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Application of the Theory of Planned Behavior to Predict Drug Abuse Related Behaviors among Adolescents

Saeid Bashirian (MSc)^a, Alireza Hidarnia (PhD)^{a*}, Hamid Allahverdipour (PhD)^b, Ebrahim Hajizadeh (PhD)^c

^a Department of Health Education, School of Medical Sciences, Tarbiat Modares University, Tehran, Iran

^b Department of Public Health & Management, Tabriz University of Medical Sciences, Tabriz, Iran

^c Department of Biostatistics, School of Medical Sciences, Tarbiat Modares University, Tehran, Iran

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* Correspondence

Alireza Hidarnia (PhD)

Tel: +98 21 828 83569

E-mail1: hidarnia@modares.ac.ir

ABSTRACT

Background: Drug abuse is one of the important challenges in the field of mental health and adolescence health promotion. Because of the social and medical cost of drug abuse and its consequences among youth people, it is necessary to intervene effectively. This theoretical based study explained predictability of the Theory of Planned Behavior (TPB) on drug abuse related behaviors among adolescents.

Methods: This cross-sectional study was conducted in Hamadan City, western Iran, in 2011 among 650 male high school students, recruited randomly. All data were gathered by using self-report written questionnaires include attitudes, subjective, norms, perceived behavioral control and intention not to use drugs as theoretical constructs of TPB and drug abuse related behaviors.

Results: According to the logistic regression analysis, attitude and subjective norms were the most influential predictors of intention to drug abuse. There was a significant relationship between drug abuse smoking experience (OR=27.24 95% CI: 10.25, 72.40; $P=0.001$), having parents of drug users (OR=8.63 95% CI: 3.42, 21.81; $P=0.001$), and having friends who had experienced drug (OR=11.06 95% CI: 4.24, 28.85; $P=0.001$).

Conclusion: Drug abuse preventative programs need to apply comprehensive theoretical based efforts for drug abuse preventative manipulations in school settings. Theory of planned behavior can be used properly and effectively for planning and implementing drug abuse prevention programs in adolescents.

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Introduction

Drug abuse and its related health problems are of growing concern worldwide, and currently is one of the important threaten behaviors among adolescents¹. Drug abuse among adolescents potentially holds several negative consequences for the health and well-being of the youth people, including increased risk of casualties due to interpersonal violence, road accidents, increased probability of involving in high risk sexual behaviors, and increased

risk for suicidal ideation and behaviours². Drug abuse has been associated with problem for academic performance, truancy, and school drop-out^{3,4}. Furthermore, some other studies indicate that there is a link between adolescents' drug abuse and low self-control, which lead to engaging in crime, and deviant behaviours^{1,5,6}.

In drug abuse related research, it would be important to know how cognition-related factors, such as social norms, or beliefs are re-

responsible for predicting intention and consequent behaviour⁷. Additionally, certain psychosocial factors, such as attitude, subjective norm, and perceived behavioral control (PBC) seem to be important in determining the probability of adopting or rejecting healthy behavior. Therefore, it is crucial to identify the psychosocial factors that may determine the use of illicit drugs among adolescents⁸.

Theory of Planned Behavior (TPB) provides a systematic framework to determine factors which influence a person's decisions to accomplish behaviors such as intentional use of illicit drugs as well alcohol consumption and smoking^{9,10}. In relation to the use of illicit drugs, the TPB presumes that cognitions such as attitude and social norm may predict the intention to begin using these drugs.

There are many studies supporting the predictive validity of the TPB regarding drug abuse^{11,12} and support the notion that the adolescents' attitudes are responsible for the engaging in drug abuse related behaviours^{12,13}. Several studies reported predictability of the TPB to provide a theoretical framework for a study among adolescents in which attitude was found to be the strongest predictor for behavioral intention to use illicit drugs and alcohol^{14,15}. Moreover, previous studies confirm that subjective norms as one of the TPB constructs play an important role in complying with the drug abuse related behaviours^{12, 16}.

Concerning the history of applying TPB for prevention of Illicit drug abuse among adolescents in Iran; a few studies were found which indicated a significant improvement in developing negative attitude to illicit drugs and creating intention to avoid use of Ecstasy and Amphetamines after a preventive health education program¹⁷.

It seems that the prevalence of drug abuse among Iranian adolescents is lower than western countries but available evidences show that prevalence of drug abuse is increasing especially among adolescents but there is inadequate information available on adolescent's drug abuse in Iran¹⁸. Recent results indicated that approximately 32%, 30%, and 7% had ever used alcohol, smoked cigarettes, and used illicit drugs, respectively¹⁹⁻²¹. Additionally, a study,

conducted on 10th grade students, showed that 16.9% of students were experimenters²¹. Alcohol, opium, and marijuana are reported as the common substances which Iranian adolescents use^{22, 23}.

Based on the abovementioned background, the current study examined the application of TPB to explain drug abuse related behaviors Iranian adolescents and to investigate which reasoned pathway could enhance the prediction of intention to drug abuse.

Methods

Participants and Procedure

This study was part of a project conducted among male high school students in Hamadan City, western Iran during 2011, with the goal of providing knowledge for the prevention of drug abuse. The 700 participants were recruited from four high schools in different regions at the city through random cluster sampling method. Participants who showed either missing values on the referred variables or inconsistent answering patterns were excluded. The participants' age ranged from 14 to 17 year with a mean of 15.66 years.

Measures

Prior to conducting the main project, a pilot study was conducted to assess the content validity of the study questionnaires as well as reliability. The pilot study participants were 30 students, similar to those who participated in the main study. The pilot study was conducted to obtain feedback about the clarity, length, comprehensiveness, and required completion time of the study questionnaires, as well as collect data to estimate the internal consistency of the measures.

Demographics

Demographic collected data included age, educational grade, parents' literacy, number of family members, living with parents or not, history of smoking, having friends who had experienced substance, having family members who had history of drug use.

Drug use and intention to use drug

We used the adolescents' replies to three questions about the prevalence of drug use to determine whether they had experienced use of drug compounds. The questions were "history of drug compounds use," "any specific drug compounds that participants had at least once," and "number of drug use cycles".

TPB Theoretical Variables

The items, which assessed components of the TPB, were derived from the scales of illicit drug use among students^{17,24}. There were 36 items for measuring following constructs: (a) attitude, (b) subjective norms, (c) PBC, and (d) behavioral intention. The twelve items measured specifically attitudes toward drug abuse (e.g., drug use causing me to be comfort). Eleven items measured subjective norms toward the use of the drugs (e.g., if I use drug, my friend will confirm it), and twelve items measured the PBC not to use the drug (e.g., I believe that I can manage myself against pressure of using drug). Additionally, behavioral intention to drug use was also measured by one item (I intend to use drug in the next 6 months). A 5-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree) was applied for all items. The reliability coefficients for the above-mentioned constructs were as follows: attitude ($\alpha = 0.81$), subjective norms ($\alpha = 0.84$), perceived behavior control ($\alpha = 0.91$), and behavioral intention ($\alpha = 0.87$), which verified internal consistency of the measures.

Statistical Analysis

The Statistical Package for Social Sciences (SPSS) version 18 was used for the purpose of data entry and analysis. Descriptive statistics were used to summarize and organize the data. Bivariate correlations were computed to decide about the magnitude and direction of the associations between the TPB variables and self-efficacy and knowledge scores. Stepwise multiple logistic regression analysis was performed to explain the variation in the drug use based on TPB variables of (a) attitude, (b) subjective norms, (c) PBC, and (d) behavioral intention.

Table 1: Frequency and relative distribution of the subjects based on some demographic characteristics

Variables	Number	Percent
Age (year)		
14	61	9.4
15	241	46.5
16	200	77.2
17	148	22.8
Education level		
First grade	217	33.4
Second grade	220	33.8
Third grade	213	32.8
life status (living with)		
Both parents	608	93.5
One parent	36	5.6
Other people	6	0.9
Father's education		
Illiterate	21	3.2
Primary/Secondary	91	14.0
High school	306	47.1
Academic level	232	35.7
Mother's education		
Illiterate	45	6.9
Primary/Secondary	121	18.6
High school	339	52.2
Academic level	145	22.3
Smoking experience		
Yes	72	11.1
No	578	88.9
Drug use by parents		
Yes	47	7.2
No	603	92.8
Drug use by friends		
Yes	138	21.2
No	512	78.8
Drug use by best friends		
Yes	51	7.8
No	599	92.2
Drug use by Brother/Sister		
Yes	25	3.8
No	625	96.2

Results

The age range of students was between 14 and 17 yr. Fourteen (9.4%), 15 (37.1%), 16 (30.8%), 17(22.8%) and 33.4% of the students were in grade 9, 33.8% in 10, and 32.8% in grade 11. Regarding the life status, 93.5% of participants were living with both parents and 5.6% with one parent. Concerning history of smoking, 11.1% of students reported that they had used cigarette smoking in lifelong and 3.4% reported experience of

drug use in their lifelong. Table 1 shows frequency of drug use among parents, friends, best friends, family and brother or sister of students.

The correlation between background variables and drug use is shown in Table 2. There was a significant relationship between drug use and the following variables: smoking experience (OR=27.24, 95% CI: 10.25, 72.40 $P=0.001$), having parents of drug users (OR=8.63 95% CI: 3.42, 21.81 $P=0.001$), having friends who had experienced drug (OR=11.06 95% CI: 4.24, 28.85 $P=0.001$), having best friends who had experienced drug (OR=11.93 95% CI: 4.87, 29.26 $P=0.001$), having family who drug use (OR=4.31 95% CI: 1.66, 11.17 $P=0.001$), and having brother or sister who drug use (OR=15.82 95% CI: 5.75, 43.52 $P=0.001$).

Table 2: Relation between background variables and drug use

Variables	Drug use		OR	95% CI	P value
	No N=628	Yes N=22			
Smoking experience					
NO	572	56	Reference		
YES	6	16	27.24	10.25, 72.40	0.001
Drug use by parents					
NO	589	39	Reference		
YES	14	8	8.63	3.42, 21.81	0.001
Drug use by brother or sister					
NO	610	18	Reference		
YES	15	7	15.82	5.75, 43.52	0.001
Drug use by friends					
NO	506	122	Reference		
YES	6	16	11.06	4.24, 28.85	0.001
Drug use by best friends					
NO	587	41	Reference		
YES	12	10	11.93	4.87, 29.26	0.001
Having family who drug use					
NO	388	240	Reference		
YES	6	16	4.31	1.66, 11.17	0.001

Table 3: Inter-correlations coefficient between the TPB variables

Variable	Intention	Attitude	Subjective norms	PBC	Drug use
Intention	1.000	0.383	0.427	-0.476	0.114
Attitude	0.383	1.000	0.457	-0.289	0.204
Subjective norms	0.427	0.457	1.000	-0.386	0.217
Perceived Behavioral Control	-0.476	-0.289	-0.386	1.000	-0.177
Drug use	0.114	0.204	0.217	-0.177	1.000

Table 3 shows the Zero-order correlations. A two-tailed test at the significance levels of 0.01 and 0.05 were established as criteria for the analysis. The bivariate assessment of variables revealed that there were signs of multicollinearity in the TPB variables and intention to drug abuse. For the sample, intention to drug use was significantly related to the attitude toward drug use ($r=0.383$), and subjective norms ($r=0.427$).

Logistic regression analysis was used to determine the correlation between different components of TPB and drug use. According to the logistic regression analysis, attitude and subjective norms were the most influential predictors on intention to drug use (Table 4).

Table 4: Multiple logistic regression analysis for variables of theory of planned behavior (TPB) related to drug use

Variables	SE	Odds Ratio	95% CI		P value
Step 1					
Intention	0.211	0.988	0.653	1.494	0.953
Attitude	0.025	1.057	1.005	1.111	0.030
Subjective Norms	0.035	1.066	0.995	1.142	0.069
Perceived Behavioral Control	0.030	0.957	0.903	1.014	0.134
Step 2					
Attitude	0.024	1.056	1.007	1.108	0.024
Subjective Norms	0.032	1.065	1.000	1.134	0.049
Perceived Behavioral Control	0.027	0.957	0.909	1.009	0.101
Step 3					
Attitude	0.023	1.062	1.015	1.112	0.010
Subjective Norms	0.030	1.087	1.026	1.152	0.005

Discussion

Drug abuse is a complicated phenomenon in the human communities that leads to increasing problems, which threatens health status of adolescents²⁵. According to the logistic regression analysis, attitude and subjective norms were the most influential predictors on intention to drug use. These findings are consistent to findings in the literatures^{26,27}.

Additionally, the utility of (TPB) for understanding and predicting condom use intentions among female sex workers was assessed which illustrated intention to condom use were predicted by attitudes toward condom use and PBC over²⁷.

Predictability of TPB marijuana use among young women who practiced a premarital pregnancy before the age of 18 years, showed that the four constructs that have been shown in the literature to be predictive of marijuana use persistent environmental adversity, emotional distress, adolescent marijuana use and drug use in the social network were tested as predictors of attitudes, norms and self-efficacy, in a structural equation modeling framework that show role of environment on developing as preliminary factors that affect on attitude and subjective norms²⁸. Furthermore, Marcoux et al., assessed the plausibility and strength of TPB in predicting and explaining use and frequency of use and misuse of alcohol which showed TPB and the Theory of Reasoned Action (TRA) are able to predict intention to use alcohol an also provided strong support for the applying the TPB

in this context and suggest that the model is fairly robust all model components²⁹.

In addition, our findings indicated that 3.4% of the subjects have experienced drug abuse. However, it was lower that western countries but needs to be assessed precisely. Consistent with our results, a similar drug abuse rate is reported among youth people in Iran³⁰. Moreover, findings showed that 11.1% of students have had smoking experience. Another studies conducted showed that the rates of daily smoking were between 4.4% and 12.8% in Iranian high school students³¹ and the prevalence of cigarette smoking in Hamadan high-school students was 10.2%³² which also confirms our results.

Conclusion

Drug abuse as problematic fact in the worldwide, needs to be concerned as adolescents and communities critical threaten subject that emerges community organizers and professionals on health promotion to work and develop effective interventions to prevent and control it. Theoretical based research could explain adolescents' behaviors and how antecedent factors would be effective on intention to use drug or not. In this regard, TPB could be used for planning and implementing drug prevention programs among adolescents in high school settings and could be one part of the "Health Promoting Schools" project.

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Conflict of interest statement

The authors declare that they have no conflict of interest.

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