



## Prevalence and Effective Factors on Ecstasy Use among Young Iranian

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### ABSTRACT

Drug and Psychedelic drug are a problem causing mental conflicts in families and communities, and everyone strives to keep teenagers and young people away from it. The purpose of this study was to determine the prevalence and associate factors in the use of ecstasy in young people aged 19-29 years in Iran. By recognizing effective factors, we may reduce the consumption of this drug. This study was conducted in 13 provinces of Iran, in 2013. Through multi-stage sampling, 3246 young people aged 19 to 29 years old entered the study. Weighted Multivariate logistic regression was used to measure the relationship between ecstasy consumption and other variables. The prevalence of ecstasy use in this study was 5.3% (with a 95% confidence interval of 3.7 and 6.9). Based on the findings of the Multivariate Analysis, Sex(AOR): 2.61 (95% CI 1.14.4.08), Know a person among family members, relative or friends who use methamphetamine: (AOR): 0.56 (95% CI: 0.33.0.97 Know a person among family members, relative or friends who use ecstasy: (AOR): 6.04 (95% CI: 3.10, 11.77) and history of extramarital sex: ( AOR): 3.23 (95% CI: 2.09.4.99) and having knowledge of Psychedelic drug use (AOR): 1.90 (95% CI: 1.30.2.76) had significant relationships with ecstasy consumption. Extending training programs to make people knowledge of the complications of taking this drug will reduce the demand and inclination of people, especially the youth, towards it. It also seems that the reduction of sexual relations outside marriage and the reduction of relationship with those who use ecstasy may be associated with a reduction in ecstasy use. Men also need more care than women.

**Key words:** Prevalence, Ecstasy, Psychedelic Drug, Effective Factor.

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### INTRODUCTION

Today, the use of Psychedelic drug as a social, health, economic and cultural problem is considered to be a worrying phenomenon worldwide. Drug and Psychedelic drug are a problem that causes mental conflicts among families and communities, and everyone is struggling to keep teens and young people away

from it. There are currently at least 1300 Psychedelic drug, of which the amphetamine compounds are the most consumed in the world [1]. MDMA is commonly known as ecstasy, which is one of the most popular industrial drugs and is derived from amphetamine, and has been introduced as a Psychedelic drug by the World Health Organization for its effects [2]. Ecstasies are found with E, Xtc, X names on the market [3]. American psychologists used this material to facilitate psychotherapy in the 1970s. Then on, and due to the Psychedelic properties of ecstasy, it was used as a recreational item. Therefore, concern about the potential risks of non-pharmacological use of ecstasy forced US and other health authorities to restrict its and other amphetamine use, although, this substance is still used illegally [4].

Most post-consumption users experience positive effects, such as increased self-esteem, socialization, and moody feelings of sentiment [5]. In most cases, after ecstasy use, mild poisoning such as high blood pressure, excessive motility, perspiration, eye pupil dilation has been reported. In some cases, hyperthermia, hypernatremia, liver damage, and acute renal failure have been reported. Also, the constant use of ecstasy causes sleep disorders, anxiety and forgetfulness. In rare cases, uncontrolled consumption also causes death [6, 4-9].

Several studies have indicated that the most important factors in inducing people to use the drug are shyness, inability to reject others demand, sense of growth, reduction of depression, increasing emotional tendencies, and attenuating the risk of consumption and adventure [10, 11]. Every year, 19 million people use ecstasy. Dependence is one of the main problems of all consumers [12].

According to a study, 1.7% of young people used ecstasy in European countries in 2014 [5]. In one sample of 200,000 people aged 12 to 34 years old, the prevalence of ecstasy use was reported to be 11.3% in 2014 [5]. According to the EMCDDA, in 2016, around 2.1 million young people aged 15-34 in the European countries used drugs and stimulants such as ecstasy [13]. The Netherlands is one of the countries producing ecstasy and its prevalence is reported to be 5.5% in young people in the country, in 2016 [5]. According to a study conducted in Australia, women suffer from more psychological problems than men after taking

drugs and experience more complications [15]. An estimated 2.8 million young people around the world have used this substance at least once in their lifetime. Currently, 95% of ecstasy users worldwide are under age 20 [16].

Adolescents and teenagers are the main group at risk. Risky behaviors increase premature death, disability, and chronic diseases that have been observed in developing countries, including Iran, in recent decades [17]. Iran is one of the countries where the prevalence of Psychedelic drug has increased, especially among young people. Recent studies in Iran reported a prevalence of ecstasy use of 11.5% and 18.5%, and another study reported that 18% of young people used ecstasy at least once in their lives [18-20].

According to a study conducted in northern Iran, the city of Astara, the consumers considered easy availability, easy transportation and low Knowledge of the side effects of the drug as the reasons of its consumption [6]. The most common cause of ecstasy use among young people is to escape from mental health and physical problems, evading depression, achieving calmness, having a happier life, and creating diversity in the process of lifestyle [21]. The purpose of this study was to determine the prevalence and effective factors in the use of ecstasy in young people aged 19-29 years in Iran so that by recognizing the effective factors, appropriate measures should be taken to reduce the consumption of this substance.

## MATERIALS AND METHODS

### Study population

This study was conducted in 13 provinces (from 31 provinces) of Iran between January and February 2013. Using a multi-stage sampling, 3246 subjects aged 19 to 29 years were recruited.

### Sampling and data collection

Multi-stage cluster sampling was used in this study. At first, a list of 31 provinces was prepared and literacy rate was divided into low, middle and upper classes. Four provinces from the low level, three provinces from middle and six provinces from the higher level were selected. As a result, in the first phase of the multi-stage clustering, 13 provinces of the triple classes were selected. From each province, the capital and one city were selected. Eventually, the number of samples obtained from 32 provinces was 3246. Also, 70% of the participants were from the urban areas

(province capital) and 30% were from the rural areas (around the capital). Urban areas were divided into 5 regions (north and south, east and west and central city), and two crowded areas were selected from each region. Rural areas were divided into three sections based on the development index and one village was selected from each area. Firms were selected from busy streets and public areas at different times of the day.

### Variables

The dependent variables in this study were: history of use of at least one-time ecstasy in a lifetime that was considered as a two-state variable (yes / no).

Independent variables including: place of residence (rural/urban), sex, age (25-29/24-29), marital status (single/married/widow and divorced), job(unemployed/ employed), education (student/diploma/elementary education), Knowledge about drug use (Low/moderate/high). In the questionnaire, the number of questions related to Knowledge was 12. The wrong answers received a negative score and the correct answers received a positive score and "i don't know" received a zero score.

The scores ranged from -12 to +12, which was ranked as follows: (-12 to -1), low awareness ( $6 \leq$ ), moderate Knowledge (7 to 9) and high awareness ( $\geq 10$ ). Knowing someone from friends who use Methamphetamine (yes / no), knowing someone from friends who use ecstasy (yes/no) and having Extramarital sex (yes / no).

### Statistical Analysis

Initially, the frequency and percentage of ecstasy were reported separately from the studied variables and the ecstasy consumption was expressed along with the confidence interval. Due to the fact that the information gathering structure is two-level, and the sample size in each province is equal, but the population of different provinces is different, the weighted Multivariate Logistic Model was used for data analysis. The model was used in two levels; first, individuals, second, provinces. The method of fitting the model was such that variables whose p-value was less than 0.2 in single-variable analysis, entered the multivariate model. Using the back ward method in the multivariate model, only variables with p-

value  $<0.05$  were kept in the final model. Ratio of odds and adjusted as well as 95% confidence level were reported for ecstasy consumption. The stata version 12 software was used for data analysis.

### Ethical Considerations

The ethical issues in this study, including ensuring the confidentiality of information of the participants, was an intentional verbal consent for the interview. The Ethics Committee of Kerman University of Medical Sciences has approved the study protocol (Reference number: ir.kmu.rec.1395.171).

## RESULTS

In general, the prevalence of ecstasy use was 5.3% during life (95% confidence interval: 6.9 and 3.7). The prevalence of ecstasy was 7% among men ( $n = 89$ ) and 4% among women ( $n = 28$ ). The rate of non-response to the questions was generally 13.2%. Table 1 provide descriptive statistics with the prevalence of ecstasy use. The share of ecstasy in people with a diploma degree is higher than that of the other classes (8%)  $n = 53$ . The prevalence was higher in single individuals (3.8%,  $n = 74$ ). The prevalence among employees was 4.9% ( $n = 66$ ) and was higher than unemployed. The prevalence of ecstasy use in people with low Knowledge was 7% ( $n = 61$ ). Also, the prevalence of ecstasy in people who have Extramarital sex was 9.6 ( $n = 65$ )% and higher than those who had not.

Based on the multivariate analysis findings as presented in Table 2:

The odds of using ecstasy in men were significantly higher than that of women. Adjusted Odds Ratio (AOR): 2.61 (95% CI 1.14.4.08). People with a low Knowledge of drug use were more likely to use ecstasy than those with high Knowledge (AOR) (190) (95% CI: 1.30.2.76). The odds of taking ecstasy were higher among those who had friends who used Methamphetamine than those who did not have AOR: 0.56 (95% CI: 0.33.0.97). Also, people who knew someone who used ecstasy were more likely to use it than those who did not know: AOR 6.04 (95% CI: 3.10, 11.77). The odds of taking ecstasy in people who had Extramarital sex were higher than those who did not have (AOR): 3.23 (95% CI : 2.09.4.99).

Table 1- Distribution of Ecstasy use among young adults 19-29 years old Iran, 2013

Variables	Ecstasy use		p-value	Weighted prevalence (%95CI)*
	Yes, n(%)	No, n(%)		
<b>Residence</b>				
Rural	27(3)	882(97)	0.23	0.03(0.01,0.05)
Urban	90(3.9)	2247(96.1)		0.05(0.04,0.07)
<b>Age</b>				
19-24	62(4.1)	1449(95.8)	0.15	0.05(0.03,0.07)
25-29	55(3.2)	1680(96.8)		0.05(0.03,0.08)
<b>Sex</b>				
Female	28(1.7)	1589(98.3)	0.0001<	0.04(0.02,0.06)
Male	89(5.5)	1543(94.5)		0.07(0.05,0.09)
<b>Marital status</b>				
Single	74(3.8)	1885(96.2)	0.047	0.05(0.03,0.07)
Married	38(3.1)	1195(96.9)		0.04(0.02,0.07)
Widowed/Divorced	5(9.3)	49(90.7)		0.13(-0.001,0.27)
<b>Education</b>				
University student or graduate	47(2.9)	1583(97.1)	0.078	0.04(0.02,0.06)
Primary to high school diploma	53(4.5)	1136(95.5)		0.08(0.05,0.11)
Primary or less	17(4)	410(96)		0.02(-0.007,0.04)
<b>Job</b>				
Unemployed	51(2.7)	1835(97.3)	0.001	0.05(0.03,0.07)
Employed	66(4.9)	1294(95.1)		0.06(0.04,0.08)
<b>Knowledge Psychotropic substances</b>				
Low	61(4.8)	1201(95.2)	0.006	0.07(0.04,0.10)
Moderate	31(3.3)	897(96.7)		0.05(0.02,0.07)
High	25(2.4)	1031(97.6)		0.04(0.02,0.06)
<b>Know a person among family members, relative or friends who use methamphetamine</b>				
No	67(3.1)	2109(96.9)	0.0001<	0.05(0.03,0.07)
Yes	50(4.7)	1020(95.3)		0.06(0.04,0.08)
<b>Know a person among family members, relative or friends who use ecstasy</b>				
No	66(2.3)	2825(97.7)	0.02	0.03(0.02,0.05)
Yes	51(14.4)	3195(85.6)		0.17(0.11,0.23)
<b>Extramarital sex</b>				
No	52(2)	2518(98)	0.0001<	0.03(0.02,0.05)
Yes	65(9.6)	3181(90.4)		0.11(0.07,0.15)
<b>In subjects that had ever extramarital sex: The use of condom in sex contact regularity</b>				
No	16(3.3)	467(96.7)	0.52	0.88(0.79,0.99)
Yes	6(4.5)	128(95.5)		0.11(0.01,0.21)

\*By using command survey

Table 2- The relationship between Ecstasy use and variables by using weighted multilevel logistic regression

Variable	Crude OR (95% CI)	P-value	Adjusted OR (95% CI)	P-value
<b>Residence</b>				
Rural	-	-	-	-
Urban	1.45(0.70,2.97)	0.31	-	-
<b>Age</b>				
19-24	-	-	-	-
25-29	0.68(0.41,1.12)	0.13	-	-
<b>Sex</b>				
Female	-	-	-	-
Male	3.46(1.76,6.80)	0.0001<	2.16(1.14,4.08)	0.02
<b>Marital status</b>				
Single	-	-	-	-
Married	0.81(0.45,1.46)	0.48	-	-
Widowed/Divorced	2.13(0.60,7.51)	0.25	-	-
<b>Education</b>				
University student or graduate	-	-	-	-
Primary to high school diploma	1.71(0.87,3.37)	0.12	-	-
Primary or less	1.83(0.55,6.10)	0.32	-	-
<b>Job</b>				
Unemployed	-	-	-	-
Employed	1.49(1.07,2.07)	0.017	-	-
<b>Knowledge Psychotropic substances</b>				
High	-	-	-	-
Moderate	0.99(0.49,1.99)	0.98	1.07(0.52,2.21)	0.85
Low	1.86(1.05,3.28)	0.03	1.90(1.30,2.76)	0.001
<b>Know a person among family members, relative or friends who use methamphetamine</b>				
No	-	-	-	-
Yes	1.71(1.19,2.45)	0.003	0.56(0.33,0.97)	0.04
<b>Know a person among family members, relative or friends who use ecstasy</b>				
No	-	-	-	-
Yes	7.24(3.69,14.20)	0.0001<	6.04(2.09,4.99)	0.0001<
<b>Extramarital sex</b>				
No	-	-	-	-
Yes	5.51(2.95,10.27)	0.0001<	3.23(2.09,4.99)	0.0001<
<b>In subjects that had ever extramarital sex: The use of condom in sex contact regularity</b>				
No	-	-	-	-
Yes	1.30(0.39,4.38)	0.67	-	-

## DISCUSSION

In this study, the prevalence of ecstasy use among Iranian youths was 5.3%, which is comparable to that of other studies. In studies in Iran, 4.3% prevalence in students of Astara 4.3%, 1.5% in Qazvin 1.5%, 4.3% in Birjand, 0.7% among students in Tehran and 7.25% among Rasht University students 7.25% were reported [6, 22-25]. The overall prevalence of ecstasy use was reported to be 10.4% according to a study in the

Netherlands in 2014 [5]. The prevalence of ecstasy among students in Turkey was 4% and in England it was 4% to 18%, and in the United States it was 6% to 24% [6]. Among Australian youth aged 20-29, it reached over 24% [26]. These differences seem to be due to differences in the studied population, since some studies focused only one gender.

According to the findings of our study, men are more likely to use ecstasy than women, which is

consistent with many studies [6, 5, 19, 23, 27]. Women may report than men due to culture and conditions in Iran. On the other hand, men have more freedom, and families are less likely to exercise control over their behavior than women.

According to the findings, those who were less aware of the Psychedelic drug used more ecstasy. In many studies in Iran, they also had low Knowledge of drugs and Psychedelic drug [1, 6, 22, 23, 28], but in the London study, people were well-informed [30]. This difference seems to be related to the type of studied population, since ecstasy use in Iran has been rising for several recent years, but in European countries, it has a long history.

According to the results, individuals who had friends who use ecstasy or Methamphetamine are more likely to use ecstasy. In the study of Panahi *et al*, one of the reasons for the use of ecstasy is the presence of friends who use ecstasy [30]. It seems that since peer pressure and the motivation of obedience to humans play a decisive role in initiating drug use, communication with peers who use drugs on the one hand, and, on the other hand, belonging to a group as one of the most important needs of adolescents and young people, are more important reasons for a person to consume drugs. Also, the use of drug is socially acquired, indicating that the behavior of drug use is educated through the process of modeling, imitation, and assimilation.

The results showed that people who had Extramarital sex are more likely to use ecstasy than those who do not have such relationships. The same conclusion was made in many studies [9, 30-32]. The reason for this can be that many addicts have a weak control over their sexual behaviors and show unpredictable behaviors. Therefore, due to lack of attention to healthy behaviors, STDs such as HIV and hepatitis B may be further increased.

The most important limitation of our study was reverse causation, which is a breach of a cross-sectional study. For example, this study showed that people who had Extramarital sex are more likely to use ecstasy. Ecstasy consumption may cause such a relationship. Although we have used a random cluster sampling, but the sampling was field based and the results are not generalizable.

However, previous research has shown that Iranian street-based interviews are more accurate

than telephone interviews [33-36]. Unnamed questionnaires, on the other hand, can provide researchers with more precise results. In our view, those who did not participate in the study may have dangerous behaviors, therefore, the reported outbreak is less than the actual value. Another limitation in this study is that the age group of most studies in this field was under 20, but, unfortunately, data from the age group under the age of 19 have not been collected in this study. In general, based on the results of our study, we believe that our findings provide important implications in this regard.

### CONCLUSION

Since overuse of ecstasy can lead to high-risk behaviors and increase the risk of AIDS, and given the current population structure of Iran and availability of different areas to motivate young people to consume these drugs, there should be appropriate strategies to keep youngsters away from this danger. The best way is to raise awareness of the whole community through individual and collective education. In addition to informing, the most important point for health policy-makers is that the reduction of out-of-marriage sexual relationships and the reduction of communication with people who use ecstasy can be associated with reduced ecstasy consumption. Men also need more care than women.

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