Predicting high-risk behaviors in female adolescents based on psychological motivations

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Abstract

Background: More recently, gender differences in risk behaviors are less common for females than males to exhibit high-risk behavior. The aim of this research was to predict high-risk behaviors based on psychological motives in female teenagers.

Methods: In this cross-sectional study, all high school students in the academic year of 2019-2020 in Shiraz, Iran were the statistical population of the current report. Using the convenience sampling method, a sample of 180 people was selected from this statistical population. The Iranian Adolescent Risk-taking Scale (IARS) and Scale for the Motivation of Risk-taking Activity (SBM) were used to measure the studied variables.

Results: Age range in this study: 15-18 years old, M=15.50, SD=1.40. As the findings revealed, the values of β and t indicated that the motivation for excitement (β=0.346; t= 3.317; p=0.001) and for irresponsibility (β=0.202; t=1.975, p=0.05) played the most pivotal role in predicting the tendency to use narcotics, respectively. In addition, the values of β and t also demonstrated that motivation to seek excitement (β=0.351; t=3.412; p=0.001) played the most important role in predicting teenage girls' tendency to drink. Finally, irresponsibility (β=0.207; t=1.972; p=0.05) and accounting (β=-0.191; t=-2.094; p=0.038) had the most important role in the prediction of smoking tendency variable, respectively.

Conclusions: The findings showed that the emotional and unhealthy motivations had the most pivotal role in predicting female adolescents' tendency to use drugs. Moreover, emotional motivation played the most important role in predicting the tendency of teenage girls to use alcohol.

Keywords: Adolescents, Girl, High-risk Behaviors, Motivation, Psychological

Introduction

There is an important period in the cycle of psychological development of each individual that takes place between childhood and adulthood and is called adolescence [1]. Adolescence is a period in which obvious biological, cognitive, social and emotional changes are revealed [2]. In fact, regardless of the period of infancy, no period of life changes as much as adolescence. During this period, adolescents experience puberty, which affects physiological, physical and psychological development [3]. Significant changes occur in its perception, adolescents experience an identity crisis as well as their emotional issues and problems are increased. Moreover, conflicts arise from private relationships, bodily changes, anxieties and cultural tensions related to conflicting appearances and emotions [4]. One of the prominent features of young people than other people is more

excitement and arousal threshold in the community, which makes them feel the need for stimulation, diversity as well as new and risky experiences, leading to the formation of risky behaviors at this critical period [5]. There are conflicting findings from earlier thinking on the biological mechanisms involved in risky actions [6]. Various studies have concentrated on the pathways associated with cortisol, dopamine, serotonin, estrogen, and testosterone chemicals [7-9]. In the areas of driving, drinking, smoking and sexuality, the researchers accepted the genome-wide association (GWAS) of general risk perception, adventurousness, and risky behaviors. The authors acrossed all genome-wide associations and found hundreds of associated loci including 99 loci associated with general risk tolerance [8].

Evidence of major common genetic factors through risk tolerance and risky behaviors has been reported. Bioinformatic studies have indicated that genes associated with general risk tolerance near SNPs are found to be elevated in brain tissues and point to a role in the neurotransmission of glutamatergic and GABAergic [9, 10]. Several studies have found no evidence that genetic variations similar to genes involved in these pathways are more closely associated with general risk tolerance than other genes [7-9]. In a study, 18 loci for the current smoking trajectory have been found in a sample of a major genome-wide association review (GWAS) for longitudinal smoking phenotypes in 286,118 people [10]. While the researchers focused on the genetics of general risk perception and risky behaviors, a large share of the heterogeneity of these phenotypes is due to environmental and demographic influences. They observed the sizeable effects of gender and age on general risk tolerance in the data, and life experiences had been shown to affect both measured risk tolerance and risky behaviors [8]. Results displayed the significant effects of gender and age on general risk tolerance, and life experiences were shown to influence both measured risk tolerance and risky behaviors [8].

Many researchers conclude that teenagers are a natural characteristic of risk-taking [11]. As age increases, adolescents engage in many risky activities, and their willingness to indulge in such behaviors increases so that their propensity to these risky behaviors has become one of the key sources of parental concern [12].

Adolescents who are at high risk are less qualified and more likely to drop out. They are less likely to attend college and are often related to an increased risk of suicide, early death, abuse, conflict as well as chronic heart disease [13]. In recent years, these consequences in developing countries, especially our nation have significantly increased [14]. Young people who are unable to navigate their tendencies towards harmonious and natural activities eventually suffer from contradictions and display deviant and high-risk behaviors [15].

High-risk habits are behaviors that threaten the health and well-being of individuals. Such habits include behaviors that endanger either the health of a person such as alcohol, smoking and unsafe sex, or the health of other people such as stealing, abuse as well as running away from school and home [16]. The most common high-risk habits; nevertheless, are excessive drinking, drug use, unprotected sex, careless driving, harmful acts, gambling and illegal works [17]. An analysis of the different viewpoints shows that a definitive solution to high-risk behaviors has not been suggested. However, various theories have proposed different variables in the occurrence of high-risk activities, one of which is motivation. Previous studies have stressed the role of the motivational system in risky decision-making. Motivations are one of the significant variables that play a role in our behavior. Human activities are affected by motivations in various areas. One of the areas that impact our psychological motivation is risky behaviors [18]. Nevertheless, none of the areas of society is exempt from the unfortunate effects of health-threatening activities, but certain social classes including teenagers are at greater risk since today, many adolescents would be victims of high-risk behaviors in the future. Three key elements of motivation are considered: a) Activating forces: are forces in individuals that trigger each person to have a particular action b) Guiding forces: guide behavior to something or in other words, motivation is purposeful and c) Continuing forces: enhances and sustains human behavior in the direction of achieving the goal while guiding it [19].

Motivation is a general concept that describes the common ground between needs, expectations and feelings as well as reinforces and directs behavior through each of these internal processes. The process of motivation relates to dynamic forces, drives, desires, stressful circumstances or other processes that begin and continue to achieve the objective. Motivation is the ability and desire to do the tasks required to achieve the objectives [20]. In addition to biology and environment, according to the above context, the psychological variables are involved in the creation of high-risk behaviors during adolescence. Less research has been

done in Iran on adolescents and productive motivating factors for high-risk behaviors. The aim of the present study was to answer "What are the motivational events of high-risk behavior in female adolescents?"

Methods

A correlational analysis was used to design this research. The research population consisted of female students aged 15 to 18 years old in Shiraz, who were enrolled in the first semester of the 2019-2020 academic years. According to Cochran's formula, the sample size was calculated as 180 female students using a multi-stage stratified sampling to provide an explanation for findings regarding the probability distributions of statistics (with parameters: alpha = 0.05, d = 0.03). The data collection and study process were designed as follows: 2 out of 6 educational districts in Shiraz (from separate geographical areas) were initially randomly selected. Totally, 2 all-girl high schools as well as 3 classes in each secondary school were chosen randomly from each district and the surveys were conducted.

The requirement for inclusion was to be a female student and to study at a government high school. Students who were not willing to answer the questionnaire were disqualified. To fill out the questionnaires, the first students were briefed by the interviewers on how to answer the questions. The questionnaire was then carried out by the students.

For the analysis of the results, descriptive (mean±SD) and inferential (Simultaneous regression) statistics were used. It should be noted that all data analyses were performed with SPSS 22. The Iranian Adolescents Risk-taking Scale (IARS) and Scale for encouraging risk-taking activity were the research instruments used in this analysis (SBM).

The Iranian Adolescents Risk-taking Scale (IARS)

The risk-taking scale of Iranian adolescents used by Zadeh Mohammadi and Ahmadabadi [21] is applied to evaluate high-risk behavior. The 38-item scale is utilized to assess susceptibility to high-risk activities such as abuse, smoking, substance use, alcohol intake, sexual intercourse, and the inclination toward the opposite sex. The scale of this 5-item questionnaire is ranged from 5 (strongly agreed) to 1 (strongly agreed) (strongly disagree). The alpha coefficient of Cronbach is determined 0.93 for the complete-scale, 0.90 for the substance use subscale, 0.74 for dangerous driving,

0.78 for violence, 0.93 for smoking, 0.90 for alcohol use and 0.87 for sexual relations [21].

Scale for risk-taking behavior's motivation

The scale for encouraging risk-taking activity is used to measure motivational occurrences in high-risk activities [22]. This self-report instrument is a 25-item scale designed to measure the psychological incentive of individuals to participate in high-risk activities. Scoring on this scale is based on the answers of individuals to a Likert scale (from strongly disagree to strongly agree).

The correlation matrix of study variables is illustrated in table 3 so that there is a strong positive correlation between the dimensions of psychological motivation and dimensions of tendency to high-risk behaviors.

Question 1: What are the most important psychological motivations in predicting drug, alcohol addiction and smoking tendency in female adolescents?

Results

Demographic data analysis showed that age range in this study was 15-18 years old, M=15.50, SD=1.40, and 180 students were females. Other demographic characteristics are shown in table 1.

Table 2 shows the descriptive indicators of high-risk behaviors' motivation scores in female adolescents. Based on the numbers, the skewness and curvature coefficients for all variables were in the range of 2 to -2, indicating the normal distribution of high-risk behavioral motivation variables.

As shown in table 4, the value of F is 5.526 and the level of significance of the test is 0.005, in other words, psychological motivations can predict drug use by about 10 percent, indicating that psychological motivation predicts 10 percent of changes in drug use tendency.

As seen in table 3, the value of F and significance of the test (sig) are 3.248 and 0.008, respectively. In other words, psychological motivations could predict about 9% for drinking or alcohol abuse. It meant that the psychological motivation predicted 9% of the variables of the criterion variable (alcohol tendency). The values of β and t also showed that excitement-seeking motivation (β=0.351; t=3.412; p=0.001) played the most important role in predicting the tendency of adolescent girls to alcohol.

As observed in table 3, the value of F and significance of the test are 2.993 and 0.013, respectively. In other words, the tendency to smoking

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could be predicted about 9% by psychological motivations. It was noticeable from the β and t values that irresponsibility (β=0.207 and t=1.972 with p=0.05) and accounting (β=-0.191 and t=-2.094, p=0.038) played the most important role in predicting the smoking tendency variable.

Table 1. Frequency distribution of participants in the score of age and educational level

Variables	Variable Levels	Frequency	Percent
Age	16 years	86	53.08
	17 years	54	33.33
	18 years	22	13.58
Educational level	Mathematics	40	24.69
	Humanities	82	50.61
	Experimental	40	24.69

Table 2: Mean and standard deviation of scores of participants in the score of psychological motivations, high-risk behavioral and its subscales

Variable	Subscale	Mean± SD	Skewness	Kurtosis
Psychological Motivations	Excitement-seeking	19.21±5.01	0.768	0.205
	Accounting	19.67 ±3.30	0.460	0.134
	Attention-seeking	19.83 ±3.47	0.508	1.228
	Pleasure-seeking	19.33 ±3.89	0.212	-0.181
	Irresponsibility	19.71 ±3.87	0.373	0.290
High-Risk Behavioral	Tendency to drug	14.75 ±3.08	0.108	0.226
	Tendency to alcohol	12.67 ±2.78	0.366	0.511
	Tendency to smoking	13.61±2.46	0.608	-0.053

Table 3: Correlation matrix of participant scores on the psychological motivations and high-risk behavioral subscales.

Variables	Tendency to drug	Tendency to alcohol	Tendency to smoking
Excitement-seeking	0.37**	0.26**	0.29**
Accounting	0.16*	0.13	0.25**
Attention-seeking	0.18*	0.23**	0.19*
Pleasure-seeking	0.33**	0.21**	0.15*
Irresponsibility	0.24**	0.16*	0.24**

*P<0.01 and **P<0.05

Table 4: Simultaneous regression of drug addiction, alcohol addiction and smoking tendency based on psychological motivations

Variable	β	t	sig	R	R2	F	sig
Excitement-seeking	0.346	3.978	0.355				
Accounting	0.084	0.928	0.033				
Attention-seeking	0.185	2.152	0.349	0.316	0.10	5.526	0.005
Pleasure-seeking	0.096	0.940	0.05				
Irresponsibility	0.202	1.978	0.001				
Pleasure-seeking	0.351	3.412	0.821				
Accounting	0.021	0.277	0.761				
Attention-seeking	0.026	0.305	0.330	0.304	0.09	3.248	0.008
Pleasure-seeking	0.100	0.977	0.934				
Irresponsibility	0.009	0.083	0.480				
E Pleasure-seeking	0.073	0.708	0.038				
Accounting	0.191	2.094	0.858				
Attention-seeking	0.016	0.179	0.970	0.293	0.09	2.993	0.013
Pleasure-seeking	0.004	0.038	0.05				
Irresponsibility	0.207	1.972	0.355				

Discussion

According to the results, psychological motivations can predict high-risk behavior. The role of the motivational mechanism in risky/high-risk behaviors was stressed in previous studies [23, 24]. Compared to children and adults, the adolescents show greater inter-individual variability in behavioral risk preference as well as a peak in risk-related neural activation during adolescence [25]. Grande-Gosende et al. found that the high-risk gambling among males could be predicted through verbal bullying and number of gambling activities one engaged in last year. For women, the high-risk gambling can be predicted by physical bullying and number of gambling behaviors [26].

Pompili et al. stated that the correlation of drunkorexia with complex disordered eating habits and alcohol intake was found in a sample of male and female adolescents. The underlying causes for drunkorexia were also discussed, and the ultimate purpose of their study was to investigate the relationship between drunkorexia and different aspects of the regulation of emotions. They concluded that drunkorexia was significantly predicted by emotion-regulating difficulties in males [27].

In a group of adolescents, 2 years after magnetic resonance imaging, Swartz et al. (2020) developed reward-related neural activity patterns (a) to prospectively predict changes in alcohol use and (b) to investigate whether these patterns were differed by gender. Swartz et al. (2020) also tested whether depressive symptoms or impulsivity affected associations between neural activity and possible alcohol consumption at ages 16 and 18. The results showed that different patterns of reward-related neural activity predicted possible increases in alcohol consumption for male and female adolescents. In boys, higher ventral striatum (VS) activity during reward anticipation and average ventral medial prefrontal cortex (mPFC) activity during reward feedback predicted increases in alcohol consumption from 16 to 18 years of age; in girls, increased dorsal mPFC activity and decreased VS activity predicted increases in alcohol consumption during reward anticipation from 16 to 18 years of age. Such associations were not mediated by depressive symptoms or impulsivity. These results suggested that different risk pathways could lead to problematic alcohol use for adolescent boys and girls. These gender differences in neural risk pathways have a significant effect on youth-focused approaches to prevention and intervention [28].

Dasteaee et al (2020) have demonstrated that psychological distress, depression, suicidal ideation as well as a higher rate of high-risk behaviors and delinquency are faced by teenagers who encounter online bullying than those who abuse in the real world [29]. In their comprehensive research, Doty et al. (2017) also declared that all teens who were victims of bullying or cyberbullying had a low level of social contact, especially with their parents.

Moreover, Doty et al. (2017) found in their extensive analysis that all teens who were victims of bullying or cyberbullying had a low level of social interaction, especially with their parents [30]. In clarifying this finding, it can be said that the current social and psychological conditions and life experience of an individual affect the decision to use drugs. In addition, drug use has effects that can be reinforced or grossed and, as a result, the risk of continued drug use is increased or decreased during a learning process. According to the integrated model of Botvin [31], the consumption of alcohol, cigarettes and other drugs is the result of the dynamic interaction and individual psychological motivations. Besides, it can be said that people who have more responsibility, can control their emotions and express themselves effectively have mental health, more self-confidence, calmness, creativity and self-flourishing [32].

Johnson et al. [33] stated that people seeking excitement need more brain stimulation so they have a better triggering behavioral system and are less likely to participate in curious activities at high risk than those seeking less excitement. Therefore, people are more susceptible to alcohol consumption with hedonistic and excitement-seeking traits. Low levels of emotional control due to the inability to cope and handle intense excitement effectively play a role in initiating high-risk behaviors including alcohol consumption [33].

Effective emotion management lowers the risk of engaging in risky habits including alcohol consumption when an individual is encouraged and often even motivated by their peers to drink alcohol. In conditions where the risk of alcohol and drug use is high, the ability to control emotions enables a person to use effective coping strategies. People with elevated emotional control are more likely to predict other people's needs. They experience the unwanted demands of peers and better control their feelings, resulting in greater resistance to the consumption of alcohol and drugs. Those with poor emotional control, on the other hand, prefer to use alcohol and drugs to counteract their

negative emotions [27]. Drug addiction is considered, according to the ability-enhancing approach, a learned social activity that is the product of the interaction of individual and social motives. This approach argues that adolescents with poor social and individual skills not only are vulnerable to stimulants of drug consumption, but also tend to use drug consumption as an alternative to adaptive coping strategies [23, 24].

Research Limitations: In view of the fact that the collection of information in the quantitative part of the analysis is limited to the use of a self-reporting questionnaire, the information obtained from that instrument may not be an entirely accurate reflection of the fact that this issue should be taken into account in interpreting the findings. The present study was conducted on learners so it should be avoided to generalize these findings to other segments of society. The current analysis was cross-sectional. Since the causal relationship between research variables in such studies cannot be reliably commented on, it is important to conduct longitudinal studies to clarify the relationships between variables. Examples are provided in areas 1 and 2 of breeding training, and caution should be exercised when applied to other training areas.

The findings indicated that emotional and reckless motivations played the most important role in predicting female adolescents' willingness to use drugs, respectively. Moreover, emotional motivation played the most important role in predicting the tendency of teenage girls to use alcohol. Besides, regression impact coefficients indicated that irresponsibility and reckoning played the most important role in predicting the smoking trend variable, respectively. It is proposed that future researchers study other groups. To avoid high-risk actions, it is suggested to apply experimental study designs to familiarize the sensitive age groups.

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