

What are the Psychosocial Predictors of Not Drinking Alcohol in Iranian Adolescents? Applying the Theory of Planned Behavior

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Abstract

Background: Alcohol consumption, as a high-risk behaviour of adolescents, is a problematic challenge in health system around the globe. Iran, as an Islamic country, has been faced with this issue despite strict religious norms and heavy laws and punishment, especially after the fundamental 1979 revolution. This study aimed to analyze and use theoretical model to identify the factors influencing the intention not to drink alcohol among adolescents in southern Iran.

Methods: The cross-sectional study was conducted in mid-2020 in southern Iran. The data were collected using available samples from among 763 tenth grade adolescents who visited health canters to receive health services upon entering school. Kolmogorov-Smirnov, Shapiro-Wilk test, independent sample t-test, and binary logistic regression ($P < 0.05$) were the tests used in the study. The demographic and behavioral characteristics data were collected; also, alcohol consumption questionnaire based on TPB model was utilized.

Results: The construct of theory of planned behavior could explain intention and alcohol consumption behaviour ($P < 0.001$), and other predictors included high-risk behaviors in family ($P < 0.001$), descriptive subjective norms ($P < 0.001$), and the quality of the relationship with the family ($P < 0.001$).

Conclusion: Theory of planned behavior has a very good ability to predict the intention and behavior of drinking among adolescents, and that intention is the strongest predictor of behavior; father's behaviors in the family play a key role in adolescents drinking behavior. Therefore, it seems that improving the relationship between adolescents and parents should be on the agenda of policymakers.

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Introduction

Juvenility is regarded as one of the stages of growing and passing from childhood to adulthood, in which a person experiences cognitive and social changes, along with physiological ones and learns how to manage his/her emotions and relationships by nurturing the knowledge and skills required for responsibility in society as an adult. The growth of adolescents involves negative aspects such as

those with risk appetite and risky behavior of consuming alcohol, along with its numerous positive aspects.^{1, 2} "Alcohol is a psychoactive substance with dependence-producing properties",³ and the tendency of adolescents for experiencing this risky behavior can lead to their permanent dependence on this drink.² Harmful alcohol consumption leads to 3 million deaths annually (5.3% of total death) and 5.1% of the global burden of diseases and injuries (132.6 million disability-adjusted life years (DALYs)).⁴

The damage of consuming alcohol in juvenility period is similar to a snowball which is continuously growing. Reducing self-control and increasing the adoption of risky behavior⁴ result in increased tendency toward this risk. Alcohol consumption is related to over 200 diseases and damages such as dependency, depression, academic failure, risky driving, drug use and abuse, unsafe sex, violence, getting pneumonia, tuberculosis, AIDS and different cancers, and early mortality.^{3, 5-7} Based on the latest World Health Organization (WHO) data published in 2019, the alcohol consumption of each person aged over 15 years in the world is formally recorded as 6.4L pure alcohol annually. Its global prevalence is estimated at 43%. Due to the prohibition of consuming alcohol in Iran, the recorded and unrecorded consumption values of alcohol are zero and one liter per year, respectively, by considering the last estimations of WHO.⁴ However, a study estimated the prevalence of alcohol drinking in Iran at 31%.⁸ Ministry of Health and Medical Education conducted a study in 2014 in order to estimate the hidden population of alcohol consumers and found that 2000 persons had consumed alcohol for at least one time among 100000 individuals in 2013.⁹ Preventing and reducing harmful alcohol consumption are considered as one of the main issues related to health in adolescence⁵ because of interfering the behaviors formed in juvenility period in the health problems of adulthood period^{1, 10} and specifying juvenility as a risky period for beginning alcohol consumption and transferring to abuse and dependency.^{2, 10} Since more desirable results were attained for planning and implementing by theory-based studies,¹¹ the present study aimed to recognize the intra- and inter-personal factors of describing drinking behavior by using the theory of planned behavior (TPB) and demographic and social components, respectively, and determine the share of each factor in intention and behavior.

The theory of planned behavior, as the generalized form of the Theory of Reasoned Action (TRA), was introduced by Ajzen in 1980. Based on this principle, the intention of a person for doing something results in conducting behavior, which is regarded as the theoretical basis of this theory and is affected by three factors of Attitude (At) towards behavior (How is the desirability of the intended behavior with respect to his viewpoint?), Subjective Norm (SN) (What is the opinion of important persons in his life about conducting intended behavior by him/her with respect to his viewpoint?), and Perceived Behavioral Control (PBC) (How much can he/she control intended behavior with respect to his viewpoint?).¹² During the time, the TPB along with conducted meta-analytical studies proved that it can generally¹³ and particularly¹⁴ predict drinking intention and behavior. In Iran, the TPB has been used to identify the factors affecting

risky behaviors such as risky sexual behaviors,¹⁵ drug use,¹⁶ smoking,¹⁷ etc., but a study has not been conducted to identify the factors influencing the intention and behavior of drinking in adolescents using the theory. Considering the studies carried out on alcohol consumption by Iranian adolescents, conducting a study is necessary for recognizing intra- and inter-personal factors affecting drinking intention and behavior among the adolescents living in the south of Iran. In fact, TPB model measures the viewpoint of a person and other important persons in his/her life relative to the desirability of a behavior and severity score of behavior with respect to his opinion. Although this model is probably influenced by the intrapersonal factors, interpersonal factors should be highlighted in a behavior such as drinking, especially in adolescents, along with intrapersonal ones. The present study sought to determine the share of each factor on the intention and behavior of alcohol abuse in the Iranian adolescents living in the south of Iran in 2020 by adding interpersonal researcher-made constructs.

Methods

The present descriptive cross-sectional study was conducted among the adolescents who live in the south of Iran. Sampling was done as an available sample from the population of 10th grade students who referred to health centers to receive 10th grade healthcare. Inclusion criteria were the tenth grade students and consent of the individual and his/her family to participate in the study. Also, the exclusion criterion was incomplete questionnaire. The statistical population included 920 adolescents, of whom 763 were willing to participate in the study and completed the self-report questionnaire (SRQ), and six questionnaires were excluded from the study due to missing data. The protocol of this study was approved by the Research Council and the Ethics Committee of Shiraz University of Medical Sciences and Health Services (SUMS) (IR.SUMS.REC.1397.1030) and was done in accordance with the guidelines of the Declaration of Helsinki; also, written informed consent was obtained from the parents of all participants.

Data Collection

Demographic Questionnaire

Demographic variables included the items that previous studies have shown can affect drinking intention and behavior;^{1, 2, 18-23} it included 39 questions on age; gender; grade point average (GPA); satisfaction with academic performance (by the adolescent himself); the person with whom the adolescent lives; the parents' occupation and education; the adolescent's experience of hookah and smoking and the risky behaviors of smoking, alcohol, drugs in the father, mother, siblings, grandparents and kinship; and the quality of the relationship with the family

(degree of intimacy with father, sibling, mother, degree of importance of the family for the adolescent, adolescent's perception of the importance of the family and the extent to which the family is involved in adolescent's problems).

Knowledge, Descriptive Subjective Norm and TPB Questionnaires

11-item knowledge questionnaire was made by Centers for Disease Control and Prevention (CDC) by considering the long- and short-term outcomes of alcohol consumption^{1, 2, 10} and 4-item Descriptive Subjective Norm (DSN) questionnaire, which measures subjective norm descriptively, were used in the present study to collect the data.

TPB has 5 main constructs called attitude (At), subjective norm (Injunctive norm) (SN), perceived behavioral control (PBC), and intention and behavior. The questionnaire was designed using the guidelines for designing a TPB-based questionnaire,²⁴ Global School-based Student Health Survey (GSHS),²⁵ and Youth Risk Behavior Surveillance System (YRBSS)^{26, 27} questionnaires.

The questionnaire was designed to place the adolescent in an assumptive position by providing three scenarios to express his/her opinions based on a five-point Likert scale ranging from completely agree to completely disagree. The highest score indicated a higher At, SN, and PBC for not drinking.

The validity of the researcher-made questionnaire was assessed by 10 experts based on the obtained results. Further, content validity ratio (CVR) and content validity index (CVI) were 0.85 and 0.89, respectively. To measure reliability, the questionnaire was completed by 45 samples, representing Cronbach's alpha coefficient of At, SN, DSN, PBC, and intention as 0.79, 0.81, 0.83, 0.80 and 0.78, respectively. Further, the reliability of the test was calculated through two methods of Cronbach's alpha (0.92) and Gottman (λ_1 : 0.91 and λ_6 : 0.994), which indicated a high degree of reliability.

Statistical Analysis

The normal distribution of the data was confirmed based on the Kolmogorov-Smirnov (K-S) and the Shapiro-Wilk (S-W) tests ($P \leq 0.05$). Moreover, descriptive statistics, such as mean and standard deviation, were calculated. In addition, the independent sample t-test was used to examine the relationship between intention and behavior and TPB constructs, DSN, quality of family relationship, age, and GPA. Moreover, to examine the relationship between the intention and drinking behavior, demographic variables, and high-risk behaviors in adolescents and their relatives, we performed the univariate chi-square test. Variables with a significant relationship

with the intention and behavior of drinking ($P < 0.05$) were included in the binary logistic regression model for the multivariate analysis. The "Forward Wald" regression method was used to perform the analysis.

Results

In the current study, 757 adolescents in the 10th grade (53% female and 47% male) living in the south of Iran with a mean age of 15.35 years ($SD=1.492$) were interviewed using the SRQ. Based on the results of the descriptive statistics, 61 adolescents (8.1%) expressed that they had experienced alcohol consumption at least once in their life; among them, 30% (20 adolescents) had consumed alcohol during the last month. The minimum age of starting alcohol consumption was 14 years. The number of boys who had consumed alcohol was higher than the girls (11.2% versus 5.2%). Furthermore, a greater number of boys intended to consume alcohol compared to girls (17.1% versus 8.7%). Regarding the question of "how to access alcohol", the majority of the participants expressed that they received alcohol free of charge, and they received alcohol from one of their family members, respectively.

Tables 1-3 present the detailed results of the descriptive statistics and the univariate analysis for demographic variables, high-risk behaviors, knowledge, and DSN and TPB constructs. According to the results shown in Table 1, there was a significant relationship between demographic variables and drinking intention and behavior ($P < 0.05$). There was no significant relationship between the father's education ($P=0.182$) and job ($P=0.177$) with adolescents' drinking intention. In addition, no significant relationship was observed between the mother's education ($P=0.958$) and job ($P=0.264$) and drinking behavior. According to the results of Table 2, a significant relationship was observed between high-risk behaviors in family members, relatives and the individual and the intention and behavior of drinking alcohol ($P < 0.001$). The results of Table 3 also show that there is a significant relationship between TPB constructs and descriptive subjective norm with adolescent drinking intention and behavior ($P < 0.001$).

Table 4 presents the results of the Binary logistic regression between the variables influencing the previous analyses on the intention to drink among adolescents. To explain the results, the participants were divided into two main categories. The first group included those who were more likely to tend to drink alcohol, while the second group included those who were more unlikely to intend to drink. Having a father who did not consume alcohol ($P=0.005$) and DSN ($P=0.023$) were the items that increased the chance of adolescents wanting to drink. On the other hand, teenagers having a mother who was a housewife were more likely to avoid drugs than those with working mothers ($P=0.029$).

Table 1: Descriptive statistics and the univariate analysis for demographic variables

Variables	Categories	Mean±SD N (%)	P value (Intention)	P value (Behavior)
Age	-	15.35±0.492	<0.001	<0.001
GPA	-	18.52±1.44	<0.001	<0.001
The quality of the relationship with the family	-	19.45±3.92	<0.001	<0.001
Gender	Girl	401 (53)	0.001	0.002
	Boy	356 (47)		
Perceived satisfaction with academic achievement	Very Good	240 (31.7)	<0.001	<0.001
	Good	341 (45)		
	Moderate	101 (13.3)		
	Average	65 (8.5)		
	Weak	10 (1.3)		
Live with ...	Both parents	698 (92.2)	0.001	<0.001
	Stepfather or stepmother	5 (0.7)		
	One of the parents	34 (4.5)		
	Grandparents (without parents)	3 (0.4)		
	Living in a dormitory	17 (2.2)		
Father education	Illiterate or illiterate enough to read	179 (23.6)	0.182	<0.001
	Diploma	460 (60.8)		
	University education and higher	118 (15.6)		
Mother education	Illiterate or illiterate enough to read	160 (21.1)	0.030	0.958
	Diploma	524 (62.2)		
	University education and higher	73 (9.6)		
Father job	Employed	666 (88)	0.177	0.003
	Unemployed	47 (6.2)		
	Pensionary	44 (5.8)		
Mother job	Employed	104 (13.7)	0.014	0.264
	Housewife	644 (58.1)		
	Pensionary	9 (1.2)		

Mean±SD, mean±standard deviation; N (%), number (frequency). GPA: Grade point average.

Table 2: Descriptive statistics and the univariate analysis for high-risk behaviors

Variables	Yes N (%)	No N (%)	P value (Intention)	P value (Behavior)
Tobacco use				
Father	207 (27.3)	550 (72.7)	<0.001	<0.001
Mother	60 (7.9)	697 (92.1)	<0.001	<0.001
Sibling	13 (1.7)	744 (98.3)	<0.001	<0.001
Grandparents	111 (14.7)	646 (85.3)	<0.001	<0.001
Kinship	193 (25.5)	564 (74.5)	<0.001	<0.001
Drug use				
Father	34 (4.5)	723 (95.5)	<0.001	<0.001
Mother	0 (0)	757 (100)	-	-
Sibling	0 (0)	757 (100)	-	-
Grandparents	5 (0.7)	752 (99.3)	<0.001	<0.001
Kinship	38 (5)	719 (95)	<0.001	<0.001
Alcohol use				
Father	21 (2.8)	21 (2.8)	<0.001	<0.001
Mother	0 (0)	757 (100)	-	-
Sibling	9 (1.2)	748 (98.8)	<0.001	<0.001
Grandparents	0 (0)	757 (100)	<0.001	<0.001
Kinship	45 (5.9)	712 (94.1)	<0.001	<0.001
Tobacco use by adolescent				
Cigarettes use by adolescent	90 (11.9)	667 (88.1)	<0.001	<0.001
Hookah use by adolescent	103 (13.6)	654 (86.4)	<0.001	<0.001

N (%), number (frequency).

Table 3: Descriptive statistics and the univariate analysis for knowledge, DSN, and TPB constructs

Constructs	Number of items	Scale range	Scale mean (N)	SD (%)	P value (Intention)	P value (Behavior)
knowledge	11	0-11	8.66	2.45	<0.001	<0.001
DSN	4	4-20	14.07	2.18	<0.001	<0.001
Attitude	8	±40	31.9353	14.80686	<0.001	<0.001
Subjective norm	10	±50	32.3950	14.86807	<0.001	<0.001
PBC	8	±40	13.7173	2.93346	<0.001	<0.001
Intention	1	0-1	Yes:(96) No:(661)	(12.7) (87.3)	-	<0.001

N: Number; (%): Frequency; M: Mean. DSN: Descriptive subjective norm; At: Attitude; SN: Subjective norm; PBC: Perceived behavioral control

Table 4: Results of binary logistic regression related to the main variables of assessment in explaining intention construct

Variables	B	Wald	df	Sig.	AOR	95% C.I. for AOR	
						Lower	Upper
Mother job		7.061	2	0.029			
Housewife	6.039	7.052	1	0.008	419.420	4.864	36168.118
Employed	6.011	5.644	1	0.018	407.885	2.864	58100.081
Father does not use alcohol	-5.445	8.064	1	0.005	250.000	5.405	1000
Father does not use drug	3.036	4.935	1	0.026	20.814	1.430	303.044
The quality of the relationship with the family	0.668	14.155	1	<0.001	1.951	1.377	2.763
DSN	-0.344	5.192	1	0.023	1.410	1.049	1.897
PBC	0.331	15.041	1	<0.001	1.392	1.178	1.645
At	0.208	10.130	1	0.001	1.231	1.083	1.398
Constant	-17.615	14.203	1	<0.001	<0.001		

CI: Confidence interval; OR: Adjusted odds ratio; DSN: Descriptive subjective norm; At: Attitude; PBC: Perceived behavioral control

Table 5: Results of binary logistic regression related to the main variables of assessment in explaining behavior construct

Variables	B	Wald	df	Sig.	AOR	95% C.I. for AOR	
						Lower	Upper
Intention (Not intending)	5.641	24.321	1	<0.001	281.753	29.938	2651.666
Father does not use alcohol	-2.629	11.060	1	0.001	13.888	0.015	0.340
PBC	0.178	13.824	1	<0.001	1.194	1.088	1.312
At	0.147	13.806	1	<0.001	1.158	1.072	1.251
Constant	2.150	18.962	1	<0.001	8.584		

CI: Confidence interval; AOR: Adjusted odds ratio; At: Attitude; PBC: Perceived behavioral control

The high quality of family relationships (P<0.001), a greater sense of self-control over behavior (PBC) (P<0.001), and a positive attitude toward not drinking alcohol (P=0.001) were all the factors that increased the chance of not intending to drink alcohol.

Table 5 presents the results of the binary logistic regression between the variables influencing previous analyses on drinking behavior among adolescents. The results of the analysis were divided into two categories. The first group were those with increased chance of drinking in adolescents, while the second group involved the cases with increased chance of not having a drinking behavior. The results showed that fathers' lack of experience in drinking alcohol increased the adolescents' chances of drinking (P=0.001). However, not having the intention to drink increased the adolescent's chance of not drinking by 281 times (P<0.001). In addition, a greater sense of self-control (PBC) (P<0.001) and a positive attitude toward not

drinking alcohol (P<0.001) were all protective factors that reduce the risk of alcoholism.

Discussion

The main objective of the current study was to predict the intention and behavior of drinking using demographic variables and the TPB model among adolescents in southern Iran (Lar City). The results of the study showed that none of the demographic variables affected the risk of intention and behavior of drinking. However, the status of high-risk behaviors, such as alcohol and drug consumption by the father of the family, played a significant role in the intention and behavior of drinking. In other words, having a father with no drinking experience increased the odds of the intention and behavior of drinking. It seems that alcohol consumption by fathers can be considered as an objective experience for adolescents. Therefore, adolescents whose fathers

do not have a drinking experience do not face problems related to alcohol drinking, which makes them more likely to have drinking intention and behavior. Existence of high-risk behaviors, such as drug consumption by the father, is also considered as a risk factor for increasing the intention to drink in adolescents. Research evidence indicates that early exposure to parental external behaviors (e.g., alcohol and drug use disorders and criminal behaviors) is associated with adolescents' academic and behavioral problems and their persistence into adulthood. These findings align with the results of the present study.²⁸ Moreover, having either a working mother or a housewife mother had a positive effect on the lack of intention and behavior of drinking; however, this effect was greater in housewives. The presence of the mother and her role as a provider of the adolescent's emotional needs seem to justify this positive effect.²⁹

The results of our study showed that, among all the variables, intention was the best predictor of behavior. This finding is consistent with the TPB assumption that what causes a person to behave is the person's intent for that behavior. Among the constructs of TPB, AT and PBC were able to predict behavior as well as intention. However, SN left binary logistic regression, but its descriptive equivalent, DSN, was able to acceptably predict the intention and behavior of drinking alcohol. Previous studies comparing descriptive and injunctive descriptive norms have also emphasized the greater effectiveness of DSN than injunctive ones.³⁰⁻³³ Nonetheless, the study by Graupensperger et al. (2020) showed that to predict alcohol drinking behavior among college students, injunctive norms were more effective in the long run than the descriptive ones, and the descriptive norms could only predict the frequency of alcohol consumption at present.³⁴

Conclusion

The results of the current study show that despite the strict rules that exist for alcohol consumption in Iran, where drinking alcohol is a crime, 8.1% of the 10th grade adolescents in southern Iran have tried drinking alcohol at least once in their lifetime. Because of the taboo nature of drinking, all that adolescents have learned about it is shrouded in obscurity. Therefore, it is necessary to have educational programs to provide correct information about alcohol and the consequences of drinking it in order to improve attitude and self-control.

The present study shows that the TPB model has a very good ability to predict the intention and behavior of drinking among adolescents, and that intention is the strongest predictor of behavior. Therefore, it is suggested that behavior can be changed through educational programs, in addition to a focus on the variables affecting behavior and intention. Moreover, educational interventions should focus not only on adolescents but also on their parents.

The present study had several strengths. First, the data were collected through a census method among all tenth grade adolescents. The second, there is no study to identify the factors affecting the consumption of alcohol in southern Iran. And the third, so far no study has compared the efficacy of the TPB model to a divergent factor. On the other hand, one of the limitations of this study is that drinking behavior in Iran is considered abnormal and illegal. However, the self-report questionnaire was completed in a completely calm and ethical manner during the research. The study was hardly permitted to be done because of the illegal behavior. Despite the need for educational interventions in this area, the researcher did not receive official permission for it.

One practical recommendation is to implement an educational intervention to modify alcohol misuse behaviors by Iranian adolescents under the age of 18. The change in attitudes of local authorities is that research and educational intervention on alcohol abuse among adolescents is not a taboo subject and challenging issue. In order to identify the influencing factors and timely intervention, it is suggested to conduct more studies in this field among adolescents with a wider age range. Given that Larestan is a religious city among the cities of the country, the results of the present study show that it is necessary to hold more up-to-date education for the society, the adolescent population, and families. This requires that, first, the permission to research on taboos is issued and, second, the society does not deny the phenomenon of high-risk behaviors among teenagers. It seems that health promotion approaches are a way to change the attitude of policymakers, decision makers, and families.

Ethics Approval and Consent to Participate

The protocol of this study was approved by the Research Council and Ethics Committee of Shiraz University of Medical Sciences and Health Services (SUMS).

Availability of Data and Materials

All data generated or analyzed during this study are included in this published article [and its supplementary information files].

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