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Research Article

A MODEL FOR THE PREVENTION OF STUDENT'S ADDICTION PRONENESS BASED ON CRISIS MANAGEMENT

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ABSTRACT
The aim of the present study was to create and test a model for the prevention of student's addiction proneness based on crisis management. To achieve this goal, at first the factors preventing student's addiction proneness in the university were identified; then by providing a comprehensive theoretical model, the relationship of factors preventing student's addiction proneness was analyzed directly and indirectly through the mediators of self-regulation and addiction proneness. The statistical population was 8703 undergraduate students from Urmia Islamic Azad University. Using cluster random sampling, 380 students were selected for the study based on gender and educational groups. The instruments used to measure the variables were a questionnaire. Using Pearson's correlation coefficient and structural equations modeling (path analysis), the results showed that factors preventing student's addiction proneness in the university increased self-regulation in students, which in turn decreased their proneness to addiction. Therefore, they were provided with an opportunity to promote their academic achievements. As a result, if the preventive activities in the university lead to increased self-regulation and decreased addiction proneness in students, it will be able possible to manage the addiction crisis. Improvements in the health of the students and in the campus environment will result in an increase in student's academic achievements.

Key Words: *Crisis Management, Prevention of Addiction, Addiction Proneness, Self-Regulation, Academic Achievement*

INTRODUCTION
Drug abuse is one of the four most important global crises, which requires serious and undivided attention in different global, national and regional levels, alongside the other three crises which include the environment, poverty and nuclear threats (Touski, 2010). Before crises practically occur, virtually all of them have frequent warning indicators and predict the possible occurrence of crises. Awareness of initial warnings and carrying out preventive measures help prevent crises from happening, which is considered one of the best ways to manage them (Mitroff and Anagnos, 2000).
Educational centers, especially universities, are responsible for training individuals for later stages of life during adulthood (Behrouzi, 2010) Universities are the pivot of development in societies at present. Therefore, it is of great importance to evaluate and recognize cultural and social issues in universities. On the other hand, cultural and social pathogenesis of university students is very important in Iran because there are large numbers of students in the country. Inattention to the fate of this young population, considered the cream of the crop and the country's intellectual resources, can jeopardize the future of the country (Mohseni, 2004). One of the major problems at universities is drug abuse by the students (Gonzalez, 1997). At present, drug and alcohol abuse has become a crisis at universities and abuse of illegal drugs by students has become a matter of great concern. The students use the drugs for a feeling of happiness, to stay up during the night, to go to sleep or to increase their sexual powers (Okoza and Aluede, 2009). Therefore, university managers and deans should be aware of and equipped with addiction preventive programs and models.

Based on the author's interview with specialists and review of previous studies, some constructs of higher education are related to prevention of addiction among university students and are considered factors influencing such problems. These factors include 1) extra-curricular activities (Kounenou, 2010; Shahmirzadi *et al.*,2012; Onongha, 2012; Polymerou, 2007) relationship with friends and peers (Shahmirzadi *et al.*, 2012; Weinstein, 1993; Taner, 2005; Onongha, 2012; Duncan *et al.*, 2005; Perkins, 2002) laws and regulations in relation to addiction (Kounenou, 2011; Ross and Dejong, 2008; Cook and Tauchen, 1984; DuMouchel *et al.*, 1987; Wagenaar, 1983, cited in Gonzalez, 1997) education of addiction prevention in the university (Adamha, 1988, cited in Gonzalez; 1997; Okoza and Aluede, 2009; Polymerou, 2007; Larimer and Cronce, 2002; Gonzalez, 1997; Janz and Becker, 1984, cited in Gonzalez, 1997) support (Lyons, 2002; Behrouzi, 2010; Onongha, 2012).

On the other hand, studies show a relationship between general self-regulation skills and drug abuse, introducing them as one of the factors predicting drug abuse. Studies have shown that low level of self-regulation or deficiencies in self- regulation mechanisms are related to risky behaviors, including drug abuse (Percy, 2008; Dishon and Connell, 2006; Croket *et al.*, 1990; Chassin and DeLucia, 1996; Moilanen, 2007). Self-regulation has a significant role in the development of resilience and competency of children who live under risky conditions (Dishon and Connell, 2006). It has a great role in the initiation of drug and alcohol abuse and drug-related problems (Cervone *et al.*, 2006). The results of research studies show that unhealthy growth and pathological backgrounds have a great role in susceptibility to and readiness for drug addiction (Lettieri *et al.*, 1980; Barnes *et al.*, 2002; Hiroi and Agatsuma, 2005; Zeinali *et al.*, 2008). In fact, susceptibility and readiness for addiction are formed before addiction and drug abuse. Addiction proneness is a mediator between unhealthy growth and addiction (Zeinali *et al.*, 2008). Recognition of addiction potential and doing preventive activities are one of the other aims of higher education in universities. Krank *et al.*, (2011) reported that anxiety sensitivity (AS) introversion/hopelessness (I/H), sensation seeking (SS), and impulsivity (IMP) are especially related with drug abuse proneness. Characteristics related with anxiety disorders, such as AS, are related with various behaviors associated with drug abuse (such as use of alcohol, use of tranquilizers/anxiolytics and tobacco use) and are especially related with the intention to decrease/manage anxiety. Personality traits related with susceptibility to depression, such as low self-esteem, introversion and hopelessness are related with susceptibility to alcohol dependence and drug and alcohol use, and especially with the management of depression symptoms and signs. IMP has a relationship with a wide variety of psychological pathologies, including anti-social tendencies, abuse of multiple drugs, use and abuse of stimulants and alcohol-related problems. Sensation seeking is especially related with frequent and excessive use of alcohol in adults and older adolescents and it is possible that when SS concomitantly occurs with IMP, a relationship with the use of illegal drugs can be expected.

Studies have shown that deficiencies in academic achievements is a risk factor for the potential of drug abuse in university students and preventive activities of alcohol in universities can have positive effects on the academic success among students (Behrouzi, 2011; Ansari and Stock, 2012). Drug and alcohol abuse has a positive relationship with educational problems including low academic achievement, absence from classes, drop-out, low motivation for studying and low educational status, in adolescents and youth (Chen *et al.*, 2004; Roebuch *et al.*, 2004; Kliewer and Murrelle, 2007).

If the problem of drug abuse in its present status in universities is considered a crisis, the most important step to manage the crisis is to estimate the extent of the problem and then to prevent it. In this context, the first step in universities is to recognize factors related with the student's proneness to addiction in order to prepare and adopt addiction prevention programs. After the factors involved in the prevention of addiction and the intermediary variables affecting drug abuse in universities are recognized, it would be possible to design more accurate and effective models for prevention and adopt them.

As discussed above, studies on the crisis of addiction in universities, its deleterious effects on the education of students, the relationship between self-regulation and addiction and the preventive effects of the related factors on these variables in universities have shown significant findings. In this context,

addiction proneness, as a precursor for addiction, has been neglected. On the other hand, these studies have usually included two variables and have studied their correlation. Therefore, it is necessary to include these variables in one comprehensive model and test them causally to determine: If preventing factors of addiction proneness at universities (extra-curricular activities, relationship with friends and classmates, adoption of addiction-related regulations and laws in the university, doing prevention activities in the university and support from friends and classmates in the university) will result in an increase in student's self-regulation? Increase in student's self-regulation decreases their addiction proneness (among 4 characteristics of hopelessness, anxiety sensitivity, sensation seeking and impulsivity)? And decrease in student's addiction proneness provides them with an opportunity to make progress in their academic status?

MATERIALS AND METHODS

Methods

Participants

The statistical population was 8703 undergraduate students from Urmia Islamic Azad University. Using cluster random sampling, 380 students were selected for the study based on gender and educational groups.

The questionnaires were completed by the students in classrooms after gaining permission from the professors and obtaining consent from the students. Before the students completed the questionnaires, they received the necessary explanations on how to complete the questionnaires, on the importance of the study and honesty in responding, on confidentiality of the data provided and the fact that the questionnaires included no names. In addition, the questionnaires were completed at an appropriate time so that they would not interfere with the students lessons. Of 380 questionnaires returned, five were distorted and 375 questionnaires were evaluated.

Materials

The instruments used to measure the variables consisted of 1) The addiction proneness factors preventing questionnaire in the university; 2) The social support questionnaire; 3) The substance use risk profile scale (SURPS); and 4) a short self-regulation questionnaire.

The questionnaires are explained below.

1. The Addiction Proneness Factors Preventing Questionnaire in the University

Construction and Validation

First, a literature review was carried out on the subject (articles, books, seminars and dissertations) were collected. A total of 8 specialists on management and addiction field were interviewed and their opinions were recorded. After summation of interview results and what was collected from the written texts, factors with the most important relationship with prevention of tendency toward addiction in the university were determined: 1) education; 2) extra-curricular activity; 3) relationships; 4) support (this variable was measured using a standard questionnaire); 5) laws and regulations.

For 4 categories of extra-curricular activities, relationship with friends and peers, laws and regulations on addiction in the university and education of addiction prevention, 42 questions were prepared. The questions and the categories were given to 6 specialists on management and addiction field to evaluate and select the most appropriate ones. Only questions were retained that been estimated appropriate by at least 4 specialists and the rest were eliminated and the final questionnaire consisted of 35 questions: (13 questions on extra-curricular activities, 7 questions on relationship with friends and peers, 5 questions on addiction laws and regulations in the university and 10 questions on education of addiction prevention). Finally, a 35 item questionnaire was given to 120 students for exploratory factor analysis in order to determine factor structure and validity of the questionnaire. Exploratory factor analysis was carried out using varimax rotation. In the results of factor analysis, 26 items of the questionnaire were appropriately loaded on the 4 factors. 3 items from extra-curricular activities, 2 items from relationship with friends and peers and 4 items from education of addiction preventions had a β below the .30 cut-off points and

therefore were eliminated. None of the items of addiction laws and regulation in the university were removed. Therefore, the addiction proneness factors preventing questionnaire in the university was finalized with 4 factors and 26 items:

Factor 1: extra-curricular activities, items 1 to 10

Factor 2: relationship with friends and peers, items 11 to 15

Factor 3: laws and regulations on addiction in the university, items 16 to 20

Factor 4: education of addiction prevention, items 21to 26

The questionnaire was based on 5-grade Likert scale criteria (completely disagree=1 to completely agree=5) and items 11, 12, 13, 14 and 15 were scored in reverse order. Reliability of the questionnaire and its factors, using Cronbach's alpha, were .84, .86, .73, .76 and .81, respectively.

2. The Social Support Questionnaire, Fleming et al., (1982)

The long version of this questionnaire consists of 25 items and 5 subscales: 5 items for support from friends, 4 items for support from classmates, 7 items for support from the family, 6 items for general support and 5 items on the opinion about support. The questionnaire is scored as Yes/No (1/0). The items 7, 15, 16, 17, 20, 18, 21, 24 and 25 are graded in reverse order. Fleming *et al.,* (1982) reported a reliability score of .70 for the questionnaire using test re-test technique. Houman and Livarjani (2008) used confirmatory factor analysis and showed that the social support questionnaire has suitable construct validity, with a reliability of .82 using Cronbach's alpha. In the present study the subscales of 1 and 2 of the social support questionnaire, entitled support by friends and classmates, was used and its reliability was estimated at .75 using Cronbach's alpha.

3. The Substance Use Risk. Profile Scale (SURPS), Woicik et al., (2009)

The initial form of this tool was designed by Conrod *et al.,* (1999). Several longitudinal and cross-sectional studies using SURPS have shown the role of individual differences in predicting susceptibility to drug abuse in at risk groups, adolescents and adults (Conrod and Woicik, 2002; Woicik *et al.*, 2009, Kranck *et al.,* 2011). SURPS is relatively short and measures 4 personality factors related to drug abuse. The new version of this scale has 23 items and 4 factors: 1) anxiety sensitivity (5 items of 8, 10, 14, 18 and 21); 2) hopelessness (7 items of 1, 4, 17, 20 and 23); 3) sensation seeking (6 items of 3, 6, 9, 12, 16 and 19) and 4) impulsivity (5 items of 2, 5, 11, 15 and 22). SURPS uses the 4-grade Lickert scale (completely disagree=1, disagree=2, agree=3, completely disagree=4) and the items 1, 4, 7, 13, 20 and 23 are scored in reverse order. The reliability of the factors of this scale are .88, .74, .76 and .88, respectively, for anxiety sensitivity, hopelessness, sensation seeking and impulsivity. The construct validity of the scale has estimated through confirmatory factor analysis. The standard regression coefficients of the items with factors were greater than β=.30 and has estimated them significant (Ismail *et al.*, 2009). In other studies, structure, concurrent, discriminant, and incremental validity of the SURPS is supported by convergent/divergent relationships between the SURPS subscales and other theoretically relevant personality and drug use criterion measures (Woicik *et al.*, 2009; Krank *et al.,* 2009). Zeinali (2013) translated and validated SURPS in a student. The construct validity of the scale has estimated through confirmatory factor analysis with 592 university students and its reliability and criterion validity were confirmed. The confirmatory factor analysis confirmed the 4-factor structure of the scale, similar to previous studies; however, 3 items were removed from its hopelessness subscale and the Persian version of the scale was standardized for students with 20 items and 4 factors. Internal consistency of hopelessness, anxiety sensitivity, sensation seeking and impulsivity factors were .72, .69, .68 and .70, respectively, and the criterion validity was estimated .59 ($P<0.001$). In the present study a scale with 20 items was used and its reliability for the whole scale and for each of the factors of anxiety sensitivity, hopelessness, sensation seeking and impulsivity were estimated at .85, .75, .70, .72 and .79, respectively.

4. The Short Version of the Self-Regulation Questionnaire (SSRQ)

SSRQ was developed by Carey *et al.,* (2004) with one factor from the Brown, Miller and Lewandowski's self-regulation questionnaire (1999). Brown *et al.,* (1999) developed self-regulation questionnaire (SRQ) based on the theoretical self-regulation model of Miller and Brown (1991) to evaluate self-regulation.

SSRQ has 31 items and is scored based on 5-grade Likert scale (completely disagree=1 to completely agree=5). The questionnaire has been designed to evaluate the addictive behavior and drug-related problems. The reliability of SSRQ has been reported to be .92 based on Cronbach's alpha. In addition, correlation between SRQ and SSRQ has been reported to be .96 (Carey *et al.*, 2004). Zeinali *et al.*, 2011) translated and validated SSRQ. The construct validity of the questionnaire has estimated through confirmatory factor analysis with a sample of 205 school students. In the results of the analysis, the β coefficients of the items 8, 28 and 12 of the questionnaire were below the .30 cut-off point and therefore they were eliminated from the Persian version of the questionnaire. A new self-regulation questionnaire with 28 items was prepared. The fitting parameters of data with the model were all reported to be favorable. The reliability of the 28-item self-regulation questionnaire was estimated at.88. In the present study the 28-item self-regulation questionnaire was used and its reliability was estimated at .90 using Cronbach's alpha.

Procedure, Study Design and Statistical Analysis

The present study was a correlational non-experimental study in which structural equations modeling was used. The research data was intervallic and collected using a questionnaire. Using the cluster random sampling method and with a pre-planned design permission was obtained from the professors to refer to classrooms to ask the students to complete the questionnaires after obtaining their consent. The students filled out the questionnaires at a time when the process did not interfere with their education. The students were asked to feel free to ask any questions when they were completing the questionnaires and the necessary explanations were provide if necessary. Data were analyzed using path analysis (structural equations modeling).

RESULTS AND DISCUSSION

Results

Participants were 375 undergraduate students (178 females and 197 males) with age 19–50 years. They were in the fields of humanistic sciences, engineering, paramedics, and basic sciences. Table 1 presents the means, standard deviations, skewness and kurtosis of student's scores in each of the variables.

Table 1: Means, standard deviations, skewness and kurtosis of the variables

Variables		Means	standard deviations	skewness	kurtosis
preventing factors of addiction proneness at universities	extra-curricular activities	28.48	9.15	0.18	-0.64
	relationship with friends and peers	17.40	3.60	-0.38	0.02
	laws and regulations on addiction in the university	23.64	2.80	-0.54	0.87
	education of addiction prevention	25.80	3.98	0.84	0.22
	support from friends and classmates	10.90	1.87	-0.18	-0.73
self-regulation		102.10	15.48	-0.28	0.38
addiction proneness	Impulsivity	7.33	2.25	0.70	0.91
	sensation seeking	12.17	2.94	0.16	-0.11
	anxiety sensitivity	11.49	2.72	0.24	0.03
	Hopelessness	14.91	3.58	0.08	-0.21
Academic achievement		14.62	1.45	0.05	-0.34

Here, in order to test the hypothesis of the study, the model designed is presented and its paths are analyzed.

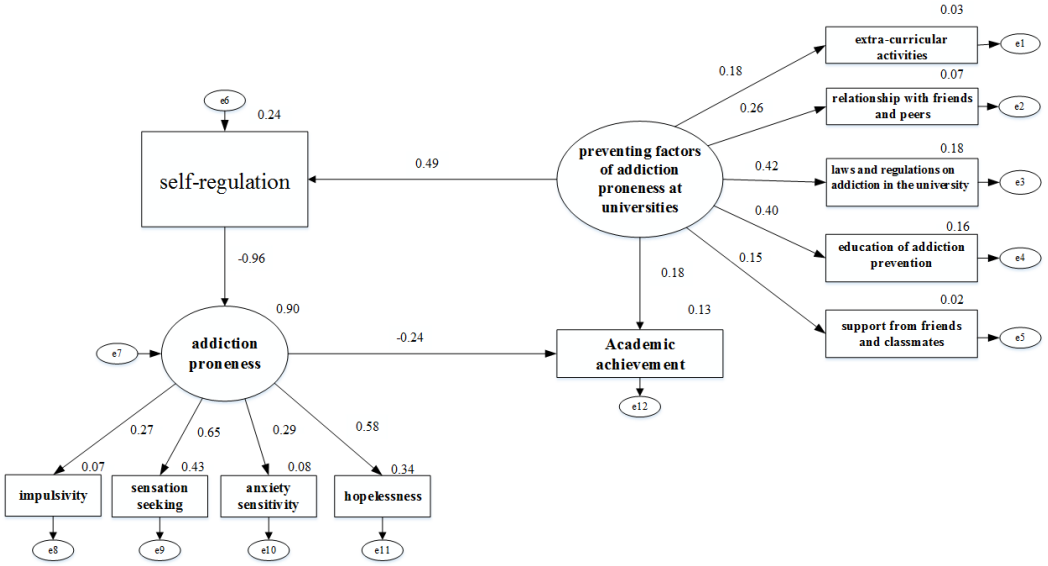

Figure 1: The model for prevention of student's addiction proneness

Before testing the hypothesis, first the correlation matrix of the model's variables was evaluated.

Table 2: The correlation matrix of the model for prevention of student's addiction proneness

correlation matrix	preventing factors of addiction proneness at universities	self-regulation	addiction proneness
self-regulation	**0..23		
addiction proneness	*-0.10	** -0.61	
Academic achievement	**0.19	** 0.31	** -0.23

**Correlation at a level of 0.01 (two tailed) is significant*
***Correlation at a level of 0.05 (two tailed) is significant*

The correlation matrix of the variables in the model showed that there is a positive and significant relationship between preventing factors of addiction proneness in the university, self-regulation and academic achievement, with a negative and significant relationship between such factors and addiction proneness. There is a negative and significant relationship between addiction proneness and self-regulation; and there is a positive and significant relationship between self-regulation and academic achievement. Addiction proneness has a negative and significant relationship with academic achievement. (In Table 2, all the variables have significant relationship with each other, allowing path analysis). In order to test the hypothesis of the study, the coefficients of the paths of the model are presented in Table 3.

In model 1 (Table 3) preventing factors of addiction proneness have positive and significant relationships with academic achievement (β=0.18) and self-regulation (β=0.49). Self-regulation has a negative and significant relationship with addiction proneness (β= -.95). Addiction proneness has a negative and

Table 3: Estimates of the model

Variables and paths	↓	Estimates →	Regression weights	Significance Level	Variables	Squared Multiple Correlation
preventing factors of addiction proneness	→	Academic achievement	0.18	0.016	self-regulation	0.24
preventing factors of addiction proneness	→	self-regulation	0.49	0.031	addiction proneness	0.90
self-regulation	→	addiction proneness	-0.95	0.001	Academic achievement	0.13
addiction proneness	→	Academic achievement	-0.24	0.002		
preventing factors of addiction proneness	→	extra-curricular activities	0.18	0.041	extra-curricular activities	0.03
preventing factors of addiction proneness	→	relationship with friends and peers	0.26	0.050	relationship with friends and peers	0.07
preventing factors of addiction proneness	→	laws and regulations on addiction	0.24	0.031	laws and regulations	0.18
preventing factors of addiction proneness	→	education of addiction prevention	0.40	0.032	education of prevention	0.16
preventing factors of addiction proneness	→		0.15	0.044	support from friends and classmates	0.02
addiction proneness	→	hopelessness	0.58	0.001	hopelessness	0.58
addiction proneness	→	anxiety sensitivity	0.29	0.001	anxiety sensitivity	0.29
addiction proneness	→	sensation seeking	0.65	0.001	sensation seeking	0.65
addiction proneness	→	Impulsivity	0.27	0.001	Impulsivity	0.27

significant relationship with self-regulation (β= -0.24). In addition, the squared multiple correlation of self-regulation, addiction proneness and academic achievement were 0.24, 0.90 and 0.13, respectively. In this model, 0.24 of the variance of self-regulation was determined by the preventing factors of addiction proneness; 0.90 of the variance of addiction proneness was determined by preventing factors of addiction proneness and self-regulation and 0.13 of the variance of academic achievement was determined by preventing factors of addiction proneness, self-regulation and addiction proneness.
Table 4 presents the total, direct and indirect effects of preventing factors of addiction proneness through self-regulation mediators and addiction proneness on the academic achievement.

Table 4: The total, direct and indirect effects of the model variables on academic achievement

Effects	preventing factors of addiction proneness			self-regulation			addiction proneness		
	total	direct	Indirect	total	direct	indirect	total	direct	indirect
Self-regulation	0.49	0.49							
Addiction proneness	0.46		-0.46	-0.95	-0.95				
Academic achievement	0.29	0.18	0.11	0.23		0.23	-0.24	-0.24	

The last row of Table 4 shows that preventing factors of addiction proneness have an indirect effect (β=0.11) on academic achievement through self-regulation mediators, and through their direct effect (β=0.18) exert total effect (β=0.29) and therefore their positive and significant effect on the academic achievement of the students increases. In other words, when the independent variable (preventing factors of addiction proneness) moved up by one standard deviation, it resulted in an increase in the dependent variable (academic achievement) up to one standard deviation multiplied by the t0tal effect. In the present study, preventing factors of addiction proneness had M=106.22 and S=11.82 and the student's academic achievement had M=14.62 and S=1.85. When preventing factors of addiction proneness increased from 106.22 to 118.04, the student's academic achievement (by considering the indirect effect and mediator variables) increased from 14.62 to 15.16.
When this result was compared with the two-variable result of the first path (the path without a mediator), the value of multi-variate and causal analyses was revealed. In the analysis of the first path the effect of preventing factors of addiction proneness on the academic achievement of students was calculated at β=0.18. However, when the effective mediators were identified and entered into the analysis, the result was completely different, i.e. preventing factors of addiction proneness influenced the student's academic achievement (by considering one standard deviation and the effective mediator variables) (β=0.29) and increased students mean scores from 14.62 to 15.16.
In the Model, CMIN, df, CMIN/df, p-value, TLI, GFI, CFI, NFI and RMSEA were estimated as 125.34, 39, 3.21, 0.21, 0.91, 0.95, 0.92, 0.92 and0.06, respectively. All of these indices optimally verify the fitness of model to data. Therefore, the hypothesis of the study was confirmed. Preventing factors of addiction proneness (extra-curricular activities, relationship with friends, laws and regulations, support from friends and classmates, education of addiction prevention) contribute to an increase in student's self-regulation. A higher level of self-regulation decreases the student's addiction proneness and lower addiction proneness results in higher academic achievement.

Conclusion

A combinatorial pattern was used to design the model presented here. A combinational pattern in designing preventive programs makes an attempt, in a time framework, to increase environmental

facilities to provide health and control environmental factors which have a deleterious effect on mental health so that individual's capacities will be improved in the face of problems (Vatani, 2011). Both entities – the individual and the environment – are interactive but independent. Therefore, the most effective strategies are those that can strengthen both (Gonzalez, 1997). In the present model, the individual (self-regulation, addiction proneness, academic achievement), the university environment (laws and regulations, extra-curricular activities, education) and the interpersonal relationships (support from friends and classmates, relationship with friends and classmates) were taken into account. At present, drug and alcohol abuse has become a crisis in the university and use of illegal drugs by students has become a matter of concern (Okoza and Aluede, 2009). Drug abuse is one of the four global crises, which requires attention at regional, national and international levels alongside the other three crises, including the environment, poverty and nuclear threats (Touski, 2011). Identification of signs is the most important part of crisis management. If the initial signs are identified and appropriate measures are adopted, many crises will be prevented (Mitroff and Engnass, 2000). The aim of managing addiction crisis in universities is to promote health status in the university and as a result, to promote the academic achievements of students. To achieve this aim an attempt was made to design and present a relatively comprehensive model to analyze the relationship between factors preventing addiction in the university and important variables in this field.

Analysis of the model presented here to prevent addiction proneness in the university showed that when factors preventing addiction proneness in the university materialized, the student's self-regulation increased from 102.10 to 109.68. Previous studies have shown that individuals with a low level of self-regulation have greater tendency toward drug abuse compared to those with a higher level of self-regulation (Novak and Clayton, 2001); studies have shown that self-regulation is one of the most important factors preventing adolescents and young adults from engaging in high-risk behaviors and helps them avoid the results of high-risk behaviors (Moilanen, 2007). Therefore, self-regulation has an important role in beginning to abuse drugs and facing the related problems (Cervone, 2006). On the other hand, the most important factor in understanding drug abuse crisis is an emphasis on deficiencies in self-regulation, including deficiencies in self-care deficit, self enhancement, self-esteem, friendly relationships and emotions (Khantzian *et al.,* 2005). The results of the present study are consistent with those of other studies in this field. In this context, this study showed that factors preventing addiction in the university probably influence deficiencies in self-regulation, including deficiencies in self-care, self- enhancement, regulation, responsibility, resistance against existing obstacles, non-impulsive actions, achieving aims via alternative paths, resistance against urges and desires and self-control. Individuals with such deficiencies have a proneness to addiction and those with such proneness become addicted. However, individuals who try to overcome such deficiencies by preventing addiction probably reach a high level of self-regulations and based on the results of this study and previous studies a high level of self-regulation prevents addiction proneness. Therefore, it can be concluded that student's self-regulation abilities will increase with an increase in factors preventing addiction in the university. In this context, if the necessary skills to avoid abusing substance are taught in the university, if extra-curricular activities exist to fill the leisure time of the students in the university and if they are presented in an orderly manner, if strict laws and regulations exist in the university to prevent addiction, if students are supported by their friends and classmates and if students are instructed in skills to establish good relationships with their friends and classmates, the student's self-regulation will increase, i.e. they will learn to delay short-term satisfaction in favor of achieving favorable results in future.

On the other hand, the results of this study showed that when the student's self-regulation increased their addiction proneness decreased from 54.91 to 47.63, which is consistent with the self-regulation theory. It is also consistent with the results of studies carried out by Lewandowski (1996), Chassin and Delucia (1996), Carey *et al.,* (1990), Brown *et al.,* (1999), Novak and Clayton (2001), Khantzian *et al.,* (2005) and Percey (2008), in relation to the negative relationship between self-regulation on one hand and addiction proneness, use and abuse of alcohol and drugs and the related problems on the other. The results of the

present study and previous studies show that a higher level of self-regulation is a factors protecting against addiction proneness and drug abuse.

Finally, when the student's addiction proneness decreased their academic achievement increased from 14.62 to 15.06 in the present study. Chen *et al.,* (2004) and Kliewer and Murrelle (2007) have reported that adolescents using illegal drugs have problems with their educational performance, a decrease in grades (low academic achievements), absence from school, fleeing from school and school drop-out. Copans and Kinney (1996) reported that low educational motivation is a predicting factor for addiction among adolescents. A national survey by Roebuck, French and Dennis (2004) showed that use of marijuana by adolescents is related to school drop-out and fleeing from school. Behrouzi (2011) reported that one of the six risk factors for addiction in university students is low academic performance. Shahmirzadi *et al.,* (2012) reported that failure to achieve at school is the main etiologic factor for addiction. The results of the present study are consistent with those mentioned above and are better explained. Studies show that there is a relationship between low academic achievement and addiction proneness and addiction. Therefore, with a decrease in addiction proneness, academic achievement increases.

With confirmation of the paths of the model presented in this study, the hypothesis of the study was confirmed; when preventing factors of addiction proneness in the university were materialized (through the mediator path), there was an increase in academic achievement with an increase in the effect of mediator variables, by considering the indirect effects of intermediate variables, from 14.62 to 15.16. In fact, preventing factors of addiction proneness in the university help increase student's self-regulation, which in turn decreases addiction proneness, providing the students with the opportunity to have academic achievements. The results of the present study in this respect are consistent and better explained with the hypothesis of "health belief" and the combinatorial pattern for preventive programs. The theory of "health belief" is generally used to explain health-related behaviors and is specifically used to prevent inappropriate choices. The combinatorial pattern for preventive programs tries, in a time framework, to promote individual capabilities which determine an individual's capacities to face and solve problems; in this pattern, an increase in environmental facilities is top on the agenda in order to achieve health.

In addition, the results of the present study in this respect are consistent with those of studies carried out by Perkins (2002), Donaldson *et al.,* (2000), Ross and Deijong (2008), Kuo *et al.,* (2002), Larimer and Cronce (2002), Berg *et al.,* (2011), Ghaffari (2009), Shahmirzadei *et al.,* (2012). Each of these studies has dealt with a part of the present study. However, the current model has been based on the previous hypotheses and studies. As explained above, when multivariate and causal analyses are carried out and the effective mediators are entered into the analysis, different results are yielded. Therefore, the present study showed that the path with $\beta = 0.29$ is a potent path to prevent student's addiction proneness in the university, which can, at the same time, increase their academic achievement.

The aim of managing the crisis of addiction in the university is to promote the health of university and academic achievements of students. Based on the model presented here, if preventive activities in the university result in an increase in self-regulation and a decrease in addiction proneness, increasing the student's academic achievements, it would be possible to manage addiction crisis. Therefore, student's health and the university environment can be promoted and academic achievements can be increased, which is one of the goals of higher education.

The model presented here can also be studied with other social damage in the university apart from addiction crisis. If a research study is planned to be carried out using this model in the university, it is suggested that the knowledge management model in the university be used. It is suggested that a model be designed for high-risk groups and be tested. Other researchers can use this model in other organizations and institutes, too, in addition to the university.

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