Health Education & Health Promotion (HEHP) (2013) Vol. 1 (1): (3- 12)

The Theory-Based Substance Abuse Prevention Program for Adolescents

Saeid Bashirian[1]*, Alireza Hidarnia[2], Hamid Allahverdipour[3], Ebrahim Hajizadeh[4]

Received: 28/10/2012 Accepted: 10/03/2013

Abstract

Aims: Adolescence is one the most precarious periods of life, concerning the drug abuse. The social cost of the drug abuse and injury among adolescents is extraordinary and requires intervention. The theory of planned behavior (TPB) is perhaps the most influential theory for prediction of social and health behaviors including drug abuse. This study aimed at designing and implementing a curriculum based on the TPB for preventing adolescents from drug abuse.

Methods and Materials: This quasi-experimental study was conducted in Hamadan, west Iran. We recruited 140 male high school students from randomly selected schools: they were divided into experimental group, n = 70 and control group, n = 70. The experimental group received 20 hours educational program based on the TPB. The control group receives no intervention.

Findings: Compared to the control group, experimental group have significantly elevated post test scores for attitude (19.07 vs. 15.28, p < .001), subjective norm (18.08 vs. 16.45, p < .001), perceived behavioral control (51.67 vs. 54.82, p < .001); and their intention to use drug significantly decreased(p = 0.082)

Conclusions: The TPB-based educational program may be effective in prevention of substance abuse among adolescents.

Key words: Drug abuse, Adolescents, Theory of planned behavior, Educational program

1. Assistant Professor, School of Health, Hamedan University of Medical Sciences and Health Services, Hamedan, Iran

Email: s_bashirian@Umsha.ac.ir

2. Associate Professor, School of Medical Sciences, University of Tarbiat Modares, Tehran, Iran

Email: hidarnia@modares.ac.ir

3. Associate Professor, School of Health, Tabriz University of Medical Sciences, Tabriz, Iran

Email: Allahverdipour@Tbz.ac.ir

4. Associate Professor, School of Medical Sciences, University of Tarbiat Modares, Tehran, Iran

Email: Hajizadeh@modares.ac.ir

[Downloaded from hehp.daneshafarand.org on 2026-11-14]

Introduction

About 210 million individuals use drugs in the world and nearly 200,000 of them die each year, as a result. There continues to be enormous unmet needs for drug use prevention, treatment, care and support; particularly in developing countries [1]. Iran is one of developing countries where frequency of substance abuse is increasing, specifically among adolescents [2].

Studies have revealed that 6.9% of Tehran high school students used illicit drugs [3]. Other studies on adolescents and young adults of 15 to 35 in Tehran show that prevalence of psychedelic drug abuse is 3.8%, psycho stimulant drug abuse is 7.2%, and alcohol abuse is 25.7 % [4]. Studies also show that cigarettes, alcohol, marijuana and opium are the most common substances among adolescents in Iran [5]. Studies in other countries show that cigarettes, alcohol and drugs are common substance among adolescents [6].

Researches show that the drug abuse onset age is 13 to 18 in Iran. The high prevalence of substance use in adolescents and its change into consumption patterns make it necessary to consider this fundamental problem of adolescents. Primary preventive intervention for drug abuse in youth should be performed before the start of substance abuse [7]. Substance abuse is the most prevalent problem among the Iranian students which requires precise plans and preventive programs to protect them [8].

The theory-based educational programs provide more chances to change the behavior. The theory has been frequently used to change the health behaviors. This theory has been successful in planning preventive substance abuse programs [9, 10, 11, 12, and 13].

Ajzen (1988) introduced the theory of planned behavior (TPB) and developed it in 1991 based on the theory of reasoned action to predict and explain human behavior in specific contexts. This theory consists of attitudes, subjective norms, perceived behavioral control, intention and behavior. Models predicts the occurrence of a specific behavior, provided that the individual intents to perform it [14, 15].

In this study, the TPB has been used to plan and implement programs for preventing the high school students from substance abuse.

Methods

Participants and Procedure

This study was part of a project conducted among the male high school students in Hamadan (2012), aiming at providing the required knowledge for prevention of drug abuse. The 140 participants were recruited from four high schools in Hamadan, through Random sampling method. Participants were randomly assigned into two groups: experimental group n=70 and control group

[Downloaded from hehp.daneshafarand.org on 2026-11-14]

n=70. The experimental group received 20 hours educational program based on the TPB. The control group receives no intervention.

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 the required time for completion of the questionnaires as well as for data collection in order to estimate the internal consistency of the measures.

Demographics

Background collected data included: age, education, 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

The participants' responses to three questions about the prevalence of drug consumption were used to determine whether they had experienced drug compounds. The questions were about "history of drug compounds use," "any specific drug compound was at least once used by participants," and "drug use cycles".

TPB Theoretical Variables

The TPB components assessment items were derived from the scales of drug abuse among students [16, 17]. There were 36 items for measuring the following constructs: (1) attitude, (2) subjective norms, (3) perceived behavior control, and (4) 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 perceived behavior control of not using drugs (e.g., I believe that I can manage myself against pressure of using drug). Additionally, behavioral intention to drug usage was measured in one item (I intend to use drug in the next 6 months). A 5-point Likert 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 measurements.

Questionnaires were completed by the students before and two months after the intervention.

[Downloaded from hehp.daneshafarand.org on 2026-11-14]

Statistical is

The Statistical Package for the Social Sciences (SPSS) was used to data is and descriptive statistics was used to summarize and organize the data.

T-test and Chi-square were used to determine the relation between the two groups.

The paired t-test and McNemar test were used to determine the score differences before and after intervention.

Results

The age of the students in experimental group and control group was 16 and 17 and all students were in grade10. Regarding the living status, 90.7% of the participants were living with both parents, 9.3% with one parent. Also, 3.6% of students had used cigarette in lifelong (experimental group 2.9% and control group 4.3%). Chi-square test shows no significant difference between the two groups (P=0.649). 9.3% of students have reported a history of substance abuse by best friends. (Experimental group 10% and control group 8.6%). Chi-square test also shows no significant differences between the two groups (P=0.771). Table 1 is a comparison of background variables in experimental and control groups. Statistical tests did not show significant differences between the two groups.

Table 1: Comparison of background variables in experimental and control groups

Variable	x^2	P_{value}
Living status	3.880	0.644
Smoking	0.207	0.649
Drug use among friends	0.320	0.572
Drug use among the best friends	0.085	0.771
Drug use among family	0.043	0.855

Table 2: Comparison of the scores of experimental and control groups, pre and post educational intervention

Variable	Pre-intervention P_{value}	Post- intervention P_{value}
Attitude	0.842*	< 0.001*
Subjective norms	0.675*	0.035*
Perceived behavior control	0.603*	< 0.001*
Intention to drug use	0.805**	0.042**

*t-test, **Chi-square test

[Downloaded from hehp.daneshafarand.org on 2026-11-14]

Table 3: The relationship between students' scores in two groups before and after intervention

Variable	Control Group P_{value}	Experimental Group P_{value}
Attitude	0.176*	0.001*
Subjective norms	0.175*	0.001*
Perceived behavior control	0.094*	0.001*
Intention to drug use	0.082**	0.039**

*paired t-tests, ** McNemar test

In order to determine the relation between the two groups, t-test and Chi-square test were used. T-test results showed no significant difference among the scores of the two groups' attitude ($p = 0.842$), subjective norms ($p = 0.675$), perceived behavior control ($p = 0.603$) before intervention, but there are significant differences after intervention; attitude ($p < 0.001$), subjective norms ($p = 0.035$), perceived behavior control ($p < 0.001$). Chi-square test showed no significant difference between the intention to drug use of the two groups before intervention ($p = 0.805$), but there are significant difference after intervention ($p = 0.042$), (table 2)

The paired t-test and McNemar test were used to determine differences before and after intervention. Paired t-tests results showed no significant difference among the scores of attitude ($p = 0.176$), subjective norms ($p = 0.175$), and perceived behavior control ($p = 0.094$) before and after intervention in control group; but significant differences after intervention in experimental group ($p < 0.001$), (table 3).

The students' scores were also compared before and after the intervention; it was revealed that the scores in the experimental group were higher than those in the control group.

Attitude score in the control group changed from 18.87 to 18.67. Difference of scores before and after intervention was -0.185; which indicates a little change in the students' attitudes toward drug abuse. But the attitude score in the experimental group changed from 19.7 to 15.28. Difference of scores before and after intervention was -3.78 which indicates a significant change in the students' attitudes toward drug abuse.

The subjective norms score in the control group changed from 17.76 to 17.97. The difference of scores before and after intervention was 0.185 which indicates a little change in the students' subjective norms scores. But the subjective norms score in the experimental group changed from 18.8 to 16.45. Difference of the scores before and after

[Downloaded from hehp.daneshafarand.org on 2026-11-14]

intervention was -1.6 which indicates a significant change in the students' subjective norms scores.

The perceived behavior control score in the control group changed from 51.98 to 51.78. Difference of the scores before and after intervention was -0.20 which indicates a little change in the students' perceived behavior control scores. But the perceived behavior control score in the experimental group changed from 51.67 to 54.82. Difference of the scores before and after intervention was 3.15 which indicates a significant change in the students' perceived behavior control scores (table 4).

Table 4: Comparison of the scores of students in two groups before and after educational intervention

Variable	Control Group			Experimental Group		
	Pre intervention	Post intervention	Differences before & after	Pre intervention	Post intervention	Differences before & after
Attitude	18.87	18.67	-0.185	19.7	15.28	-3.78
Subjective norms	17.76	17.97	0.185	18.8	16.45	-1.6
Perceived behavior control	51.98	51.78	-0.20	51.67	54.82	3.15

Discussion

Substance abuse is often initiated during adolescence. Attempt to acquire social and individual identities, low self-esteem and the lack of communication skills make adolescents prone to substance abuse [18].

The use of models and theories of health education are effective factors in predicting the substance abuse. TPB is used in planning and implementing substance abuse prevention programs among adolescents in high school settings [19].

The results of this study as well as similar studies show that the TPB is a strong predictor of substance abuse.This theory can be used in planning and implementing the programs for prevention of drug abuse among adolescents [20, 21, 22 and 23].

In this study 3.6% of the students reported that they had used cigarette in lifelong. The results of the similar study on the students in Shiraz show that 2.5% of students are cigarette smoking regularly [24]. In another study, the prevalence of smoking among the students of Hamadan has been reported as10.2% [25].

Cigarette smoking is one of the most important risk factors in the adolescents tended to drug abuse [26]. Planning for smoking prevention may be effective in prevention of drug abuse by adolescents.

In this study, 9.3% of the students have reported a history of substance abuse with their best friends. Other studies confirmed the relationship between drug abuse and peer

[Downloaded from hehp.daneshafarand.org on 2026-11-14]

group drug abuse [27]. Therefore, peer groups should be considered in substance abuse prevention programs.

The results of this study showed that in the experimental group, the TPB variables (attitude, subjective norms, perceived behavior control, and behavioral intention) are statistically different before and after educational programs. Substance abuse intention has significantly decreased after the educational program in the experimental group compared with the control group. Studies conducted using the TPB confirmed the results of this study.

Huang attempted to prevent the Thai students from drug abuse; the results indicate that the TPB-based educational program is effective in the prevention of drug abuse among students [28]. Rodriguez Kurri studied the Mexican adolescents, and concluded that the programs significantly decreased the drug abuse intention in the experimental group [29].

Konning's study designed to prevent alcohol abuse among adolescents. The results showed that alcohol intake significantly decreased after the educational intervention [30]. Gemma studied the reduction of alcohol consumption; the results showed that alcohol intake reduction in the intervention group was less than the control group [31].

Conclusion

Drug abuse is a challenging fact in the world and needs interventions of the community organizers and the health promotion professionals. They must work and develop effective programs to prevent and control it. Applying theories and models of behavior change, particularly the theory of planned behavior as well as planning and implementing the educational programs may be effective in prevention of drug abuse among adolescents.

Acknowledgments

We would like to thank the Deputy of Research and Technology (Tarbiat Modares University) for the financial support of the study.

Conflict of interest statement

The authors declare that they have no conflict of interest.

Sources of support

This study is a part of the PhD thesis in health education and supported originally by grants from the Tarbiat Modares University, Department of Health Education.

References

[1] United Nation's office on drugs and crime, World drug report 2011; United Nations, New York, 2011; 8-10.(access April 2013; http://www.unodc.org/documents/data-and-analysis/WDR2011/World_Drug_Report_20

[Downloaded from hehp.daneshafarand.org on 2026-11-14]

11_ebook.pdf)

[2] Farhadinasab A, Allahverdipour H, Bashirian S, Mahjoub H. Lifetime Pattern of Substance Abuse, Parental Support, Religiosity, and Locus of Control in Adolescent and Young Male User. Iran J Public Health 2008; 37(4): 88-95.

[3] Allahverdipour H, Hidarnia A, Kazemnegad A, Shafii F, Azad Fallah P, Emami A. The status of self-control and its relation to drug abuse related behaviors among Iranian male high school students. Soc Behav Pers 2006; 34: 413-24.

[4] Hamdieh M, Motalebi N, Asheri H, Boroujerdi A. Prevalence of alcohol and drug abuse in young people, 15-35 year old, living in Tehran, Iran. Journal of Faculty of Medicine 2009; 32(4): 315-9.

[5] Allahverdipour H, Farhadinasab A. Bashirian S, Mahjoub H. Pattern and reasons for substance use among adolescents; J Shaheed Sadoughi Univ Med Sci 2008; 15(4): 35-42. (Persian)

[6] Ritterman, ML, Fernald LC, Ozer EJ, Adler NE, Gutierrez JP, Syme SL. Objective and subjective social class gradients for substance use among Mexican adolescents. Soc Sci Med 2009; 68(10): 1843-51.

[7] Allahverdipour H, Bazargan M, Farhadinasab A, Hidarnia A, Bashirian S. Effectiveness of skill-based substance abuse intervention among male adolescents in an Islamic country: case of the Islamic republic of Iran. J Drug Educ 2009; 39: 211-22.

[8] Momtazi SN. Overveiw of drug abuse among the Iranian adolescents. Iran Clin Psychol Psychother 2010; 16(3(62)): 345-345.

[9] Todd J, Mullan B. Using the theory of planned behavior and prototype willingness model to target binge drinking in female undergraduate university students. Addict Behav 2011; 36: 980-6.

[10] Cmillan B, Onner M. Applying an extended version of the theory of planned behaviour to illicit drug use among students. J Appl Soc Psychol 2003; 33(8): 1662-83.

[11] French DP, Cooke R. Using the theory of planned behavior to understand binge drinking: The importance of beliefs for developing interventions. Br J Health Psychol 2012; 17: 1-17.

[12] Collins SE, Witkiewitz K, Larimer ME. The theory of planned behavior as a predictor of growth in risky college drinking. J Stud Alcohol Drugs 2011; 72(2): 322-32.

[13] Conner M, McMillan B. Interaction effects in the theory of planned behavior: Studying cannabis use. Br J Soc Psychol 1999; 38(2):195-222.

[14] Ajzen I. The theory of planned behaviour. Organ Behav Hum Decis

[Downloaded from hehp.daneshafarand.org on 2026-11-14]

Process 1991, 50(2): 179-211.

[15] Sharma M, Romas J. Theoretical foundations of health education and health promotion. USA: Jones and Bartlet Publisher, 2008.

[16] Barati M, Allahverdipour H, Moeini B, Farhadinasab A, Mahjub H. Evaluation of theory of planned behaviour based education for preventing MDMA (Ecstasy) use among university students. Med J Tabriz Uni Med Sci 2011; 33(3): 20-9. (Persian)

[17] McMillan B, Onner M. Applying an Extended Version of the Theory of Planned Behavior to Illicit Drug Use among Students. J Appl Soc Psychol 2003; 33(8): 1662-83.

[18] Babaie ASL F. Evaluation of knowledge of high school students about drugs in Kerman. Sci J Hamadan Nur Mid Faculty 2008; 16(1): 18-24. (Persian)

[19] Bashirian S, Hidarnia A, Allahverdipour H, Hajizadeh E. Application of the Theory of Planned Behavior to Predict Drug Abuse Related Behaviors among Adolescents. JRHS 2012; 12(1): 54-60.

[20] Morrison DM, Lohr MJ, Beadnell BA, Gillmore MR, Lewis S, Gilchrist L. Young mothers' decisions to use marijuana: A test of an expanded theory of planned behaviour. Psychol Health 2010; 25(5): 569-87.

[21] Chan DC, Wu AM, Hung EP. Invulnerability and the intention to drink and drive: An application of the theory of planned behaviour. Accid Anal Prev 2010; 42(6): 1549-55.

[22] Carrera P, Caballero A, Munoz D. Future-oriented emotions in the prediction of binge-drinking intention and expectation: The role of anticipated and anticipatory emotions. Scand J Psychol 2012; 53(3): 273-9.

[23] Manning M. The effects of subjective norms on behavior in the theory of planned behaviour. Br J Soc Psychol 2009; 48(4): 649-705.

[24] Ayatollhi A, Poorasl M, Rajaeefard AR. Predicting the three stages of smoking acquisition in the male students of Shiraz's high schools. Med J Tabriz Uni Med Sci 2005; 64: 10-5. (Persian)

[25] Moeini B, Poorolajal J, Gharlipour Gharghani Z. Prevalence of cigarette smoking and associated risk factors among adolescents in Hamadan city in 2010. JRHS 2012; 12(1): 31-7.

[26] Mojahed A, Bakhshani NM. Prevalence of smoking and drug abuse in students of Zahedan high schools. Zahedan J Res Med Sci 2004; 6(1): 59-65.

[27] Best D, Rawaf S, Rowley J, Floyd K, Manning V, Strang J. Drinking and smoking as concurrent predictors of illicit

[Downloaded from hehp.daneshafarand.org on 2026-11-14]

drug use and positive drug attitude in adolescents. Drug Alcohol Depend 2000; 60: 319−21.

[28] Huang CM, Chien LY, Cheng CF, Guo JL. Integrating Life Skills Into a Theory-Based Drug-Use Prevention Program: Effectiveness Among Junior High Students in Taiwan. J Sch Health 2012; 82(7): 328-35.

[29] Rodríguez SE, Negrete DB, de Velasco SE, Huesca JA, Gomez-Maqueo EL. Evaluation of a prevention program for drug consumption in adolescents. Salud Mental 2011; 34(1): 27-35.

[30] Koning IM, Van Den Eijnden RJ, Verdurmen JE, Engels RC, Vollebergh WA. Long-term effects of a parent and student intervention on alcohol use in adolescents: A cluster randomized controlled trial. Am J Prev Med 2011; 40(5): 541-7.

[31] Todd J, Mullan B. Aplying the theory of planned behavior and prototype willingness model to target binge drinking in female undergraduate university students. Addict Behav 2011; 36: 980-6.

[Downloaded from hehp.daneshafarand.org on 2026-11-14]