

Simple and Multiple Relationships between Assertiveness, Sensation Seeking, Alexithymia and Addiction Potential in University Students

Yadollah Zargar, PhD*
Department of Psychology
Shahid Chamran University of Ahvaz

Tayyebe Eshrati, MA
Department of Psychology
Shahid Chamran University of Ahvaz

Mohamad GHaseminejad, MA
Department of Psychology
Shahid Chamran University of Ahvaz

Fatemeh Sarami
Department of Social Science
payam-e-Noor of Tehran

This study aimed at investigating the simple and multiple relationships between assertiveness, sensation seeking and alexithymia components (difficulty identifying feelings, externality oriented thinking and difficulty describing) and addiction potential in university students. Two hundred and fifty students were selected by cluster sampling from Shahid Chamran University, Ahvaz, Iran. The scales used for this descriptive study were the 20-item Toronto Alexithymia Scale (TAS -20), the Assertiveness Self-Report Inventory (ASRI), the Arnett inventory of sensation seeking, and the Iranian Addiction Potential Scale (IAPS). Data were analyzed with statistical analyzer software SPSS-ver. 16. There were simple and multiple relationships between assertiveness, sensation seeking, Alexithymia, difficulty identifying feelings, externality oriented thinking and difficulty describing and addiction potential. Multiple regression analysis (stepwise method) showed that sensation seeking, difficulty identifying feelings and assertiveness had significant multiple correlations with addiction potential ($F=24.25$, $p < 0.001$). The variables of externality oriented thinking and difficulty describing feelings were eliminated by the regression analysis. Variables such as sensation seeking, difficulty identifying feelings and assertiveness predicted addiction potential among university students. The most important implication of this research was to pay

* Email: zargar_y@scu.ac.ir

attention scientifically to these variables as the fundamental factors of this difficulty, rather than just emphasizing the cessation of drug or alcohol using.

Keywords: assertiveness, sensation seeking, addiction potential and alexithymia

Addiction is a bio-psycho-socio-spiritual disorder (Galanter, 2006) and different variables effect its creation, perpetuation and treatment of drug-dependence. In clinical research, several variables had been studied as predictor variables of drug-dependence. They are divided into four sets: 1) cultural-social milieu 2) interpersonal factors 3) mental-behavioral variables and 4) affections of genetic-biological. Findings indicate that several psychological factors are important in relation to the substance abuse (Cicchetti & Rogosch, 1999; Loeber, Stouthamer- Lober & white, 1999; Swadi, 1999). Sensation seeking as a social factor of the drug use beginning, explain the addict tendency to emotional behaviors (Galico, & Stein, 1983). Sensation seeking is a biologically based trait defined by Zuckerman (1979) as "the need for varied, novel and complex sensations and experiences and willingness to take social and physical risks for the sake of such experiences." Further studies display that substance users have more sensation seeking scores than a normal milieu. Substance users display a high level of stimulus in sensation seeking experiences but this level hadn't observed within non-substance abusers (Reith, 1975). High sensation seeking individuals are more likely to get involved in risky behaviors (for instance, instance driving influenced of drug) for completing sensation seeking needs (Ames, Zogg & Stacy, 2002). Studies had shown that high sensation seeking has been majorly associated with drug use, polydrug use and early onset of drug use in youth (Bates, Labouvie & White, 1986; Pedersen, 1991; Silva, Harrington, Palmgreen, Donohew & Lorch, 2001; Hoyle, Stephenson, Palmgreen, Lorch, donhew, 2002; Martin, Storr, Alexandre, & Chilcoat, 2008; Crawford, Pentz, Chou, Li & Dwyer, 2003; Stephensen, Hoyle, Palmgreen, & Slater, 2003; Gerra, Angioni, Zaimovie, Moi, Bussandri & Bertacca, 2004; Yanovitsky, 2006,

Martin, Storr, Alexandre, & Chilcoat 2008). Martin et al, (2008) studied 5049 youth substance users and suggested that high sensation- seekers were more likely to be alcohol, ecstasy, and marijuana and alcohol/tobacco users, respectively, as compared to low sensation-seekers. Botvin (1994) believed that some of the aptitudes and proneness that influence psychological factors like self-efficacy, self-esteem, sense of self- control, psychological adjustment, risk taking, impulsive and perception of life choice play an important role in substance abuse. Rees & Graham (1991) had defined assertiveness as an ability of direct, suitable and explicit exhibit of self, prizing to sense and thought of self and recognizing strength and infirmity spots.

Lindquist, Lindsay & White administered measures of assertion, social assertion, aggression, and social anxiety to a heroin-addicted population, psychotic outpatients, court-referred drug users and a college student group (N= 114) and suggested that addicts and court-referred drug patients were less assertive, less socially assertive, and more socially anxious than non-addict populations.

Dupont & Jason studied the efficacy of two drug education programs for 41 seventh graders who were provided with either a traditional or an assertiveness drug prevention program and concluded that while both groups showed significant achievements in knowledge, only those in the assertiveness group demonstrated significant changes in drug attitude.

There are varied and important lessons about primary prevention programs in American Schools.

The great goal of these programs is to instruct necessary skills for persisting in the face of the asking and pressure from friends by training sets of "no saying" procedures to students. Quick expanding of this programs shows that this procedure has been accepted as the most novel and important primary prevention model in schools. Furthermore, research outcomes have been shown that using social assertiveness skills training approach is able to decrease substance use about 30-50% as compared to a control group (Nemiah, 2002). In psychological immunizing and skill

training procedures, it has been assumed that an adolescent doesn't want himself (herself) using drug and wants to say, "no" to the peers pressures and the loss of necessary skills makes him (her) surrender to these pressures (aghaee, Oreyzi & Molavi , 2008).

Alexithymia is a multifaceted construct that was first described by Sifneos (1973) as difficulty identifying and communicating feelings, differentiating feelings and somatic sensations of emotional arousal, a diminution of fantasy and imagination and an externally oriented cognitive style (Nemiah, Freyberger, & Sifneos, 1976).

On the one hand, Pinard, Negrete, Annable, & Audet (1996) studied 48 substance-dependent patients and found that while depressive symptomatology significantly decreased after the detoxification program, alexithymia mean scores showed no significant change, supporting the view that alexithymia is a stable trait. On the other hand, Haviland, Hendryx, Shaw, & Henry (1994) followed a sample of 55 newly abstinent alcoholic inpatients and found that alexithymia is a stable trait. Thus, based on widespread studies on patients, alexithymia might be a vulnerability factor for the development, maintenance and relapse of alcoholism.

DeTimary, Luts, Hers, Luminet (2008) in a research found that alexithymic individuals encompass indulgence in binge and continuous drinking in spite of the problems related to alcohol consumption for working and the disability for alcohol abstinence as compared to non-alexithymic individuals. Thus, it sounds that alexithymic individuals have longer use/misuse and more violent reactivity than non-alexithymic individuals. However, they have fewer affair problems (DeTimary, Luts, Hers, Luminet, 2008).

The current study is designed to investigate the relationships between assertiveness, sensation seeking, alexithymia and addiction potential in the university students

Method

The research population consisted of all the students of Shahid Chamran University (about 10,000 students) in the academic year of 2006-2007. Two hundred and fifty university students (125 boys and 125 girls) were selected randomly through the cluster sampling. The scales used in this study were:

1) Iranian Form of Addiction Potential Scale (IAPS): This scale was made by Zargar (2006) based on the psycho-social situation of Iran. This scale consists of 41 items and two factors concerning the first factor (active potential), most of the items were related orderly to antisocial behaviors, the tendency to drug consumed, positive attitude to drugs, depression, and sensation seeking. Concerning the second factor (passive potential), most of the items were related to non-assertiveness and depression. Its validity and reliability have been determined by various methods. This scale can differentiate not only between the addicted persons and the non-addicted ones, but it can also differentiate between smokers and non-smokers. Moreover, a significant correlation was obtained between AP and SCL-25. Using Cronbach's alpha, reliability of the total scale was 0.90; the active subscale and the passive subscale were 0.91 and 0.75, respectively.

2) The Assertiveness Self-Report Inventory (ASRI) was used to measure the behavioral and affective dimensions of assertiveness (Herzberger, Chan, & Katz, 1984). The ASRI is a scale that consists of 25 true/false items that are scored by the total of "true" responses for specific items and "false" responses for the remaining items. The ASRI has a reliability coefficient of .81, and concerning validity it is correlated significantly with the Rathus Assertiveness Schedule (Herzberger, et al., 1984). Hormozinegad & Shehni Yeylagh (2002) gained a 0.54 reliability coefficient for the above questionnaire In Iran by using the test-retest method (after six weeks). The internal consistency coefficient by applying the split-half and Guttman methods were 0.62.

3) Arnett Inventory of Sensation Seeking (AISS) (Arnett, 1994) is a 20-item scale assessing levels of sensation seeking in adolescents. It contains two subscales of 10 items each: intensity (AISS-I; e.g., “I like the feeling of standing next to the edge on a high place and looking down”) and novelty (AISS-N; e.g., “I would like to travel to places that are strange and far away”). For each item, respondents are asked to indicate, on a four-point scale, the extent to which the item describes them (1=“describes me very well” to 4=“does not describe me at all”). Six of the items (three per scale) are reverse-keyed in order to avoid an affirmation bias (Devillis, 1991). Higher scores indicate higher levels of sensation seeking. The AISS has strong face validity and a clear and logical theoretical rationale (Zarevski, Marusic, Zolotic, Bunjevac, & Vukosav, 1998). Two studies conducted with teens-aged 16–18 years showed the AISS to have acceptable internal consistency and good criterion-related validity in terms of predicting risk-taking behaviors, such as driving while intoxicated (Arnett, 1994). The AISS has been shown to have acceptable factorial validity and good concurrent validity with measures of alcohol/drug use in respondents as young as 12 years of age (Stewart, Comeau, & Loba, 2000). The psychometric characteristics of Arnett’s sensation seeking scale in Iran have been evaluated by Pour Vafaie. The calculated Alpha coefficient for this scale is 0.65. The Arnett’s sensation-seeking scale was correlated with Zuckerman’s fifth form. The correlation coefficient was significant for the total scale with four of the Zuckerman’s scales. The correlation coefficients of the Arnett’s total scale and its sub-scales with Zuckerman’s total scale were significant ($R=0/41$) (Fathi, 2007).

4) The 20-item Toronto Alexithymia Scale (TAS -20; Bagby, Parker & Taylor, 1994) is a self-report measure for alexithymia consisting of 20 items. Each item is rated on a five-point Likert-scale and higher scores indicate greater alexithymia. There are three subscales: difficulty identifying feelings (DIF), difficulty describing feelings (DDF), and externally oriented thinking (EOT). The Dutch translation of the TAS -20 was obtained by means of a translation and a back-translation procedure in

consultation with Bagby (Kooiman, Spinhoven and Trijsburg, 2002). The psychometric properties of the Dutch version of the TAS -20 can be considered adequate. Internal consistency in this study was good ($\alpha = .78$) (Meganck, Vanheule, & Desmet, 2008). The validity and reliability of this scale are reported by Mohamad (2002) and Besharat (2007) to be desirable in Iran.

Results

Table 1 Shows the Means and Standard Deviations of the Variables.

Table 1
Means and Standard Deviations of the Scales

Scale	M	SD
IAPS (total)	65.16	14.41
IAPS (active subscale)	45.76	12.04
IAPS (passive subscale)	19.12	4.51
Assertiveness	38.76	3.94
sensation seeking	52.01	6.21
Alexithymia	52.01	11.34
difficulty identifying feelings	17.47	5.92
externality oriented thinking	21.29	3.67
difficulty describing feelings	13.44	4.67

As shown in Table 2 there are significant simple correlations between Assertiveness, sensation seeking, alexithymia, difficulty identifying feelings and difficulty describing feelings and AP. There is no significant correlation between externality oriented thinking and addiction potential (AP).

Table 2
Correlation Quotients between Predictor Variables and Addiction Potential

Predictor variables	AP : Dependent Variable		
	IAPS (total)	IAPS (passive)	IAPS (active)
Assertiveness	r = -.26**	r = -.14**	r = -.45**
sensation seeking	r = .20**	r = .24**	r = -.15**
Alexithymia	r = .40**	r = .29**	r = .46**
(difficulty identifying feelings)	r = .46**	r = .36**	r = .51**
(externality oriented thinking)	r = .063	r = .024	r = .12
(Difficulty describing feelings)	r = .36**	r = .25**	r = .38**

** Correlation coefficients significant at the 0.01 level

As shown in Table 3, the multiple regression analysis (enter method) showed that sensation seeking, difficulty identifying feelings, difficulty describing feelings, externality oriented thinking, difficulty assertiveness had significant multiple correlations with addiction potential ($F=15.28$, $p < 0.001$). These variables altogether determine 58% of the addiction potential variance.

Table 3
The Results of Multiple Regression Analysis, AP and Variables with Enter Model

Dependent variable	Predictors	MR	RS	F P	Regression coefficients					
					1	2	3	4	5	
(AP) addiction potential	sensation seeking	0.19	.037	F=06.022 P<.001	$\beta =.19$ t=2.45 P<.001					
	(difficulty identifying feelings)	0.529	.27	F=29.58 P<.001	$\beta =.27$ t=3.99 P<.001	$\beta =.49$ t=7.19 P=.019				
	(difficulty describing feelings)	0.536	.287	F=20.57 P<.001	$\beta =.27$ t=3.92 P<.001	$\beta =.41$ t=4.40 P=.01	$\beta =.12$ t=1.31 P=.19			
	(externality (oriented thinking difficulty)	0.544	.29	F=16.01 P<.001	$\beta =.27$ t=3.91 P<.001	$\beta =.44$ t=4.60 P=.01	$\beta =.13$ t=1.43 P=.15	$\beta =-.10$ t=-1.39 P=.16		
	Assertiveness	0.580	.33	F=15.28 P < .001	$\beta =.28$ t=4.25 P=.001	$\beta =.37$ t=-3.92 P=.001	$\beta =.11$ t=1.25 P=.21	$\beta =.96$ t=-1.03 P=.17	$\beta =-.21$ t=-2.99 P=.003	

The results from multiple regression analysis (stepwise model) showed that the three variables of sensation seeking, difficulty identifying feelings and assertiveness had a significant multiple correlation with addiction potential ($F=24.25$, $p < 0.001$). These variables are the predictors of addiction potential. Based on the obtained results, the variables of externality oriented thinking and difficulty describing feelings eliminated from the regression (Table4).

Table 4
The Results of Multiple Regression Analysis, AP and Variables with Stepwise Method

Dependent variable	Predictors	MR	RS	F	Regression coefficients		
				P	1	2	3
(AP) addiction potential	sensation seeking	0.452	0.20	$F=39.88$ $P < .001$	$\beta = .45$ $t=6.31$ $P < .001$		
	difficulty identifying feelings	0.529	0.27	$F=29.85$ $P < .001$	$\beta = .49$ $t=7.19$ $P < .001$	$\beta = .27$ $t=3.99$ $P < .001$	
	Assertiveness	0.568	0.32	$F=24.25$ $P < .001$	$\beta = .42$ $t=5.81$ $P < .001$	$\beta = .29$ $t=4.34$ $P < .001$	$\beta = .22$ $t=3.11$ $P < .001$

Discussion

The results of the present study showed that variables of sensation seeking, assertiveness and two of the three sub-factors of alexithymia have significant single and multiple correlations with addiction potential variable (difficulty describing feelings and difficulty identifying feelings). Therefore, hypotheses 1, 2, 3, 4, & 6 were confirmed. However, AP has no significant correlation with externally oriented thinking in alexithymia scale, so, hypothesis 5 was not confirmed.

These results are compatible with the research of Evren et al. (2008) aiming to investigate the relation of self-mutilation with childhood abuse and neglect, alexithymia and temperament and character dimensions of personality in Turkish male substance-dependent patients. Like the current study, in Evren's research, drug-dependent has no significant correlation with externally oriented thinking. Bagby et al. (1994) also found that alcohol-dependent has a significant correlation with only difficulty describing feelings and difficulty identifying feelings and there was no relation with externally oriented thinking. Thorberg et al. (2009) reviewed the previous research related to drugging use disorders and suggested that although alexithymia is often considered a risk factor for the development of alcohol use disorders, there is little evidence to support this notion. Given that alexithymia may have the potential to interfere with treatment outcomes, a better understanding of the role of alexithymia in drug use is needed. Alexithymics are the ones who have problems on understanding and expressing their feelings, so in this people the possibility of tendency to drugs is high. Thus, the people with alexithymia are at risk of addiction rather than the ones who don't have this problem.

Stacy, Newcomb, & Bentler (1993), Zuckerman, Ball, & Black (1990) and Magida, MacLeanb, and Coldera (2007) considered sensation seeking as a predictive construct of alcohol consumption, smoking, sexual behaviors, and other drug uses. Sensation seeking as a personality trait with biological roots is associated with the need for novel, complex, ambiguous, and emotionally intense stimuli and the willingness to take risks to obtain such stimulation (Zuckerman, 1994; Zuckerman & Kuhlman, 2000). In particular, sensation seeking is associated with the participation in a host of risky and/or illegal behaviors, including substance use. To date, the research linking sensation seeking to adolescent drug use is both comprehensive and convincing (Zuckerman, 1994): a) High sensation seekers (HSS) report significantly more drug use and begin using them at an earlier age than low sensation seekers (LSS) (Donohew, 1990); b) HSS adolescents report significantly more lifetime

and 30-day marijuana use than LSS, and HSS also reported having significantly more marijuana-using friends and family than LSS (Stephenson et al., 2003); c) HSS are biologically predisposed to using drugs when compared to LSS (Bardo, Donohew, & Harrington, 1996); and d) HSS's attitudes toward drug use are more favorable than LSS's attitudes (Donohew, Lorch, & Palmgreen, 1991; Everett & Palmgreen, 1995; Stephenson, Hoyle, Palmgreen, & Slater, 2003). Martins et al. (2008), in their research, found that high sensation seekers were more likely to be ecstasy, marijuana, and alcohol/ tobacco users, respectively, as compared to low sensation- seekers. Sensation seekers because of having the high rate of experience-seeking, novelty, curiosity, and risk taking, have more tendencies to use the psychoactive drugs especially in environments that youths don't have proper instruments or facilities to seek their sensations.

Lindquist et al. (1979), in their study, found that the addicts and court-referred drug patients were less assertive, less socially assertive, and more socially anxious than non- addict populations. In fact, addicts were not equipped with social skills like the assertive ones to prevent them from involving in addiction. Encompassing these skills cause promotion of psycho-social ability, increasing of individuals' abilities in development of effective and suitable interpersonal relations, performance in social responsibilities, performance in correct decisions, and resolving conflicts without hurt to self or others that finally protect individuals from drug consumption risk. Thus, generally, individuals will encompass better health and function with less risk of the tendency to drugs. Wills et al. (1984) studied dimensions of assertiveness: differential relationships to substance use in early adolescence and found that a dimension of substance-specific assertiveness was inversely associated with substance use, whereas, dimensions of social assertiveness and dating assertiveness were positively associated with substance use.

Regression analysis results (stepwise method) indicate that the predictive variables determined 32 percent of the addiction potential variance (Table 4). These variables are very important because they

determine about one-third of the addiction potential variance. Using a stepwise method showed that difficulty description feelings and externally oriented were omitted from the regression equation (Table 4). It means that sensation seeking, difficulty identifying feelings and assertiveness are respectively important variables to determine addiction potential variance. In this research, the most important predictor variable is the sensation seeking.

Pointing to the limitations of the current study, it should be considered that the relationship between predictors' variables and addiction potential is not necessarily a casual relationship. Generalization of these results to the students of other universities should be done cautiously.

Regarding the recommendations of this study, it can be said that improving the life skills' through special workshops that emphasize stress and anger management, communication and assertiveness skills could be useful. In addition, preparing the basis for students in order to spend their free times, particularly activities that could meet their sensation -seeking needs such as sport events, is another practical recommendation.

Acknowledgment

I would like to acknowledge and extend my heartfelt gratitude to University of Shahid Chamran for hosting this research.

References

- Aghaee, A., Oreyzi, H., & Molavi, H. (1380). Survey of influence factors on smoking and its trend in students of Esfahan. *Journal of Amooze, 10*, 68-77. (Printed in Persian).
- Ames, S. L., Zogg, J. B., & Stacy, A. W. (2002). Implicit cognition, sensation seeking, marijuana use, and driving behavior among drug offenders. *Journal of personality and individual differences, 33*, 1055-1072.
- Arnett, J., (1994). Sensation seeking: a new conceptualization and a new scale. *Journal of personality and individual differences, 16*, 289–296.

- Bagby, R. M., Parker, J. D. A., & Taylor, G. J. (1994). The twenty-item Toronto alexithymia scale–I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research*, 38, 23–32.
- Bagby, R. M., Parker, J. D. A., & Taylor, G. J. (1986). The measurement of alexithymia: psychometric properties of the Scaling- Sifnoes personality scale. *Journal of comprehensive psychiatry*, 27, 287-294.
- Bates, M. E., Labouvie, E. W., & White, H. R. (1986). The effect of sensation-seeking needs on alcohol and marijuana use in adolescence. *Journal of bulletin of the society of psychology of addictive behaviors*, 5(1), 29-36.
- Bardo, M. T., Donohew, R. L., & Harrington, N. G. (1996). Psychobiology of novelty seeking and drug seeking behavior. *Journal of behavioral brain research*, 77, 23-43.
- Botvin, G. J. (1994). *Smoking Prevention among New York Hispanic Youth: Results of a Four-Year Evaluation Study.*” Unpublished manuscript.
- Cicchetti, D., & Rogosch, F. A. (1999). Psychology as risk for adolescent substance use disorders: A developmental psychology perspective. *Journal of clinical child psychology*, 28(3), 355-365.
- Crawford, A. M., Pentz, M. A., Chou, C. P., Li, C. Y., & Dwyer, J. H. (2003). Parallel developmental trajectories of sensation seeking and regular substance use in adolescents. *Journal of psychology of addictive behaviors*, 17, 179-192.
- De Timary, P., Luts, A., Hers, D., & Luminet, O. (2008). Absolute and relative stability of alexithymia in alcoholic inpatients undergoing alcohol withdrawal: relationship to depression and anxiety. *Journal of psychiatry rehabilitation*, 157, 105—113.
- DeVillis, R. F. (1991). *Scale development: theory and applications*. Applied Social Research Methods Series, Volume 26, Newbury Park, California: Sage Publications, Inc.
- Donohew, L. (1990). Public health campaigns: Individual message strategies and a model. In E. B. Ray & L. Donohew (Eds.), *Communication and health: Systems and applications*. Hillsdale, NJ: Erlbaum.

- Dupont, P. J., & Jason, L. A. (1984) Assertiveness training in a preventive drug education program. *Journal of drug education*, 2, 369-378.
- Everett, M. W., & Palmgreen, P. (1995). Influences of sensation seeking, message sensation value, and program context on effectiveness of anticocaine public service announcements. *Journal of health communication*, 7, 225–248.
- Evren, C., Kose, K., Ozcelik, B., Borckardt, J. P., & Elhai, J. D., et al. (2008). Alexithymia and temperament and character model of personality in alcohol-dependent Turkish men. *Journal of psychiatry and clinical neuroscience*, 62, 371-378.
- Fathi, K. (2007). *Survey of Depression, sensation seeking, aggression and attachment styles as predictors of drug dependency among adolescent*. M. A. dissertation of psychology at Shahid Chamran University of Ahvaz (Iran). (Printed in Persian).
- Galanter, M. (2006). Innovations: Alcohol & drug abuse, spirituality in alcoholics anonymous. *Journal of Psychiatric Services*, 57, 307-309.
- Galanter, M., & Kleber, H. D. (2004). *Textbook of substance abuse treatment*. Washington. D. C: The American Psychiatric Publishing.
- Galico, M., & Stein, F. S. (1983). *Sensation seeking and drug*. *Int. J. Addict*, 18, 1039- 1049.
- Gerra, G., Angioni, L., Zaimovie, A., Moi, G., Bussandri, M., Bertacca, S., et al. (2004). Substance use among high school students: Relationship with temperament, personality traits, and parental care perception. *Journal of substance use and misuse*, 39, (2), 345-367.
- Haviland, M. G., Hendryx, M. S., Shaw, D. G., & Henry, J. P. (1994). Alexithymia in women and men hospitalized for psychoactive substance dependence. *Comprehensive psychiatry*, 35, 124-128.
- Herzberger, S. D., Chan, E., & Katz, J. (1984). The development of an assertiveness self-report inventory. *Journal of personality assessment*, 48(3), 317-323.
- Hormozinegad, M., & Shehni Yelagh, M. (2002). Relation of self-esteem, social anxiety and perfectionism with assertiveness among students of

- University of Shahid Chamran. *Journal of education & psychology*, 3 (7), 29-50. (Printed in Persian).
- Hoyle, R. H., Stephenson, M. T., Palmgreen, P., Lorch, E. P., & Donohew, L. (2002). Reliability and validity of scores on a brief measure of sensation seeking. *Journal of personality and individual differences*, 32, 401–414.
- Kooiman, P. Spinhoven & R. W. Trijsburg, (2002). The assessment of alexithymia. A critical review of the literature and a psychometric study of the Toronto alexithymia scale-20. *Journal of psychosomatic research*, 53, 1083–1090.
- Lindquist, C. U., Kinsay, J. S., & White, G. D. (1979). Assessment of assertiveness in drug abusers. *Journal of clinical psychology*, 35, 676-679.
- Loeber, R., Stouthamer-Loeber, M., & White, H. R. (1999). Developmental aspects of delinquency and internalizing problems and their association with persistent juvenile substance use between ages 7 and 18. *Journal of clinical child psychology*, 28, 322-332.
- Magida, V., MacLean, M. G., & Coldera, C. R. (2007). Differentiating between sensation seeking and impulsivity through their mediated relations with alcohol use and problems. *Addict Behavior*. 32(10): 2046–2061.
- Martin, C. A., Kelly, T. H., Rayens, M. K., Brogli, B., Himmelreich, K., & Brenzel, Al., et al. (2004). Sensation seeking and symptoms of disruptive disorder: Association with nicotine, alcohol, and marijuana use in early and mid-adolescence. *Journal of psychological reports*, 94, 1075–1082.
- Martins, S. S., Storr, C. L., Alexandre, P. K., & Chilcoat, H. D. (2008). Adolescent ecstasy and other drug use in the National Survey of Parents and Youth: The role of sensation seeking, parental monitoring, and peers' drug use. *Journal of addictive behaviors*, 33, 919-933.
- Meganck, R., Vanheule, s., & Desmet, M. (2008) Factorial validity and measurement invariance of the 20-item Toronto alexithymia scale in clinical and non-clinical samples. *Journal of assessment*, 15, 36–47.
- Nemiah, J. C. (2002). *American psychiatry after World War II: 1944-1994*. Washington, D.C.: American Psychiatric Press.

- Nemiah, J. C., Freyberger, H., & Sifneos, P. E. (1976). Alexithymia: A view of the psychosomatic process. In O. Hill (Ed). *Modern trends in psychosomatic medicine*. London: Butterworths.
- Newcomp, M. D. (1995). Drug use etiology among ethnic minority adolescents. In G. J. Botvin, et al. (Ed). *Drug abuse prevention with multiethnic youth*. Thousand Oaks: Sage Publication.
- Newcomp, M. D., & Richardson, M. A. (2000). Substance use disorder. In M. Hersen, @ R. T. Ammerman (Eds.), *Advanced abnormal child psychology*. New Jersey: Lawrence Erlbaum Associates Publishers.
- Palmgreen, P., Donohew, L., Lorch, E. P., Hoyle, R. H., & Stephenson, M. T. (2001). Television campaigns and adolescent marijuana use: Tests of sensation-seeking targeting. *American Journal of public health*, 91, 292-296.
- Pedersen, W. (1991). Mental health, sensation seeking and drug use patterns: A longitudinal study. *British Journal of Addiction*. 86(2), 195-204.
- Pinard, L., Negrete, J. C., Annable, L., & Audet, N. (1996). Alexithymia in substance abusers-persistence and correlates of variance. *American Journal on Addictions*, 5, 32-39.
- Rees, S., & Graham, R. S. (1991). *Assertion training* (How to be who you really are?). Printed in Great Britain by Mackays of Chatham PLC. London: Routledge.
- Reith, G. (1975). *Personality characteristics in heroin addicts and nonaddicted prisoners using the Edwards Personality Preference Schedule*. *Int. J. Addict*, 10, 97-112.
- Sifneos, P. E. (1973). The Michigan alcoholism screening test: the quest for a new diagnostic instrument. *American Journal of psychiatry*, 127, 1653-1658.
- Silva, M. U., Harrington, N. G., Palmgreen, P., Donohew, L., & Lorch, E. P. (2001). Drug use prevention for the high sensation seeker: The role of alternative activities. *Journal of substance use and misuse*, 36, 373-385.

- Stacy, A. W., Newcomb, M. D., & Bentler, P. M. (1993). Cognitive motivations and sensation seeking as long-term predictors of drinking problems. *Journal of Social and Clinical Psychology, 12*, 1-24.
- Stephenson, M. T., Hoyle, R. H., Palmgreen, P., & Slater, M. D. (2003). Brief measures of sensation seeking for screening and large-scale surveys. *Journal of drug and alcohol dependence, 72*(3), 279-286.
- Stewart, S. H., Devine, H., & Loba, P. (2000). Relations between personality and drinking motives in young adults. *Journal of personality and individual differences, 29*, 495-511.
- Swadi, H. (1999). Individual risk factors for adolescent substance use. *Journal of drug and alcohol dependence, 55*(3), 209-224.
- Thorberg, F. A., Young, R. M., Sullivan, K. A., & Lyvers, M. (2009). Alexithymia and alcohol use disorders: A critical review. *Journal of addictive behaviors, 34*, 237-245.
- Weinberg, N. Z., Rahdert, E., Colliver, J. D., & Glantz M. D. (1998). Adolescent substance abuse: a review of the past 10 years. *Journal of the American academy of child and adolescent psychiatry, 37*, 252-261.
- Wills T. A., Baker, E., & Botvin, G. (1989). Dimensions of assertiveness: Differential relationships to substance use in early adolescence. *Journal of Consulting and clinical psychology, 57*, 473-478.
- Yanovizky, I. (2006). Sensation seeking and alcohol use by college students: Examining multiple pathways of effects. *Journal of Health Communication, 11*(3), 269-280.
- Zarevski, P., Marusic, I., Zolotic, S., Bunjevac, T., & Vukosav, Z. (1998). Contribution of Arnett's Inventory of Sensation Seeking and Zuckerman's Sensation Seeking Scale to the differentiation of athletes engaged in high and low risk sports. *Journal of personality and individual differences, 25*, 763-768.
- Zargar, Y. (2006). *Developing the Iranian form of addiction potential scale*. The second conference of psychology association of Iran: 398- 401. (Printed in Persian).

- Zuckerman, M. (1979). *Sensation seeking: Beyond the optimal level of arousal*. Hillsdale NJ: Erlbaum.
- Zuckerman, M. (1994). *Behavioral expressions and biosocial bases of sensation seeking*. New York: Cambridge University Press.
- Zuckerman, M., Ball, S., & Black, J. (1990). Influences of sensation, gender, risk appraisal and situational motivation on smoking. *Journal of addictive behaviors*, 15, 209-220.
- Zuckerman, M., & Kuhlman, D. M. (2000). Personality and risk-taking: Common biosocial factors. *Journal of personality*, 68, 999-1029.

Received: 19 / 1 / 2011

Revised : 4 / 12 / 2011

Accepted: 10 / 12 / 2011