The prevalence of polysubstance use showed a significant difference among the years (*p*=0.000) (**Table 4**). The admission rate to the hospital was detected higher in the age group of 20-29 and 30-39 (**Figure 1**).

Table 2 - The prevalence of opiate usage, according to gender, age groups, and years (n=10777).

Characteristics	Number of subjects (%)	Number of opiate positive subjects	Prevalence (%)	P-value
Overall	10777	413	3.8	
Gender				0.98
Male	10267 (95.3)	394	3.8	
Female	510 (4.7)	19	3.7	
Age group				0.557
<20	1219 (11.3)	47	3.9	
20-29	4863 (45.1)	194	4.0	
30-39	2721 (25.3)	89	3.3	
40-49	1243 (11.5)	53	4.3	
50-59	519 (4.8)	23	4.4	
>60	212 (2.0)	7	3.3	
Year				0.000*
2011	2627 (24.4)	77	2.9	
2012	2396 (22.2)	110	4.6	
2013	2859 (26.5)	90	3.1	
2014	2895 (26.9)	136	4.7	
*significant difference at <0.05.				

Table 3 - The prevalence cocaine usage, according to gender, age groups, and years (n=10777).

Characteristics	Number of subjects (%)	Number of cocaine positive subjects	Prevalence (%)	P-value
Overall	10777	38	0.35	
Gender				0.54
Male	10267 (95.3)	36	0.4	
Female	510 (4.7)	2	0.4	
Age group				0.55
<20	1215 (11.3)	3	0.2	
20-29	4914 (45.6)	15	0.3	
30-39	2696 (25.0)	12	0.4	
40-49	1230 (11.4)	7	0.6	
50-59	517 (4.8)	1	0.2	
>60	205 (1.9)	0	0.0	
Year				0.02*
2011	2672 (24.8)	15	0.6	
2012	2346 (21.8)	5	0.2	
2013	2823 (26.2)	4	0.1	
2014	2936 (27.2)	14	0.5	
*significant difference at <0.0				

Table 4 - The prevalence of polysubstance (2 or more) usage, according to gender, age groups, and years (n=10777).

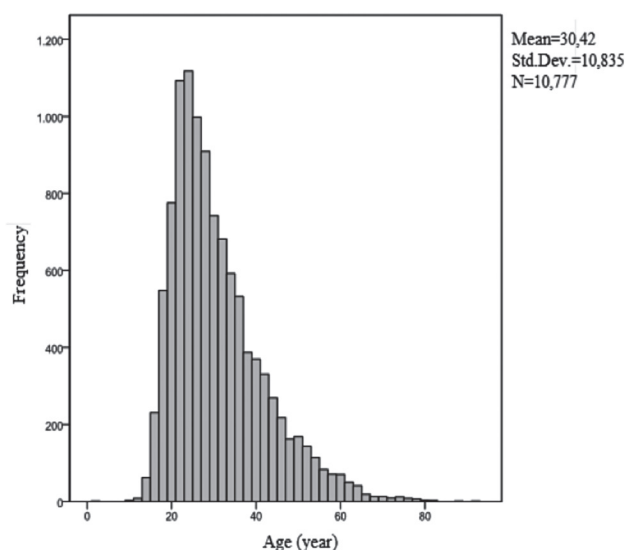| Characteristics	Number of subjects (%)	Number of polysubstance positive subjects	Prevalence (%)	P-value
Overall	10777	125	1.2	
Gender				
Male	10267	120	1.2	0.45
Female	510	5	1.0	
Age group				
<20	1227 (11.4)	12	1.0	
20-29	4824 (44.7)	63	1.3	0.198
30-39	2732 (25.4)	30	1.1	
40-49	1254 (11.6)	18	1.4	
50-59	527 (4.9)	2	0.4	
>60	213 (2.0)	0	0.0	
Year				
2011	2661 (24.7)	22	0.8	
2012	2412 (22.4)	39	1.6	0.000*
2013	2799 (26.0)	18	0.6	
2014	2905 (27.0)	46	1.6	
*significant difference at <0.05.				

Figure 1 - The age distribution of subjects admitted to hospital.

Discussion. This large-scale laboratory-based study shows the prevalence of illicit substance use in Turkey. Cannabis was the most common illicit drug within this study. Our findings were in line with the UNODC report, which indicated cannabis as the most widely used drugs all over the world.[5] Cannabis use rates were reported in Oceania (Australia 9.1% and New Zealand 14.2%,) and North America (10.8%).[8] The lifetime use of cannabis use prevalence for Europeans was 21.7% of adults aged 18-64, and cannabis use prevalence was 5.3% of adults in the last year. The last year cannabis use was 11.2% in young adults aged 15-24. The prevalence of cannabis use in European countries ranged from 0.4-9.6% in the last year in Romania, and in Spain.[9] In a high school survey that was conducted in 15 different cities in Turkey in 1998, the prevalence of lifetime cannabis use was found as 3.6%.[10] In a 2001 study,[11] among high school students in 9 big different cities of Turkey yielded a 4% prevalence of lifetime use of cannabis. In a large-scale survey study conducted in 2010,[7] the prevalence of cannabis use in the lifetime among youth was found 3.3%. In 2011,[5] the prevalence of cannabis use among 1969 children and youth who visited the substance addiction clinic in Istanbul was 60.1%.[5] In 412 cases which was admitted to the Forensic Psychiatry Clinic of Gaziantep in Turkey[12] between 2007-2011 a 57.1% cannabis use was detected. The reason for the higher use of cannabis may be due to it being easily available and for its cheaper cost.

In this study among adults, higher rates of cannabis use among males was found. Consistent with our findings, in many studies that carried out by various countries,[13,14] was reported the high cannabis use prevalence among males compared with females. The highest cannabis positivity prevalence was observed between the age of 20-29 years. Similar to our study, a study conducted in Australia,[15] the prevalence of cannabis use was significantly higher in the 20-30 age group than the other age groups. In our study, opiate emerged as the second most commonly used drug. A study conducted in Turkey,[16] which was admitted at probation polyclinic in February 2010, 215 file records were evaluated, the lifetime prevalence use of heroin 0.9% and cocaine 5.6%.[16] Looking at the trends in opiate usage, we found the highest prevalence in 2014. A study from Turkey,[17] including 2718 youths admitted to an addiction treatment center reported the increased heroin use prevalence through the years in males.[17] Reported data on the prevalence of opiate usage is highly variable in different geographical regions worldwide. The number of opioid users was estimated at 12-21 million people globally. More than half of

opioid users lived in Asia. North Americans exhibit the highest levels of opioid use in the world.[18] In a study from Afghanistan detected the pods as a most prevalent drug in biological samples (5.6%).[13] Opiates from Afghanistan are trafficked to the Balkans through Turkey.[19] Therefore, the easy accessibility of opiate may be the reason for the high prevalence of opiate in 2014. The prevalence of opiate in Medical students of Yasouj University in Iran was researched and was detected as 8.8%. This rate of opiate usage was higher than the USA, UK and Brazil.[20]

There was no difference between genders in the prevalence of opiate use. In contrast to our findings, lifetime opiate usage was found higher among men in a study from Finland.[1] Cocaine use prevalence was found very low in our study (0.35%). In a study from Turkey,[21] the overall lifetime prevalence of cocaine use was found 0.2% in University students. The low prevalence of cocaine may be explained with high cost and the scarcity in the availability. Cocaine is reported as the second most commonly used drug after cannabis in Spain and Western European countries.[22,23] In this present study; only 2 positive patients were female, and there was no difference between genders in the prevalence of cocaine use. The highest prevalence rate was detected in 2011 and 2014. Polysubstance use was low in this study (1.2%). This is in line with the results from school survey studies carried out in Turkey.[5,7] Contrary to our findings, polysubstance use was found common (60.2%) in 2 consecutive studies in the same center (Child and Adolescent Drug and Alcohol Dependence Treatment Center, CEMATEM in Turkey)[5,18] There was no difference between genders and among age groups in the prevalence of polysubstance use (2 or more illicit substances). This may be due to the fact that the evaluated number of drugs were limited. The alcohol and inhalants and the other substances might increase the prevalence of polysubstance use in some studies. The admission rate to the hospital was detected higher in the age group of 20-29 and 30-39. People who use substances may become more dependent in this age group. Therefore, the possibility of redirection to the probation addiction clinic may increase.

This study has several limitations. First, positive tests were not confirmed by gas chromatography-mass spectrometry (GS-MS) or liquid chromatography-tandem mass spectrometry (LC-MS/MS). Especially, opiate could not be confirmed to identify the morphine, heroin or codeine. Second, a limited number of substance were evaluated. Especially synthetic marijuana use is rapidly increasing in recent years. Third, the clinical history of the persons (for example,

years of consumption, treatment received in the past, the drug use discrimination between abuse and/or dependence, and so forth) could not be evaluated due to the large number of samples. Therefore, the study is not a representative for all of the substances used in Eastern of Turkey. An important strength of this study was the large number evidence-based laboratory data. Because of having a high-risk population in this study, it provides a reliable evidence in reflection of patterns substance use.

In conclusion, our study suggests that drug use in Eastern Turkey is more prevalent in men than in women. Marijuana was found the most common substance because of the easy access. Also, there was an increase in the use of opiate through the years. This study reflects the profile of substance use in eastern Turkey. Despite lower rates of substance usage was estimated in Turkey as compared with European countries, there is a trend towards increased substance use among youth and adults due to rapid globalization. Further study is needed to demonstrate the synthetic cannabis, ecstasy, and the other addictive substance usage profile in this region. Interventions to decrease substance abuse in this area should be implemented as state policy as soon as possible.

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