Validation of the Persian Version of Addiction-prone Personality Test

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Abstract

Objective: The identification of the individuals vulnerable to substance abuse disorders is one of the research priorities in this field. The aim of this study was to prepare the Persian version of Addiction-prone Personality Test for addicts. **Method:** The present study falls within the category of applied research in terms of purpose and is considered a validation study in terms of the type of the project. The research population consisted of male opium and methamphetamine addicts presenting to the addiction treatment centers of Izeh city in 2016. The number of these individuals amounted to 250 sample units who were selected via convenience sampling method. After removing incomplete questionnaires, this number reached 211 sample units. The collected data were analyzed using SPSS-22 and LISREL 8.80 software. **Results:** The results of confirmatory factor analysis showed that the model is well fitted with the data. Factor loadings of most questions were satisfactory (with the exception of questions numbered 14 and 20) and the single-factor model was supported. In terms of the questionnaire's convergent validity, the correlation between its total score and Psychopathic Deviate Scale was obtained equal to 0.55. The test-retest reliability coefficient of the scale was obtained equal to 0.88 within a two-week interval and its Cronbach's alpha coefficient was equal to 0.76, which indicated that the reliability is desirable. **Conclusion:** The Persian version of Addiction-prone Personality Questionnaire is an instrument with relatively favorable psychometric components in identifying the ones prone to substance abuse.

Key words: Addiction-prone Personality Questionnaire, validity, reliability, addicts

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Introduction

Addiction disorders has been renamed to drug use disorders in the fourth edition of the diagnostic system of mental disorders. In this edition, ten types of substance use disorders, including caffeine, cannabis, hallucinogenic, inhalants, opioid, lethargic, hypnotic, anti-anxiety, stimulant, tobacco, and other substances along with gambling disorders (classified as an unrelated disorder) have been presented (American Psychiatric Association, 2015). Addiction has many biological, psychological, and social consequences, and its therapeutic programs have a lot of positive outcomes. Drug addiction is a global problem and is one of the health-care issues of various communities (Parsania et al., 2012). The people with substance use disorders enjoy a lower level of life quality than the general population and experience a higher prevalence of psychiatric disorders (Lin, Chang & Lee, 2015; De Maeyer, Vanderplasschen, & Broekaert, 2010).

Patients with substance abuse encounter many other problems whose history may return to the period before drug use (Elkashef et al., 2012). Research on substance use pathology has shown that substance abusers are not placed within a specific mental and social pattern (Miller, 2015). Addiction therapy programs should not only target the reduction and discontinuation of drug use, but should also consider relevant psychological variables in relation to the onset and persistence of drug use (Ersche et al., 2012). From among the determinants of drug use tendency, psychological variables are of particular importance. It is believed that one's psychological tendencies to drug use should be investigated from the perspective of biological and social factors (Zeinali, Vahdat, & Easavi, 2008). Like other psychological constructs, the evaluation of the construct of vulnerable personality to addiction is also influenced by different approaches and attitudes, such as personality psychosocial development (De Young et al., 2010, Simon et al., 2010) and cognitive harm (Frank et al., 2003). It has been shown that there is a high correlation between personality traits and family history in terms of alcohol dependence and abuse (Nestler, 2014).

Drug use is one of the most important health issues in Iran. In this regard, the decrease in the average age of addiction and the increase in young people and youngsters' tendency to drug abuse are the basis for the rapid transmission and expansion of the dimensions of addiction (Askari et al., 2011). One of the current needs of the community in this area is the development of scales that identify people susceptible to drug use in a timely manner. The following are the instruments that have been used to measure this construct: Addiction Potential Scale (APS) (Weed, Butcher, McKenna, & Ben-Porath, 1992), Addiction-Prone Personality Test (Barnes et al., 2002), Substance Abuse Subtle Screening Inventory (Miller, 1985), Substance Use Risk Profile Scale (Everitt, & Robbins, 2002), and Addiction Potential Questionnaire (Zeinali & Vahdat, 2011). In this regard, the Addiction-Prone Personality Test, developed by Barnes et al. (2002),

is based on the study of personality factors from a wide range of personality tests that are related to both the family background and the current diagnosis of substance abuse and alcohol dependence (Mdege, & Lang, 2011). Addiction-Prone Personality Test was initially designed to measure individual vulnerability to alcohol and drug use (Nestler, 2014). This tool anticipates the person's vulnerability to alcohol and drugs, and considers addiction potential among those personality traits that are controlled by the environment (not genetics) (Wise, & Koob, 2014). The first version of Addiction- Prone Personality Test consisted of 23 items where it reached 21 items with the omission of two items due to the refinement of the questions related to drug abuse. The 21-item version of Addiction- Prone Personality Test is associated with a variety of substances (including alcohol, tobacco, marijuana, medically prescribed drugs, and other drugs).

In the instruments focusing on the identification of vulnerable people to addiction in Iran, it is possible to only refer to the Addiction Potential Scale that was validated by Zeinali (2012). However, there are two major criticisms leveled against this scale. Firstly, this scale has not been sampled on an addict population and has been validated only on a student population. Secondly, this scale has no cut-off point that can separate the two groups of addicts and non-addicts. Barnes's Addiction-Prone Personality Test has been designed to measure personality traits of drug users and has a desired theoretical foundation but has not yet been validated in Iran. According to the above-mentioned points, the aim of this study was to prepare the Persian version of Addiction-Prone Personality Test.

Method
Population, Sample, and Sampling Method
The present research is an applied study that falls within the category of descriptive-correlational studies. The research population consisted of male opium and crystal addicts presenting to addiction centers in Izeh city in 2016. Through convenience sampling method, 250 clients presenting to the addiction centers of this city were selected as the participants. These individuals were volunteered to participate in this study in the interval between 23 September 2016 and 22 November 2016. Out of these participants, 29 ones did not return the questionnaires, and 10 ones had not responded at least to one of the questionnaires. Therefore, they were excluded from the sample and the final sample contained 211 participants. The entry criterion was the diagnosis of patients with opium and crystal consumption based on a physician's diagnosis in the addiction center. The exit criterion of the research was the faulty completion of the questionnaire(s).

Instruments
1. Addiction-Prone Personality Test: This questionnaire consists of 21 yes/no questions, which assess the personality inclination to the increased risk of starting drug use disorders. The scoring method of this questionnaire is in such

a way that the positive answer (yes) to each item receives score 1 and the negative answer is assigned score zero. However, if the respondent answers negatively to the questions numbered 3, 8, 12, and 21, then one score will be added to the total score of the person. The Cronbach's alpha coefficient of this questionnaire was obtained equal to 0.76 by conducting a study on a 1257-person sample. The test-retest reliability of the scale was obtained equal to 0.82 on a sample of 988 individuals. The internal consistency coefficient of the scale has been obtained via Cronbach's alpha on a clinical sample and has been reported desirable ($\alpha = 0.82$). The criterion validity of this questionnaire has been reported to be desirable by correlating it with Vancouver Family Background Questionnaire. Also, the Cronbach's alpha coefficient of this scale has been reported equal to 0.73 (Anderson et al., 2011), and its test-retest reliability was 0.74. The construct validity of this questionnaire has been obtained desired by using Eysenck Personality Questionnaire and MacAndrew Alcoholism Scale (Barnes et al., 2002).

2. Psychopathic Deviate subscale of Minnesota Multiphasic Personality Inventory: This scale is one of the subscales of MMPI-2 (short form). It consists of 19 items that are scored on the basis of a yes/no (1 and 0) scale. When a respondent obtained a highs core on this scale, this means that s/he considers him/herself the victim of family; thus, s/he will rebel against the family. S/he is unable to plan for the future, use experiences, and predict the factors effective in his/her behaviors. In the first round, s/he is affected by others, but in general, relations are very superficial and friendships are rarely honest. Factors and items include impulsive behaviors. The reliability of the whole questionnaire was estimated to be 0.88 by Cronbach's alpha. The construct validity of this scale has also been estimated by exploratory factor analysis. This questionnaire has been also used to examine convergent validity.

Procedure
At first, Addiction-Prone Personality Test was translated and then it was edited. In order to examine the formal validity of the translation, three literate people with a minimum high school diploma were asked to identify the ambiguous questions. The items numbered 2, 7, 12, and 20 were identified as ambiguous and were reworded in a more comprehensible manner. The translated questionnaire along with the Psychopathic Deviate subscale questions was arranged within a booklet in which the purpose of this study and the response method to the questions had been described). Then, it was distributed among 250 patients diagnosed drug disorder (opium or crystal). In order to evaluate the reliability of this test, the questionnaire was assigned to 40 patients (sufficient sample size to calculate the Pearson correlation coefficient) diagnosed with substance use two weeks after the first administration. In order to calculate the cut-off point, 40 healthy individuals who had no addiction experience at all were selected.

Results

The collected data were analyzed using SPSS-22 and LISREL 8.80 software. Descriptive statistics of demographic variables are presented in Table 1.

Table 1: Descriptive Statistics of Demographic Variables in the Sample Group

Variable	Group	Frequency	Percentage	Cumulative percentage
Marital status	Single	99	46.9	46.9
	Married	112	53.1	100
Employment status	Unemployed	50	23.7	23.7
	University student	49	23.2	46.9
	Self-employed	69	32.7	79.6
	Governmental	43	20.4	100
Income status	High	21	10	10
	Average	110	52.1	52.1
	Low	80	37.9	100
Age	18-20 years	54	25.6	25.6
	21-24 years	57	27	52.6
	25-29 years	50	23.7	76.3
	30 years and above	50	23.7	100
Addiction type	Crystal	112	53.1	53.1
	Opium	99	46.9	100

The descriptive statistics of the research variables are presented in Table 2.

Table 2: Descriptive Statistics of the Research Variables

Variable	N	Mean	SD	Min.	Max.
Addiction-Prone Personality	211	12.15	7.28	0	21
Psychopathic Deviate	211	15.91	3.53	1	19

In the present study, the normality assumption was evaluated with regard to the results of the univariate and multivariate normalization in LISREL software. Due to the rejection of the normal distribution of data in some of the variables, the method of robustness to the violation of normality was used. Also, the outputs of LISREL software and the fitness of measurement models showed that the assumptions of an "overidentified model" and "multicollinearity" among the variables have also been observed.

To verify the construct validity, confirmatory factor analysis was used. The model included a one-dimensional model of Barnes et al. (2000), which was loaded on 21 items of Addiction-Prone Personality Test. In table 3, factor loadings, t statistic for checking the significance of the parameters, and the determination coefficients of the parameters are presented. Regarding the violation of the normality assumption, the maximum likelihood estimation was used. The examination of factor loading values showed that the factor loads were satisfactory (P.E.>0.3). Of course, the factor loads of questions 14 and 20 are too small and, thereby, can be excluded from the final version in order to increase

the purity of the factor. The investigation of the difference of the model fitness shows that the model is well fitted with the data and the results of the research support the single-factor model. The fit indices of the model indicate that the model is fitted with data well. Based on the agreed-upon values, the CFI, GFI, and RMR indices indicate a very suitable and very suitable fit and AGFI and RMSEA indices enjoy optimal fits. According to the ratio of chi-square to degree of freedom, there is a satisfactory fitness. Of course, the questions numbered 1, 14, 20, and 21 can be excluded from the study because their factor loadings are below 0.3.

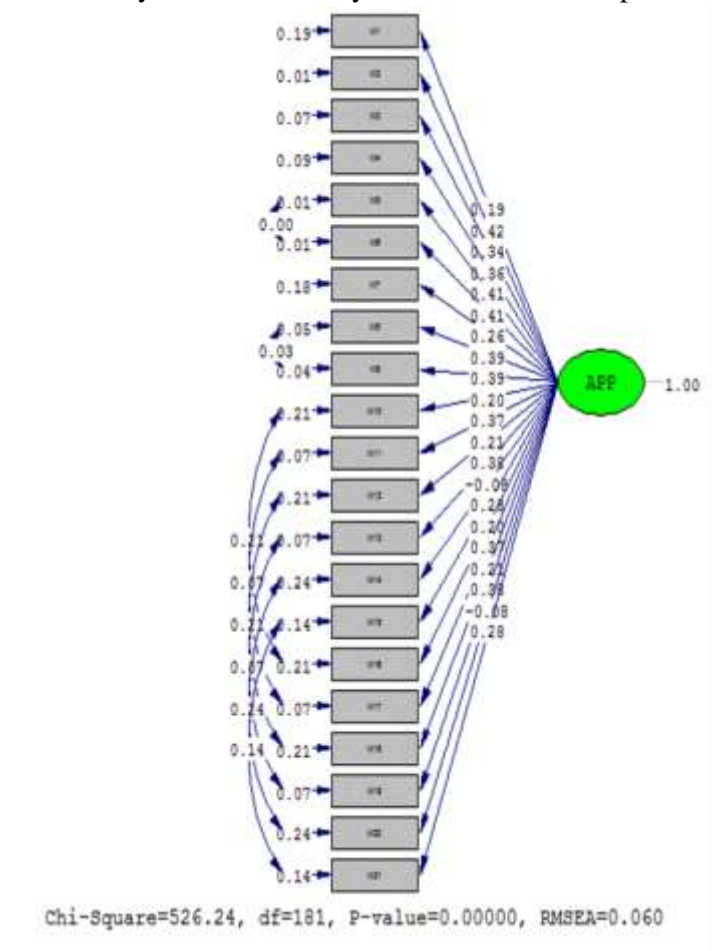**Table 3: confirmatory factor analysis of Addiction-Prone Personality Test**

Item	*Factor loading*	*t*	*R²*
1. Have you ever experienced any weird mental or perceptual states (feelings of a sense of power and courage, different perceptions of others, etc.)?	0.18	16.28**	0.14
2. Have you (during your lifetime) often acted contrary to your parents' wishes?	0.42	13.79**	0.94
3. Are you suffering a lot of emotional and mood fluctuations and changes (are you moody)?	0.24	16.03**	0.62
4. Do you often feel that you are dissatisfied with yourself for that you are not very attractive?	0.24	16.07**	0.59
5. Have you ever encountered legal problems (such as conflict with police, arresting, etc.)?	0.42	11.17**	0.97
6. Do you prefer pop and rock music to traditional music?	0.41	10.49**	0.97
7. Have your parents objected to the type of people you have been in contact with?	0.26	16.25**	0.27
8. Have you had a problem or failure to have a healthy and satisfactory life?	0.39	15.75**	0.77
9. Have you ever been told that you are very nervous or inconsiderate?	0.39	15.68**	0.79
10 - Do you prefer loud music to quiet music?	0.20	16.28**	0.16
11. Have you had trouble concentrating on one topic or job?	0.37	22.95**	0.66
12-Do you hate going to a mosque or a pilgrimage site sometime (once a week)?	0.21	10.16**	0.18
13. Do you prefer sports cars (racing cars) to ordinary cars (rides)?	0.38	23.17**	0.67
14. Do you often feel bored and tired?	0.07	3.65*	0.02
15. Have you often felt you have strange or unusual thoughts?	0.20	15.40**	0.37
16. Would you like to be a regular woman or man or a stunt person?	0.20	9.66**	0.16
17. Do you prefer endurance or power sports (heavy sports) to slow games?	0.37	22.95**	0.66
18. Have you ever felt that people you have visited for the first time look critically at you?	0.21	10.16**	0.18
19. Would you like to have the role of a runner and an active player in sports competitions?	0.38	23.17**	0.67
20. Do you prefer music whose singer's voice and song have been combined with computer technology to music with just the singer's voice and the composer's act?	0.10	5.65*	0.06
21. Do you dislike helping charities?	0.21	15.42**	0.37

The model confirmation indices are presented in Table 4.

Table 4: Confirmatory Factor Analysis Indices of Addiction-Prone Personality Test

Chi-square	Df	df/x^2	GFI	AGFI	CFI	RMSEA	RMR
526.24	181	2.90	0.91	0.89	0.99	0.06	0.06

The analytical model run by LISREL software is presented in Fig. 1.

Chi-Square=526.24, df=181, P-value=0.00000, RMSEA=0.060

Figure 1: Confirmatory Factor Analysis Model for Addiction-Prone Personality Test

The results of the convergent validity of Addiction-Prone Personality Test in relation to Psychopathic Deviate subscale are presented in Table 4. Therefore, it can be concluded that Addiction-Prone Personality Test has a relatively desirable convergent validity. To verify the convergent validity of the questionnaire, we correlated its scores with the scores of Psychopathic Deviate subscale of Minnesota Multiphasic Personality Inventory where the results indicated the existence of a significant relationship between the two sets of scores

(r = 0.55, p <0.001). In order to determine the reliability of the test, the Persian version of Addiction-Prone Personality Test was administered to addicts in Izeh city twice within a two-week interval. The results showed a high re-test reliability (r = 0.88, p <0.001). In order to determine the internal consistency, Cronbach's alpha was run and the coefficient of 0.76 was obtained. In Figure 1, ROC curve is presented in order to calculate the cut-off point. Based on the results of the analysis of the ROC curve, the score was 14.00 with the sensitivity of 94.12 and specificity of 99.73 was obtained.
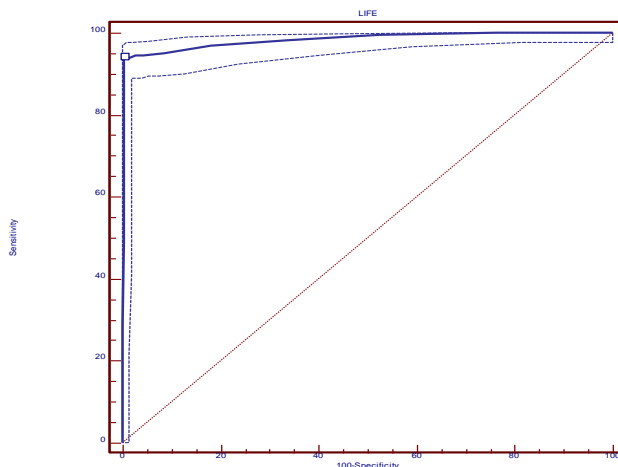
Diagram 1: Determination of the Sensitivity, Specificity, and Cutoff Score of Addiction-Prone Personality Test

Discussion and Conclusion

The purpose of this study was to develop the Persian version of Addiction-Prone Personality Test. The results of this research showed that the Persian version of this questionnaire enjoys an acceptable construct validity. The fit indices all benefited from optimal and suitable desirability. Barnes et al. (2000) conducted a factor analysis on Addiction-Prone Personality Test and confirmed the single-factor structure of this scale. The first order factor and single-factor structure of Addiction-Prone Personality Test was fitted well with observed data. This confirms the earlier studies that suggested the proper structure of this scale. Confirmatory factor structure, validity, and reliability of the present scale were acceptable for clinical applications and diagnoses. Thus, based on the obtained findings, the Addiction-Prone Personality Test is a reliable and valid scale that can be used to evaluate addicted people and obtained stable and consistent results. Of course, in the confirmatory factor analysis, the factor loads of questions 14 and 20 were very low; therefore, it is recommended to exclude these two items in the final version in order to increase the construct validity and the accuracy of the diagnosis.

To examine the convergent validity, the correlation between Addiction-Prone Personality Test and Psychopathic Deviate subscale of Minnesota Multiphasic Personality Inventory was obtained. The scale used in this study theoretically evaluates the behaviors that are similar to those in Psychopathic Deviate subscale of Minnesota Multiphasic Personality Inventory. The high correlation between the scores of these two tests in the present study can be considered as a support for the appropriate convergent validity of the scale. The results of this study indicated that there is a positive correlation between Addiction-Prone Personality Test and Psychopathic Deviate subscale of Minnesota Multiphasic Personality Inventory, which represents the appropriate convergent validity of these two questionnaires. This result indicates that Addiction-Prone Personality Test contains some items that have a good correlation with the items of Psychopathic Deviate subscale. It should be noted, however, that there is not a golden criterion in convergent validity, unlike concurrent validity, but an instrument is used that evaluates a construct relatively similar to the original construct. Therefore, the correlation coefficient in this type of validity is rarely high.

The results of internal consistency of Addiction-Prone Personality Test were obtained desirable using retest coefficient. This finding confirms that this tool benefits from acceptable validity and the majority of questions constitute a single construct. Of course, it is likely that the exclusion of questions 14 and 20 increases this coefficient. Of course, the sensitivity of the Cronbach's Alpha Index to the low number of questions should be considered. The test validity of this tool has been reported very desirable and meaningful, which indicates that this scale is slightly influenced by confounding environmental factors, especially in relation to personality-related constructs.

Due to the fact that the sample units of this study included addicted people, some people suffered from physical problems resulting from drug use abandonment, which might have had a negative effect on individuals' accuracy when completing the questionnaires. Because of the time limitations in having access to sample individuals imposed by drug addiction centers, there was not the possibility of conducting a clinical interview with each subject, examining possible clinical disorders, and selecting a better sample. Since the sample units were only men, it is recommended that this scale be implemented and validated on the female population. Considering the importance of providing the optimum cut-off point, it is recommended that the efficiency of this cut-off point be investigated in subsequent studies. It is also suggested that this questionnaire be used in psychological clinics to identify adolescents with risk factors for substance use disorder, such as family problems or academic problems.

Reference

American Psychiatric Association. (2015). *Diagnostic and Statistical Manual of Mental Disorders (DSM-5®)*: American Psychiatric Pub.

Askari, S. (2011). Relationship of personality traits (neuroticism, Psychoticism, and extraversion) and inhibitory base with addiction potential among male students, *Journal of Psychological Sciences*, 40, 10, 485-492.

Barnes, G. E., Jansson, S. M., & Stockwell, T. (2009). *Concurrent and simultaneous poly substance use patterns and predictors*. Paper presented at the American Academy of Child and Adolescent Psychiatry's 56th annual meeting, Honolulu, October 27–November 1.

Barnes, G. E., Murray, R. P., Patton, D., Bentler, P. M., & Anderson, R.E. (2002). *The addiction-prone personality*. In H.B. Kaplan; A. E. Gottfried; & A. w. Gottfried. (Eds), Longitudinal research in the social and behavioral sciences (pp. 1–320). New York: Kluwer Academic/Plenum Publishers.

Burkhalter, R. (2012). The substance use profile of Canadian youth: exploring the prevalence of alcohol, drug and tobacco use by gender and grade. *Addictive behaviors,* 37(3), 318-322.

De Maeyer, J., Vanderplasschen, W., Broekaert, E. (2010). Quality of life among opiate-dependent individuals: A review of the literature. *Int J Drug Policy*; 21(5):364–80.

DeYoung, C. G., Hirsh, J. B., Shane, M. S., Papademetris, X., Rajeevan, N., & Gray, J. R. (2010). Testing predictions from personality neuroscience. Brain structure and the big five. *Psychological Science*, 21, 820–828.

Elkashef, A., Kahn, R., Yu, E., Iturriaga, E., Li, S. H., Anderson, A., & Serpi, T. (2012). Topiramate for the treatment of methamphetamine addiction: a multi-center placebo-controlled trial. *Addiction*, 107(7), 1297-1306.

Ersche, K. D., Jones, P. S., Williams, G. B., Turton, A. J., Robbins, T. W., & Bullmore, E. T. (2012). Abnormal brain structure implicated in stimulant drug addiction. *Science*, 335(6068), 601-604.

Franke, P., Neef, D., Weiffenbach, O., Gansicke, M., Hautzinger, M., & Maier, W. (2003). Psychiatric comorbidity in risk groups of opioid addiction: A comparison between opioid dependent and nonopioid dependent prisoners. *Fortschr Nwurol Psychiatr,* 71(1), 37-44.

Lin, C.Y, Chang, K.C, W., Lee, LJH. (2016). Quality of life and its determinants for heroin addicts receiving a methadone maintenance program: Comparison with matched referents from the general population. *J Formosan Med Assoc*. 115(9):714-27.

Mdege, N. D., & Lang, J. (2011). Screening instruments for detecting illicit drug use/abuse that could be useful in general hospital wards: a systematic review. *Addictive behaviors*, 36(12), 1111-1119.

Miller, G. A. (1985). *The SASSI manual. Spencer*, IN: Spencer Evening World.

Miller, W. R., & Moyers, T. B. (2015). The forest and the trees: relational and specific factors in addiction treatment. *Addiction*, 110(3), 401-413.

Nestler, E. J. (2014). Epigenetic mechanisms of drug addiction. *Neuropharmacology*, 76, 259-268.

Parsania, Z., Firouzeh, M., Takfalah, L., Mohammadi Semnani, S., Jahan, E., & Emami, A. (2012). Investigation of personality disorders in patients with substance abuse disorder presenting to addiction treatment centers, *Journal of Medical Sciences*, 22 (2), 152-156.

Simon, J. J., Walther, S., Fiebach, C. J., Friederich, H. C., Stippich, C., Weisbrod, M., & Kaiser, S. (2010). Neural reward processing is modulated by approach- and avoidance-related personality traits. *NeuroImage*, 49, 1868–1874.

Weed N.C., Butcher, J., Celements, V., Heintz, J.M. (2002). Diagnostic accuracy and factor structure of personality assessment, *Am J Drug Alcohol Abuse*, 79.564-582. Wise, R. A., & Koob, G. F. (2014). The development and maintenance of drug addiction. *Neuropsychopharmacology*, 39(2), 254-262.

Zeinali, A. (2012). Expansion and Validation of Addiction Potential Scale-Student-based, *Journal of New Advances in Behavioral Sciences*, 25, 85-99.

Zeinali, A., Vahdat, R., & Easavi, M. (2008). Addiction-prone factors in recovered addicts, *Iranian Psychiatry and Clinical Psychology,* 1, 71-79.