

Abstract

Objective: The aim of this study is to model the structural equation of schemas and attachment styles with addiction potential through the mediation of stress coping strategies, cognitive emotion regulation, and loneliness among the addicts undergoing abstinence. **Method:** For this purpose, a descriptive-correlational research design was used. The research population included all the addicts under treatment of Golestan Province in 2016. Through Loehlin's sampling method (2004), 300 addicts under recovery were selected as the sample. Addiction Potential Scale, Hazan & Shaver Attachment Styles Questionnaire, Endler and Parker's Coping Inventory for Stressful Situations (CISS), Garnefski's Cognitive Emotion Regulation Questionnaire (2001), Russell UCLA Loneliness Scale, and Young Schema Questionnaire (YSQ-SF) were used for data collection. **Results:** Generally, the five variables could explain 74 percent of addiction potential variance. **Conclusion:** Considering the predictive power of the variables, the findings can be used in interventions and training in addiction treatment clinics.

Keywords: schema, attachment styles, addiction potential, stress coping strategies, cognitive emotion regulation, loneliness

Structural Equation Modeling of Schemas and Attachment Styles with Addiction Potential through the Mediation of Stress Coping Strategies, Cognitive Emotion Regulation, and Loneliness among the Addicts under Treatment

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Introduction

Addiction is a major health problem and social disease that has many economic, political, cultural, psychological, moral and legal aspects that arise from abnormal and unlawful use of certain substances such as alcohol, opium, cannabis, and so on, causing psychological or physiological dependence of the addict on these drugs, and has adverse effects on physical, mental and social performance (Angelis, 2015). The term addiction, which is equivalent to the scientific term “dependence”, is a state of consumption that, in addition to the mentioned problems, the person has reached the stage where the discontinuation of use is physically or psychologically very difficult (Nastizayi, Hezaremoqhadam and Molzahi, 2010). Also, addiction potential means that it assesses the potential of vulnerability to substance abuse, whether s/he already has or does not have substance abuse (Ghadimi, Karami and Yazdanbakhsh, 2013). With all the efforts made in addiction withdrawal, the statistics on the return to addiction or relapse in addicts are very worrisome (Savage, 2016). The probability of returning to drugs in the most optimistic form has predicted up to 50%. According to Marlatt, & Gordon (1985), this probability is valid up to 90% (quoted by Snow and Anderson, 2000). After the passage of 90 days from detoxification and entering treatment rehabilitation centers, the majority of drug abusers relapse into substance abuse (McKay, Franklin, Patapis, & Lynch, 2006). In general, addiction relapse factors can be classified as individual, family, social, and geographic and economic factors (Xia, 2015). One of the factors that has a close relationship with substance abuse is stress coping strategies. Coping is referred to the cognitive and behavioral methods adopted by an individual to master, reduce or tolerate the internal or external demands of stressful interactions (Habibi and Ashuri, 2014). According to this definition, coping is a process that is constantly changing; coping is not done automatically; it is a learned pattern for responding to stressful situations; and that coping requires one’s effort to deal with stress (Valentino, 2010). According to Indler, & Parker (1990), coping strategies can be divided into three categories: task-oriented strategy: this strategy requires obtaining information about the stressful situation and its possible consequences (Halim, & Sabri, 2013). Emotion-oriented strategy: This strategy requires finding ways to control emotion and trying to be hopeful when faced with stressful successes (Zarei and Asadi, 2011). Avoidance- strategy: This strategy involves denying or minimizing stress situations (Jing, Fenglan, & Feng, 2014).

Another key factor in intelligent dealing with stressors, which is actively interacting with coping strategies, is cognitive emotion regulation (Steiner, & Van Waes, 2013). Cognitive emotion regulation implies the use of thoughts and behaviors that influence human emotions, and the concept of cognitive emotion regulation is the method of cognitive processing of a person when dealing with adverse and stressful events (Tang, 2016). In the opinion of researchers,

individuals use various strategies in dealing with stressful conditions (Tabibeny et al., 2014). These strategies are rumination, self-blame, other-blame, catastrophizing and positive re-focus, putting into prospective, positive reappraisal, acceptance, and planning (Shiffman, Dunbar, Scholl, & Tindle, 2012). The results of Wu's research (2015); Nakajima, & Al'absi(2012); Besharat, Nourbakhsh, Rostami and Farahani (2012); Kiani, Ghasemi and Pourabbas (2011); Ranjbar Tutuyi, Khanjani and Mirzabeigi (2015) suggest that people's capacity to effectively regulate emotions influences psychological, physical, and interpersonal happiness, which implies a cognitive manipulation of the recalled input information. Also, the results of many researches such as Basharpour (2013), Besharat et al (2012), Wu (2015), Steiner, & Van Waes (2013) show that cognitive emotion regulation is related to addiction potential. On the other hand, organisms schemas are a form of software versions of behaviors that are changed by achieving experiences or insights (Perez-Dandieu, 2015), maladaptive schemas are self-destructive emotion and cognitive patterns that are formed at the beginning of growth and change in the mind and are repeated in the life and maladaptive behaviors are created in response to these schemas. (Carre, Hyde, Neumann, Viding, & Hariri, 2013). Maladaptive schemas have realistic self-motivation and constraints due to the lack of satisfaction of fundamental needs, such as secure attachment to others, autonomy, freedom to express healthy needs and emotion. According to Young's view, early maladaptive schemas may be the core of personality disorder, mild cognitive problems, and many chronic disorders, such as drug abuse. In general, early maladaptive schemas have been conceptualized as information processing structures that are formed in early life and are the product of one's mood and environment (Garland, 2016). On the other hand, researches show the relationship between attachment styles and substance abuse (Amir and Ashena, 2015; Besharat et al., 2012). In terms of attachment, substance abuse can be understood as an artificial passive strategy and as an effort to cope with insecure attachment, reduce emotional disturbance and adjustment of interpersonal relationships (Schindler, Thomasius, Sack, Gemeinhardt, & Kustner, 2007). Attachment is to establish deep emotional bond with particular people in life in a way that interacts with them makes them feel joyful and happy, and their existence in stressful situations makes us relaxed. The formation of attachment is gradual. Meanwhile, Ainsworth proved that attachment helps to reduce anxiety (Gilliland, Blue Star, Hansen, & Carpenter, 2015). What Ainsworth calls the basic effect of security, enables an individual to abandon the attached person and search in the surrounding environment (Wedekind, 2013). The three main criteria defining an attachment relationship during childhood are "proximity search", "the impact of secure base phenomenon and" separation protest" (Labrie, & Sessoms, 2012). Generally, attachment can be defined by the emotional atmosphere governing the relationships of individuals (Wedekind et al., 2013). One of the issues raised in the field of addiction is the feeling of

loneliness due to social problems and the removal of the supporting environment due to the selection and continuation of these hazardous behaviors (Victor, Burholt, & Martin, 2012). Loneliness is one's perception of the lack of social satisfactory relationship and is the result of being deprived of the basic human need to intimacy (Dorian, Eizabeth, Amee, 2014). Loneliness is a response to the lack of a positive, satisfying relationship with others, and Sullivan considers this state as the deprivation of the basic need of human being to intimacy and this is called deprivation of social relations. This is a feeling of being deprived of social relationships (Jeong, 2016). As noted, various researches indicate separately the role of research variables in addiction potential, however, the direct and indirect relation of these factors with the addiction potential has been less studied. But by studying these researches, suitable interventions and treatment programs can be developed. Finally, the main question of the present research was whether the research variables in the model can predictive addiction potential in addicts under treatment?

Method

Statistical population, sample and sampling method

The current research is a basic research in terms of purpose and is a cross-sectional design in terms of data collection method and the analysis is done by descriptive method and is correlation design and structural equation modeling, in particular structural regression equations (A combination of path analysis and factor analysis) and the approach is based on covariance and Amos software. This approach estimates path coefficients, factor loads by minimizing the difference between a sample-based covariance matrix and a model based covariance matrix. In this study, a population of all recovering addicts for 1 to 12 months, aged between 18 and 55 years old was trained in 28 mid-term residing centers in Golestan province. This sample size was adopted by Loehlin (2004), for each latent variable, between 30 and 50 samples were adopted and totally based on the number of latent variables, 300 of the recovering addicts were selected as the sample. At first, from among the 28 centers of province, 10 centers were selected using simple random method and then in the relative class (according to the number of people in the centers of the cities in the province), the sample was eventually selected randomly.

Instrument

1. Addiction Potential Scale: This scale was developed by Weed, Butcher, Mckenna, & Ben-Porath (1992). The used version of the Iranian Addiction Potential Scale was developed by Zarger et al. (2006) (Zargar, Najarian and Nami, 2008). It has 36 items and 5 lie assessment items. Scoring of each question is ranging from zero (totally disagree) to 3 (totally agree). Questions 6, 12, 15, 21 are scored inversely. Questions 12, 13, 15, 21, and 33 are lie assessment items. The overall score is the total scores of the individual questions (other than

the lie assessment questions). The range of the score is from 0 to 108, and the higher scores indicate the greater potential of the responding person for addiction. In the research of Zargar et al. (2008), criterion validity was reported by separating two groups of addicts and non-addict as suitable. The construct validity of the scale via correlating with 25-item scale of the list of clinical symptoms was 0.45 as significant. The scale reliability has been reported by Cronbach's alpha of 0.90. In this study, Cronbach's alpha was 0.83.

2. Adult Attachment Styles: This scale is developed by Hazen and Shaver's attachment test (1987) and standardized for students in Tehran University. It has 15 questions 3 attachment styles; namely secure, avoidance and ambivalence styles. Responding is made on a 5-point Likert scale (totally disagreed 1 to totally agreed 5). Avoidance style questions are 1 to 5, secure style 6 to 10, and ambivalent style 11 to 15. The minimum and maximum scores in the subscales are 5 and 25. In Besharat's research (2000), the Cronbach's alpha coefficient for secure, avoidance, and ambivalent subscales in a student sample (1480 including 860 girls and 620 boys) was 0.86, 0.84, and 0.85 (respectively). (For female students, 0.86, 0.83 and 0.84 and for male students 0.84, 0.85 and 0.86). The Kendall agreement coefficients (validity) for secure, avoidance, and ambivalent attachment styles were reported to be 0.80, 0.61 and 0.75, respectively. In the present study, Cronbach's alpha in secure, avoidance, and ambivalent samples was 0.73, 0.71, and 0.78 respectively.

3. Loneliness Scale: This scale was developed by Russel, Peplau, & Cutrano in 1980, containing 20 items (10 negative and 10 positive). Scoring is based on never (1), scarcely (2), sometimes (3) and always (4). Scores for Questions 1, 5, 6, 9, 10, 15, 16, 19, and 20 are inverse. A higher score indicates a higher intensity of loneliness. Its reliability was reported to be 0.78. The test retest reliability was reported by Russell, Pilawa and Ferguson (1978) as 0.89. First, this scale was translated by Shekarkan and Mirderikvand (2007) and after an introductory performance, it was validated. In this study, Cronbach's alpha was 0.81

4. Endler and Parker's Coping Inventory for Stressful Situations (CISS): This scale was developed by Endler and Parker (1990) and translated by Akbarzadeh (1997). It has 48 items and the score is ranging never (1) always (5). The scale evaluates coping behaviors (problem-solving-oriented, avoidant, and emotion-oriented) (Endler and Parker, 1990; quoted by Hajat Beigi, 2000). Questions 1, 2, 6, 10, 15, 21, 24, 27, 33, 34, 35, 41, 42, 43, 46, 47 evaluate problem-solving oriented strategy, Questions 5, 7, 8, 13, 14, 17, 19, 22, 25, 26, 28, 30, 38, 39, 44, 45 emotion-oriented strategies and questions 3, 4, 9, 11, 12, 16, 18, 20, 23, 29, 31, 32, 33, 37, 40, 48 avoidance strategies. Qoreishirad (2010) in Iran has obtained the concurrent validity of this scale with the Billings and Mouse scale with a correlation coefficient of 0.62 for the problem-solving and 0.40 for emotion-orientation, and the reliability of this test with Cronbach's alpha method in Problem-oriented subscale as 0.81, emotion-oriented 0.78 and avoidance 0.72. In the present study, Cronbach's alpha for the whole scale was 0.87 and in

problem-oriented, emotion-oriented and avoidance were 0.82, 0.79, and 0.83, respectively.

5. The Cognitive Emotion Regulation Questionnaire: This scale is developed by Garnefski, Kraaij, & Spinhoven (2001) and has 36 items. Scoring is based on a five-point Likert scale of never to always. The scale has seven subscales of self-blame, other-blame catastrophizing, rumination, re-focus on planning, acceptance, positive re-focus, and positive reappraisal. Questions 1, 2, 4 evaluate self-blame, questions 5, 6, 7, 8, acceptance; 3, 9, 10, 11, 12, rumination; 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, positive focus and positive reappraisal; 7, 15, 23, 24, 25, 26; focus on planning; 29, 30, 31, 32; catastrophizing; and 34, 35, blame-other. The Persian form of this scale was validated by Samani and Sadeghi (2010). The alpha coefficient for the subscales is reported by Granfsky et al. (2002) in the range of 0.71 to 0.81. In the present study, Cronbach's alpha for the whole scale was 0.76 and for the subscales was between 0.67 and 0.85.

6. Early Maladaptive Schema Questionnaire (YSQ-SF) (short form): This scale is developed by Young, & Brown (1994), for evaluating 15 early maladaptive schemas with 75 questions. Schemas include: Abandonment / Instability, 6 to 11; mistrust / abuse, 11 to 15; Social isolation / Alienation, 16 to 20; Defectiveness / Shame, 21 to 25; Emotional deprivation, 1 to 5; Dependence / incompetence. 31 to 35; vulnerability to illness, 36 to 40; Enmeshment/undeveloped self, 41 to 45; failure; 26 to 30; Entitlement/grandiosity; 66 to 70; insufficient self-control; 71 to 75; subjugation; 46 to 50; self-sacrifice, 51 to 55; Emotional inhibition, 56 to 60; standards/hypercriticalness, 61 to 65. Young and Lang (1998) confirmed the factor and validity structure of this scale (quoted from Shahamat, Sabeti and Rezvani, 2010). The validity of this questionnaire has been reported on the basis of Cronbach's alpha of 15 scales, ranging from 0.79 to 0.93, and the test retest results have been reported between 0.67 and 0.86 with a 15-day interval. It has good fact and content validity. In the present study, Cronbach's alpha for scales was obtained between 0.70 to 0.82.

Results

The results showed a significant correlation between the subclasses of the variables of maladaptive schemas and attachment styles with the addiction potential through the mediation of stress coping strategies, cognitive emotion regulation, and loneliness. There was a direct correlation between addiction potential and subscales of maladaptive schemas and cognitive emotion regulation and loneliness at 0.01 and 0.05. There was only a negative in the subscale of sacrifice in the schema variable with addiction potential. The emotion-oriented coping strategy had a positive relationship with addiction potential and the avoidance coping strategy had a negative correlation with addiction potential. Secure attachment style had a negative relationship with addiction potential; ambivalent and avoidant attachment styles had no relation

to addiction potential. After examining the obtained relations, the statistical hypotheses of the study, such as kurtosis and skewness, and the normalization of the data were examined by the box test, and then the outliers were corrected by mahalanobis distance test and finally Kolmogorov Smirnov test confirmed them. Then the design of the original model and the measurement model were examined and then in the structural model, the fittings were desirable after the three steps of the modification.

Table 1: Fit Indices of the Analysis of Data and Variables after Three Correction Stages

<i>TEST</i>	<i>Explanation</i>	<i>Acceptable values</i>	<i>Obtained values</i>
χ^2/df	Relative chi-square	<3	2/011
RMSEA	Root Mean SQUARE Error Approximate	<0/1	0/032
GFI	Generalized Fit Index	>0/9	/934
NFI	Normalized Fit Index	>0/9	0/942
CFI	Comparative Fit Index	>0/9	0/961
DF	394		

The RMSEA value is 0.232 and less than 0.1, which indicates the appropriateness of the mean square error of the model. The Chi-square to degree of freedom is between 1 and 3. GFI, CFI and NFI indices are more than 0.9, indicating the suitability of the model

Table 2: Data of the Direct Estimation of the Model

<i>Variables</i>	<i>Value</i>	<i>Lower limit</i>	<i>Upper limit</i>	<i>Significance</i>
Schema on addiction potential	0/26	-0/457	0/556	0/0005
Attachment to addiction potential	-0/10	-0/20	0/257	0/0005
Loneliness on addiction potential	0/52	0/20	0/60	0/0005
Strategy on addiction potential	0/42	0/10	0/31	0/0005
Regulation on addiction potential	0/31	0/11	0/38	0/0005

As shown in the above Table, all variables have significant direct effect on addiction potential.

Table 3: Indirect Estimation of the Model Using the Estimated Bootstrap Method

<i>Variables</i>	<i>Value</i>	<i>Lower limit</i>	<i>Upper limit</i>	<i>Significance</i>
Schema on addiction potential with the mediation of loneliness, strategy and cognitive emotion regulation	-0/58	-0/68	0/001	0/21
Attachment on addiction potential with the medication of loneliness, strategy and cognitive emotion regulation	-0/56	-0/62	0/0005	0/10

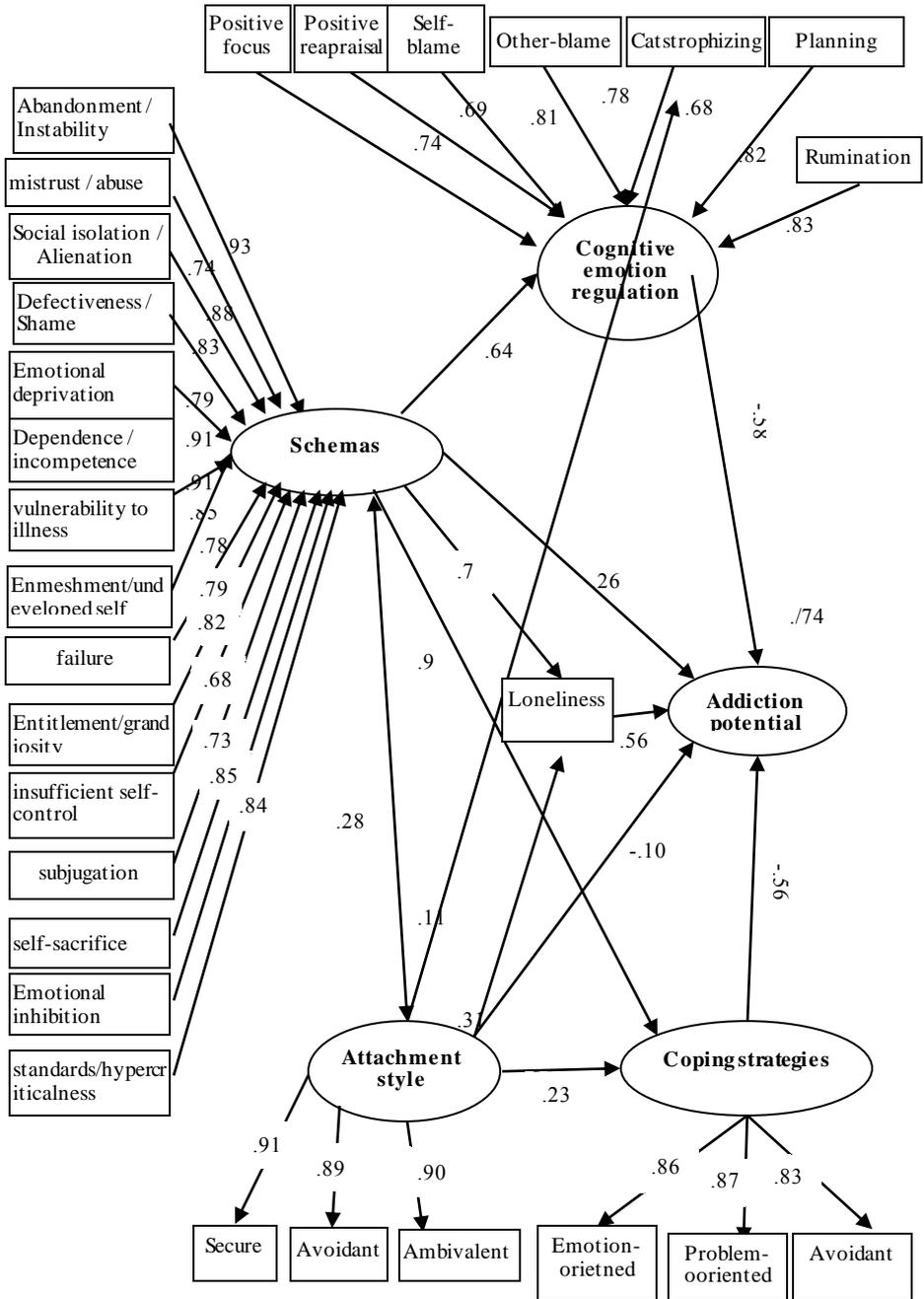


Figure 1: Structured Model Tested with Standardized Prediction Statistics

Schematic variables, attachment styles, loneliness, coping strategies and cognitive emotion regulation are directly related to addiction potential, and the indirect path of schema on addiction potential with mediation of loneliness, strategy and cognitive emotion regulation, as well as attachment path to addiction potential by mediation of loneliness, strategy and cognitive emotion regulation are significant

Discussion and Conclusion

This research suggests that the schema variables, attachment styles, loneliness, coping strategies and cognitive emotion regulation have a direct effect on addiction potential and, in general, five variables predict 74% of the addiction potential variable. In general, the results of the structural relations model showed that the addiction potential model has a good fit. In the context of the results of this part of the study, the term "addiction potential" means that it assesses the potential or vulnerability of substance abuse, whether or not a person is currently abusing drugs. New clinical findings have shown that in the formation of addiction, unhealthy developmental areas and potential addiction play an essential role. The addiction potential theory states that some people are susceptible to addiction and if they are exposed to it, they become addicted but if there is no potential, they are not addicted (Ghadimi, Karami and Yazdanbaksh, 2014). The findings of this research confirm the Young's early maladaptive schemas and the schema-based cognitive behavioral therapy model. In this theory, behaviors such as addiction are created to reduce the negative emotions resulting from the maladaptive schemas activity. Maralat and George (1984) on a study on 311 addicted patients found that 32% of returns are related to negative emotional states. In fact, most studies have supported that negative emotion in individuals during abstinence is a strong motivator for activating drug potential (Mohammad Khani, Sadeghi and Farzad, 2011). SOME researches such as Yarmohammadi Wassal, Alipour, Bastami, Zolfaghari-nia and Bazzazadeh (2015), Gratz, & Romer (2004), Bashpour (2013), have shown that the difficulty in emotion regulation is associated with a wide range of disorders such as substance abuse. According to Orbek (2007), those who have learnt poor emotion regulation strategies may be more prone to use risky behaviors as a means of relieving negative emotions than others. (Quoted from Isma'ili-Nasab, Andamikhoshk, Azrami, and Samarrokhi, 2014).) Even according to the self-medication theory of Khantazian, this issue can be considered. This theory is based on the assumption that many people use drugs due to tolerating lower distress and emotion regulation disorder, and drug addiction is in fact a tool for regulating stressful emotions (Khantazian, 1997, 1993; Soa, Rofitere and Robbins, 2008; quotes from Azizi, Mirzai and Shams, 2010). According to cognitive pphenomenology, psychological disturbances by Lazarus and Fulkman (1984) coping is a behavioral and cognitive effort, and based on this theory, coping involves two processes: assessing the situation and applying a

suitable coping strategy. The important thing is that our personality affects the assessment of the situation and, consequently, the selection of coping strategy. The maladaptive schemas, which are the basis of personality problems and disorders, are activated under stressful situations and conditions (Bahadorikhosrushahi and Khanjani, 2013), and act as a model for the processing of experiences and events, and the person interprets his experiences based on them (Zarei and Assadi, 2011). Also, from the point of view of attachment, substance abuse can be perceived as an artificial passive strategy, as an effort to cope with insecure attachment, reduce emotional disturbance and adjust interpersonal relationships (Schindler et al., 2007). Finally, one of the issues raised in the field of addiction is loneliness caused by social isolation and elimination of sponsor's environment due to the selection and continuation of these hazardous behaviors. When a person has less support from emotional and social aspects, loneliness becomes psychologically dominant upon him (Victor, Burholt, & Martin, 2012). According to Hayln and Crohn's (1992) findings, there is a relationship between loneliness and psychosocial and social problems such as alcoholism, suicide, anxiety and addiction, lack of self-confidence, negative attributions, delinquency and academic failure. Similarly, loneliness is one of the signs of depression and the slipping tendency of people to addiction (Woodhouse, Dykas, & Cassidy, 2012). The model of this research is based on the biological, psychological and social theory. We can examine almost all of these components in this model. Biologically, in the schema approach, there is a mood issue that is a biological factor. Attachment theory has the biological basis of "behavioral control systems" and can be referred to psychologically factors such as early maladaptive schemas, attachment styles, cognitive emotion regulation, loneliness, and coping strategies. Also, from social aspects, loneliness and coping strategies against stress can be considered as social issued. We find that even schemas and attachment styles are shaped by initial interactions in the family, which is a social institution, and as a result many social, economic, cultural issues are effective on family. The biological-psychological and social model is taken from the theory of systems, and we can see the comprehensiveness and breadth of the variables examined in this model. On the other hand, a model is presented when many researches have been done to verify the relationship between its variables. Given the huge amount of local and foreign papers and researches in recent years regarding these five variables, model approval with this percentage was considered. In the final analysis of the model, 28% of addiction potential is explained by other variables outside the research. Shabani and Sangani (2016) in a study entitled "Investigating the effective factors on addiction relapse from the point of view of mid-term resident care workers in Golestan province" concluded that family, job, social, psychological, educational, economic and physical factors, respectively, have the greatest effect on relapse. Shaterian, Menati, Kesani and Menati (2014) in the evaluation of relapse-related factors found that smoking, education,

addiction history, socializing with addicted friends, the history of addiction in the family, the employment condition, marital status and the number of households are effective factors on relapse and return to addiction. Therefore, factors such as the level of education, physical illnesses, economic and occupational status, the relationship with addicted friends and the history of drug addiction, etc. can be considered as variables outside of the research.

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