

## Images of Methamphetamine Users among Iranian Adolescents: an Application of Prototype Willingness Model

M. Ataee<sup>1</sup>, T. Ahmadi Jouybari<sup>2</sup>, M. Mirzaei Alavijeh<sup>3</sup>, A. Aghaei<sup>4</sup>, M. Mahboubi<sup>5</sup>, F. Zinat Motlagh<sup>6,\*</sup>

<sup>1</sup> Internist, Substance Abuse Prevention Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran.

<sup>2</sup> Internist, Substance Abuse Prevention Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran.

<sup>3</sup> MSc of Health Education, Department of Health Education, School of Health, Shahid Sadoughi University of Medical Sciences- Yazd, Iran.

<sup>4</sup> PhD Student of Epidemiology, Substance Abuse Prevention Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran.

<sup>5</sup> PhD of Health Services Administration, Kermanshah University of Medical Sciences, Kermanshah, Iran.

<sup>6</sup> PhD Student of Health Education and Health Promotion, Social Determinants of Health Research Center, Yasuj University of Medical Sciences, Yasuj, Iran.

\*Corresponding Authors E-mail: [f\\_motlagh@yahoo.com](mailto:f_motlagh@yahoo.com)

**Abstract:** Regarding the increasing methamphetamine use among the Iranian adolescents, our prototype willingness model based study focused on exploring cognitive factors related to methamphetamine use in a sample of adolescents in the Yasuj County, southern of Iran. This cross-sectional study was performed among 474 boy adolescent aged 13 to 19 years old. Participants were selected in simple random. Participants filled out a self-report questionnaire. Data were analyzed by SPSS version 21 using bivariate correlations, and linear regression statistical tests at 95% significant level. 12.7% of participants were reported methamphetamine use in lifelong. Our findings showed, was high correlation between prototype and intention ( $r=0.657$ ) and willingness ( $r=0.705$ ). We recommend future studies in Iran should be focused on prototypes toward risky behaviors such as methamphetamine use among adolescents.

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### 1. Introduction

Methamphetamine is a powerfully addictive stimulant that dramatically affects the central nervous system; this drug is produced easily in illegal laboratories with relatively cheap over-the-counter ingredients; the effects of Methamphetamine use can last 4 to 16 hours (1-2). Research indicated methamphetamine use spreading especially among adolescents and young populations; that could be underling several adverse effects, such as: cognitive impairment, psychological dysfunction, auditory hallucinations, suicidal impulses, depression, anxiety, violence, fatigue, paranoia, aggression, intense cravings for the drug, high-risk sexual behaviors, injection use, cardiovascular problems, or even mortality and morbidity (3-6). Methamphetamine use is a posing a fundamental fulmination to public health; the unparalleled and substantial social and health outcomes of methamphetamine addiction, including social dysfunction and a wide range of medical problems, underscore the importance of preventing primary use (7). Substance abuse may have important indicator for the future health and

well-being of many adolescents as they negotiate the transition to adulthood (8). Sattah et al reported, 41.3% of male students and 19.0% of female students in northern Thailand used methamphetamine (9). Also Plüddemann et al reported 9% of the students in Cape Town, South Africa had tried methamphetamine at least once (10). Iran is one of many countries in which the prevalence of the psychoactive use has been increasing, especially among the adolescents. Recent studies of the Iranian adolescents and youth reported high prevalence of the methamphetamine use, for example Barati et al reported 18% of college students had at least used the methamphetamine one time in their life (11).

In drug abuse prevention research, it would be useful to know how cognitive related factors, to predict consequently behavior (12). In this regard Prototype/ Willingness Model (PWM) which consists of structures including; attitude, behavioral intention and behavioral willingness that predict the behavior (13). PWM Innovators claim, there are two pathways to risk distinctions, that it has two important. A reasoned path mediated by (behavioral)

intention/expectation and a social reaction path mediated by (behavioral) willingness. A central tenet of the model is a belief that not all health-risk behaviors are intentional, especially among adolescents and young adults (14). Also adolescents have clear cognitive representations or social images (prototypes) of the type of person their age who engages in specific risk behaviors, e.g., the “typical” smoker their age. Assessment of the images involves asking adolescents to consider their prototype: “Take a moment to think about the type of kid your age who drinks. We are not interested in anyone in particular, just the typical person your age who drinks” (15).

Regarding the increasing methamphetamine use among the adolescents, our PWM based study focused on exploring cognitive factors related to methamphetamine use in a sample of adolescents in the Yasuj County, southern of Iran.

## 2. Methods

This cross-sectional study was conducted on 474 boy adolescent aged 13 to 19 years old in Yasuj city in the south of Iran, during 2013. Being literate for completing written questionnaire were eligibility criteria to participate in this study. To enrol the participants and collect first, different areas of the city were classified based on the municipal divided region, next for each region one crowded area were randomly selected (a total of four area were selected) and finally, participants were enrolled in study voluntarily. Of the population of 474, 408 (86.1%) signed the consent form and voluntarily agreed to participate in this study, which has been approved by the institutional review board at the Yasuj University of medical sciences. Prior to conducting the main project, a pilot study was carried out. PWM scale was designed based on a standard questionnaire (13-17) and initially the relevant questionnaires were administered to 30 boy adolescent who were similar to study population in order to estimate the duration of the study conduction and to evaluate the reliability

of the questionnaire. Estimated reliability using alpha Cronbach coefficient for each PWM constructs questionnaire were as follows: attitude ( $\alpha = 0.75$ ); subjective norms ( $\alpha = 0.84$ ); prototype ( $\alpha = 0.71$ ); willingness ( $\alpha = 0.81$ ) and behavioral intention ( $\alpha = 0.83$ ).

## 3. Result

The mean age of respondents was 16.62 years [95% CI: 16.50, 16.74], ranged from 13 to 19 years. Of the 408 respondents, 12.7% (52/408) were reported methamphetamine use in lifelong. All of respondents were single. Nearly 29.2 % (119/408) had history of cigarette smoking and 17.4 % (71/408) reported drinking alcohol in lifelong.

Table 1 shows bivariate correlations between the PWM constructs, which were all statistically significant at either 0.01 level. The results showed that intention to methamphetamine use was correlated with the positive attitude ( $r = 0.270$ ), subjective norms ( $r = 0.620$ ), prototype ( $r = 0.657$ ), and willingness ( $r = 0.757$ ).

Table 1: Correlation between different components of PWM

Variable	X1	X2	X3	X4
X1. Attitude	1			
X2. Subjective Norms	0.221	1		
X3. Prototype	0.304	0.572	1	
X4. Willingness	0.271	0.599	0.705	1
X5. Intention	0.270	0.620	0.657	0.757

A hierarchical multiple regression analysis was performed to explain the variation in intention and willingness to methamphetamine use. As can be seen in Table 2, attitude, subjective norms and prototype variables were statistically significant for predicting methamphetamine use which, they were accounted for 51% of the variation in intention and 56% of the variation in willingness to methamphetamine use.

Table 2: Hierarchical regression analyses predicting willingness and intention to Methamphetamine use by attitude, subjective norms and prototype

Variable	B	SE B	Beta	T	P-value
<b>Willingness</b>					
Attitude	0.130	0.022	0.148	3.237	0.017
Subjective Norms	0.355	0.050	0.287	7.117	0.000
Prototype	0.222	0.017	0.526	12.700	0.000
$R^2 = 0.56$ & $P < 0.001$					
<b>Intention</b>					
Attitude	0.160	0.037	0.159	3.640	0.000
Subjective Norms	0.727	0.085	0.360	8.570	0.000
Prototype	0.299	0.30	0.433	10.057	0.012
$R^2 = 0.51$ & $P < 0.001$					

Response to prototype items toward methamphetamine users showed in table 3.

Table 3: Prototypes toward Methamphetamine users

Item	Strongly Disagree n (%)	Mildly Disagree n (%)	Neutral n (%)	Mildly Agree n (%)	Strongly Agree n (%)	Men (SD)
Cute	134 (32.8%)	102 (25%)	124 (30.4%)	34 (8.3%)	14 (3.4%)	2.24 (1.10)
Confident	90 (22.1%)	104 (25.5%)	136 (33.3%)	61 (15%)	17 (4.2%)	2.53 (1.11)
Cool	138 (33.8%)	103 (25.2%)	99 (24.3%)	51 (12.5%)	17 (4.2%)	2.27 (1.17)
Egocentric	55 (13.5%)	63 (15.4%)	128 (31.4%)	106 (26%)	56 (13.7%)	3.11 (1.22)
Sociable	81 (19.9%)	91 (22.3%)	123 (30.1%)	75 (18.4%)	38 (9.3%)	2.75 (1.23)
Favorite	90 (22.1%)	112 (27.5%)	107 (26.2%)	63 (15.4%)	36 (8.8%)	2.61 (1.23)
Half-baked	105 (25.7%)	109 (26.7%)	99 (24.3%)	57 (14%)	38 (9.3%)	2.54 (1.26)

#### 4. Discussion

Our results showed 12.7% of participants were reported methamphetamine use in lifelong. In this regard, other studies carried out in Iran were reported different from 2 to 18% experience of methamphetamine among Iranian adolescents and young (11, 18, and 19). It seems, one reason for difference in prevalence of methamphetamine use may be because of differences in study groups, (some studies have focused on only boy gender), however, these outcome could be the burglar alarm for health policy makers in Iran; and should be the focus of special attention.

According to prototype willingness model (15) for high risk behavior predict two hypothesized paths are important, a reasoned path (intention) and a social reaction path (willingness). The one of our goal study was determined effect of attitude, subjective norms and prototype variables on variation in intention and willingness to methamphetamine use; and also determined the prototype toward methamphetamine user among sample of Iranian male adolescents. Our result indicated, attitude, subjective norms and prototype variables were accounted for 51% of the variation in intention and 56% of the variation in willingness to methamphetamine use.

In this regards, Litchfield (20) stated that willingness further than intention could predict amphetamine. In addition, Hukkelberg (21) was reported similar result for cigarette smoking among adolescents. However, Pomery et al, was reported that up to age 17 or 18, correlations between young people's willingness and drug abuse are stronger than those between their intentions and use (22). Furthermore, Gerrard et al noted the relation between intention and behavior is relatively low in adolescence and then it increases with age (15).

The main objective of present study was determined the prototype of Iranian adolescents toward methamphetamine user. Determined of prototypes toward methamphetamine could be

beneficial in designing and implementation education prevention program. Our findings showed, was high correlation between prototype and intention ( $r=0.657$ ) and willingness ( $r=0.705$ ). In this regard, previous result from longitudinal research have display that prototypes play a role in predicting adolescents' future smoking (23) and alcohol use (24), This point should be considered in prevention programs. In addition, Spijkerman et al noted that the prototypes are an easier target for preventive interventions (25). Therefore, we recommend future studies in Iran should be focused on prototypes toward risky behaviors such as methamphetamine use among adolescents.

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#### Conflict of interest statement

The authors declare that they have no conflict of interest.

#### References

1. Baskin-Sommers A, & Sommers I. Methamphetamine use and violence among young adults. *Journal of Criminal Justice*, 2006; 34(6): 661-674.
2. Herman-Stahl MA, Krebs CP, Kroutil LA, & Heller DC. Risk and protective factors for methamphetamine use and nonmedical use of prescription stimulants among young adults aged 18 to 25. *Addictive behaviors*, 2007; 32(5): 1003-1015.
3. Rawson RA, Gonzales R, Obert JL, McCann MJ, & Brethen P. Methamphetamine use among treatment-seeking adolescents in Southern California: participant characteristics and treatment

- response. *Journal of Substance Abuse Treatment*, 2005; 29(2): 67-74.
4. Baskin-Sommers A, & Sommers I. Methamphetamine use and violence among young adults. *Journal of Criminal Justice*, 2006; 34(6): 661-674.
  5. Semple SJ, Zians J, Grant I, & Patterson TL. Impulsivity and methamphetamine use. *Journal of Substance Abuse Treatment*, 2005; 29(2): 85-93.
  6. Iritani BJ, Hallfors DD, & Bauer DJ. Crystal methamphetamine use among young adults in the USA. *Addiction*, 2007; 102(7): 1102-1113.
  7. Spoth RL, Clair S, Shin C, & Redmond C. Long-term effects of universal preventive interventions on methamphetamine use among adolescents. *Archives of pediatrics & adolescent medicine*, 2006; 160(9): 876-882.
  8. Sommers I, Baskin D, & Baskin-Sommers A. Methamphetamine use among young adults: Health and social consequences. *Addictive Behaviors*, 2006; 31(8): 1469-1476.
  9. Sattah MV, Supawitkul S, Dondero TJ, Kilmarx PH, Young NL, Mastro TD, & Griensven FV. Prevalence of and risk factors for methamphetamine use in northern Thai youth: results of an audio-computer-assisted self-interviewing survey with urine testing. *Addiction*, 2002; 97(7): 801-808.
  10. Plüddemann A, Flisher AJ, McKetin R, Parry C, & Lombard C. Methamphetamine use, aggressive behavior and other mental health issues among high-school students in Cape Town, South Africa. *Drug and alcohol dependence*, 2010; 109(1): 14-19.
  11. Barati M, Allahverdipour H, Jalilian F. Prevalence and predictive factors of psychoactive and hallucinogenic substance abuse among college students. *Journal of Fundamentals of Mental Health*, 2012; 13(4): 374-83 [Persian]
  12. Allahverdipour H, Jalilian F, Shaghaghi A. Vulnerability and the Intention to Anabolic Steroids Use among Iranian Gym Users: An Application of the Theory of Planned Behavior. *Substance Use & Misuse*, 2012; 47(3): 309-317
  13. Gibbons FX, Gerrard M, Ouellette JA, & Burzette R. Cognitive antecedents to adolescent health risk: Discriminating between behavioral intention and behavioral willingness. *Psychology and Health*, 1998; 13(2): 319-339.
  14. Stock ML, Litt DM, Arlt V, Peterson LM, & Sommerville J. The Prototype/Willingness model, academic versus health-risk information, and risk cognitions associated with nonmedical prescription stimulant use among college students. *British Journal of Health Psychology*, 2012; 18(3): 490-507
  15. Gerrard M, Gibbons FX, Houlihan AE, Stock ML, & Pomery EA. A dual-process approach to health risk decision making: The prototype willingness model. *Developmental Review*, 2008; 28(1): 29-61.
  16. Jalilian F, Mari A, Mahboubi M, Motlagh F, Aghaei A, Mirzaei Alavijeh M, et al. Explain of Ecstasy Use among Kermanshah Adolescents, the West of Iran: an Application of the Theory of Planned Behavior. *Life Sci J* 2014; 11(1s):82-86.
  17. Mirzaei Alavijeh M, Mazloomi S, Yassini S, Askarshahi M, Jalilian F, Zinat Motlagh F, et al . Fathers' Behavioral Intention and Behavior in Prevention of Children Tendency toward Addictive Drugs. *Journal of Health Education and Health Promotion*, 2013; 1 (2):57-66 [Persian]
  18. Mohtasham Amiri Z, Reza Zadeh Sadeghi S, Khatibi Bane F. Ecstasy Use among High School Students in Lahidjan- 2005. *Iranian Journal of Epidemiology*, 2006; 1(3, 4); 37-52 [Persian]
  19. Allahverdipour H, Farhadinasab A, Bashirian S, Mahjub H. Pattern of Drug Abuse among younger Adults. *Journal of Yazd University of Medical Sciences*, 2007; 15(4): 35-42 [Persian]
  20. Litchfield, Rebecca A. and White, Katherine M. Young adults' willingness and intentions to use amphetamines: An application of the theory of reasoned action. *E-Journal of Applied Psychology*, 2006; 2(1): 45-51.
  21. Hukkelberg SS, Dykstra LJ. Using the Prototype/Willingness model to predict smoking behaviour among Norwegian adolescents. *Addictive Behaviors*, 2007; 34: 270-276.
  22. Pomery EA, Gibbons FX, Reis-Bergan M, Gerrard M. From Willingness to Intention: Experience Moderates the Shift from Reactive to Reasoned Behavior. *Pers Soc Psychol Bull* 2009; 35(7): 894-908
  23. Aloise-Young PA, Hennigan KM, & Graham JW. Role of the self-image and smoker stereotype in smoking onset during early adolescence: a longitudinal study. *Health Psychology*, 1996; 15(6): 494.
  24. Blanton H, Gibbons FX, Gerrard M, Conger KJ, & Smith GE. Role of family and peers in the development of prototypes associated with substance use. *Journal of Family Psychology*, 1997; 11(3): 271.
  25. Spijkerman R, van den Eijnden RJ, Vitale S, & Engels RC. Explaining adolescents' smoking and drinking behavior: The concept of smoker and drinker prototypes in relation to variables of the theory of planned behavior. *Addictive behaviors*, 2004; 29(8): 1615-1622.