

## Abstract

**Objective:** The current study was conducted to investigate the pattern of structural relations between deviant personality traits, risk perception, and treatment motivation in people with substance dependency. **Method:** A descriptive-correlational method was used in this study. All the drug addicts referring to Ardabil centers of addiction treatment in second half of 2014 constituted the statistical population of this study. The number of 140 individuals from this population was selected via cluster sampling and responded to Stages of Change Readiness and Treatment Eagerness Scale, Personality Deviance Scale, and Cognitive Appraisal of Risky Events (CARE) Questionnaire. **Results:** The results showed that risk perception and three components of treatment motivation are negatively correlated with hostile thoughts, denigration of others, low self-confidence, dependency, submissiveness. However, risk perception was positively associated with the three components of treatment motivation. The results of regression analyses also revealed that 53% of variance of recognition, 44 % of variance of ambivalence, and 47 % of variance of step taking were explained by deviant personality traits. Model fitness indexes confirmed the path of deviant personality traits to treatment motivation via the mediating role of risk perception. **Conclusion:** The findings of this study suggest that low risk perception is one of the explanatory pathways for the relationship between deviant personality traits and treatment motivation.

**Keywords:** Deviant Personality Traits, Risk Perception, Treatment Motivation, Substance Dependence

# Structural Relation Pattern between Deviant Personality Traits, Risk Perception and Treatment Motivation in People with Substance Dependency: The Mediating Role of Risk Perception

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## Introduction

One of the salient features of people with drug dependence is continuous consumption of drugs despite their negative consequences, such as serious medical conditions, legal problems, and losing jobs, friends, and social base (Petry, Bickel & Arnett, 1998). According to the available statistical figures, addicts refer to rehabilitation centers more than 2 to 3 times. This shows that there are significantly high rates of addiction in such people (Hojjati, Alvestani, Akhundzade, Heydari, & Sharifnia, 2011). Studies have shown that 20 to 90 percent of the addicts under treatment undergo relapse (Rozen et al., 2006). In most cases, these people are skeptical about addiction withdrawal; therefore, this doubt and hesitation leads them not to quickly seek treatment or even not to think of treatment at all. All these issues are regarded the addicts' problems related to motivation and enthusiasm for addiction withdrawal (Tomb, 1999). Since motivation is the most important step for any action or behavioral change, treatment-seekers' motivation for change is one of the important points of clinical attention in the treatment of substance abuse disorders. Motivation for change and treatment, described as treatment-seekers' responsibility and dutifulness, is a major prerequisite for treatment, without which the therapist is unable to be successful in the treatment (Beckman, 1980). Cunningham, Cameron & Koski-Jannes (2005) showed that the addicted individuals who recover without treatment go through a cognitive-assessment process. During this process, all the pros and cons of behavior are assessed and, ultimately, expected profits and losses of change are one of the subjects' motivational justifications for addiction withdrawal. Ball (1989) found that some of the scales of Temperament and Character Inventory can predict the consequences of treatment in substance abusers. Cloninger (1991) discovered that the scales and subscales of Temperament and Character Inventory are associated with the prediction of alcoholic persons' treatment although this association was not as strong that of NEO personality dimensions. In addition, Cloninger (1991) found that the adolescents who have positive expectations from themselves show higher willingness and enthusiasm for the treatment of alcoholism. In a study based on Eysenck's three-factor model (1998), it was revealed that those who drink a lot of alcohol obtain higher scores in both neuroticism and psychosis and tendency to alcohol consumption is significantly reduced compared to the control group. Momeni (2009) also indicated that both family's perception and addicts' perception to treatment play a pivotal role in predicting substance abusers' motivation for treatment. Jaff (2005) explored the relationship between aggression and use of stimulant drugs and concluded that aggression is positively correlated with the use of some stimulant drugs (crack and amphetamines). Parker, Taylor, Eastabrook, Schell & Wood (2008) also found that failure to establish affective relationship and expression of hostile behaviors in interpersonal relationships with others lead to substance abuse in people.

Evidence in this area also indicates that methamphetamine use is correlated with psychiatric disorders (Mehrabizadeh Honarmand, Shaheni & Fathi, 2008), anti-social behavior (Embry, Hankins, Biglan & Boles, 2009), psychosis and anxiety (Pluddemann, Flisher, Mcketin, Parry & Lombard, 2010) and low self-control (Otten, Barker, Maughan, Arseneault & Engels, 2010). Joseph, Manafi, Iakovaki & Cooper (2003) showed that motivation for smoking is associated with self-efficacy of withdrawal; and low self-efficacy is also correlated with automated smoking habit, control of negative affect, and impaired social skills. Nieva, et al. (2011) showed that high levels of impulsivity predict addiction relapse in men. Zemore & Ajzen (2014) also showed that treatment-related attitudes and perceived control independently predict decision for drug use withdrawal. Herrero-Fernández, Macía-Guerrero, Silvano-Chaparro, Merino & Jenchura (2016) showed that high-risk behavior is significantly correlated with impulsivity, conscientiousness, and skin conductance level (as an indicator of risk perception). These three factors could predict vulgar risky behaviors.

Evidence suggests that the variability in the level of motivation in drug addicted treatment-seekers can be associated with the perception of behavioral risks. This means that substance abusers show higher risk taking due to their poor risk perception. The perception of risk is related to how one processes the following three aspects: 1) value: it refers to the reward and penalty for any behavior; 2) time: it refers to the time of a reward or punishment after choosing different behaviors; and 3) possibilities: it refers to the certainty or uncertainty of the selected behavior to be followed by some degree of reward or punishment (Lennart, Bjorg-Elin & Torbjorn, 2004). Baker & Washousky (1993) showed that the boys with antisocial tendencies and mental disorders have different performance in gambling tests. Vanhonk, Hermans, Putman, Montague & schutter (2002) also showed that people with a high degree of mental disorder are not able to perceive and avoid risk during the game due to the prefrontal cortex lesion. Bates & Labouvie (1995) watched 1270 substance abusers who referred to detoxification centers for two years. They found that patients with a high level of risk perception are more willing to and eager for treatment. These individuals also showed lower relapse rates (17%) after the first 6 months compared to patients with low risk perception (54%). Cloninger (1987) also reported the availability of a positive relationship between high risk perception and motivation for withdrawal and treatment of alcoholism in pregnant women. Lopez-Quintero & Neumark (2010) also showed that higher levels of risk perception in adolescents are correlated with lower tendency to smoking marijuana and higher motivation for withdrawal. Williams, Herzog & Simmons (2011) also showed that the cigarette smokers with lower risk perception are less inclined to stop smoking. Individual differences in risk perception have shown that personality factors have an important role in risk perception. Vollrath, Knoch & Cassano (1999) concluded that personality dimensions of agreeableness and conscientiousness have a negative direct effect and a negative

indirect effect on the perception of health vulnerability via high-risk health behaviors. Neuroticism was the only personality dimension that had a negative indirect effect and a positive direct effect on vulnerability perceptions.

The results of Hampson, Severson, Burns, Slovic & Fisher's study (2001) showed that the perceived benefits against perceived risks, the level of education, and independence are directly associated with participation in alcohol-related activities. Sensation seeking, self-control, progress, and independence were indirectly correlated with alcohol-related activities through perceived benefits against risks. Ulleberg & Rundmo (2003) showed that there was a relationship between personality traits and risk perception while the individual's attitudes has a mediation role in this relationship. It was also revealed that personality influences risky driving behaviors both directly and indirectly by affecting attitudinal determinants. In a study entitled "Personality and risk perception in transport", Fyhri & Backer-Grondahl (2012) found that personality trait of emotional stability in the face of neuroticism and agreeableness is positively correlated with risk perception. Hosker-Field, Molnar & Book (2016) examined the mediating role of risk perception in the relationship between psychopathy and risk taking and showed that two components of psychopathy, i.e. callous affect and interpersonal manipulation are indirectly correlated with risky behaviors via low risk perception. Similarly, quirky lifestyle was indirectly associated with fun risk-taking and safety/health.

Clinical evidence shows that drug dependent people are less motivated towards treatment and there is a high possibility of addiction relapse in such people during the next three months in case of successful treatment (Asghari, Poorshahbaz & Farhoudia, 2011). However, in previous studies, motivation for treatment in addicts and its effective factors had been less focused. Given the importance of motivation for withdrawal in the treatment of addiction, the current study was carried out to test the pattern of structural relations between deviant personality and treatment motivation traits with the mediation of risk perception in people with substance dependency.

## **Method**

### **Population, sample, and sampling method**

A descriptive-correlational method was used in this study. All the drug addicts referring to Ardabil centers of addiction treatment in second half of 2014 constituted the statistical population of this study. The number of 140 individuals from this population was selected via cluster sampling and participated in this study. For data collection, a list of addiction treatment centers licensed by welfare organization or university of medical sciences in Ardabil was prepared. Then, one center was randomly selected from welfare organization centers and one center was also randomly selected from university of medical sciences centers. After visiting these two centers, the researcher was provided with the

files of all the clients. Thereafter, 70 patients were selected from each center. These people were diagnosed with dependence on psychotropic substances at least for one month according to their files. In the next step, they were asked to individually respond to Stages of Change Readiness and Treatment Eagerness Scale, Personality Deviance Scale, and Cognitive Appraisal of Risky Events (CARE) Questionnaire in the location of the centers. Diagnosis of at least one month dependence on psychoactive substances, placement in the age range of 20-40 years, and junior high school degrees and above constituted the criteria for the inclusion of the participants. On the other hand, reluctance for participation in the research was the exclusion criterion. Finally, 11 persons were excluded from the study because of reluctance to participate in the study or incomplete filling of the questionnaires.

### **Instrument**

1. Stages of Change Readiness and Treatment Eagerness Scale: SOCRATES is an experimental instrument that was designed by Miller & Tonigan in 1996 to assess readiness for change in drug abusers. It contains 19 items and measures treatment motivation on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5) in three subscales, namely recognition, ambivalence, and taking steps. A high correlation has been reported between the scores of participants in three component of recognition ( $r=.96$ ), taking steps ( $r=.94$ ), and ambivalence ( $r=.88$ ) with scores of the 39-item version of this scale. Cronbach's alpha coefficients of recognition, ambivalence, and taking steps were reported to range from .85 to .95, .60 to .88, and .83 to .96, respectively (Miller & Tonigan, 1996). These coefficients on the sample of the current study were .76, .71, and .85 for recognition, ambivalence, and taking steps, respectively.

2. Cognitive Appraisal of Risky Events (CARE) Questionnaire: This scale was designed by Fromme, Katz & Rivet (1997) to assess the outcome expectations of young adults about the risks and benefits of engaging in high-risk activities. This scale contains four 30-item subscales as follows: 1. Expected risks, 2. Expected benefits: They measure the likelihood of positive and negative consequences expected by the respondents in 30 high-risk activities on a 7-point Likert scale. 3. Expected involvement: It measures the likelihood of participants' engagement in any risky activity during the next 6 months. 4. Past frequency: It deals with the number of times that participants have become engaged in risky behavior in the past. It is noteworthy that either expected involvement or past frequency is usually used at any time. Exploratory and confirmatory factor analysis revealed that the questionnaire measures six domains, including stimulant drug use, aggressive and illegal behaviors, risky sexual activities, heavy drinking, high risk sports, and academic/work behaviors. Cronbach's alpha coefficients of these six subscales were obtained in the range of .64 (high-risk sports) to .88 (academic/work behaviors) (Fromme et al., 1997). In this study, the subscale expected risks was used and Cronbach's alpha coefficients of

components of the subscale were obtained in the range of .68 (risky sexual activities) to .93 (academic/work behaviors).

3. Personality Deviance Scale: This scale is a 36-item instrument that was developed by Bedford & Foulds (1978) and is widely in research domain and clinical applications. This scale assesses six deviant dimensions, namely hostile thoughts, denigration of others, lack of self-confidence, dependency, hostile acts, and dominance-submissiveness on a Likert scale from strongly disagree (1) to strongly agree (4). The internal consistency for the subscales of this test has been reported acceptable and Cronbach's alpha coefficients for the subscales ranged from .68 (hostile acts) to .80 (hostile thoughts) (Bedford & Deary, 2003).

### Results

**Table 1: Descriptive statistics and correlation coefficients of deviance personality traits, risk perception, and factors of treatment motivation**

<i>Variable</i>	<i>(SD) M</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	
<b>Hostile thoughts</b>	(4.54) 16.15	1	-	-	-	-	-	-	-	-	
<b>Denigration of others</b>	(4.54) 16.32	.57**	1	-	-	-	-	-	-	-	
<b>Lack of self-confidence</b>	(4.91) 14.26	-.03	-.20*	1	-	-	-	-	-	-	
<b>Dependency</b>	(4.71) 15.73	.44**	-	.66**	1	-	-	-	-	-	
<b>Hostile acts</b>	(3.71) 17.51	.41**	.42**	.10	.37**	1	-	-	-	-	
<b>Submissiveness</b>	(4.46) 16.12	.55**	.51**	-.10	.58**	.26*	1	-	-	-	
<b>Risk perception</b>	(39.19) 106.33	-.45**	-	-.38**	.25**	-.31**	-.16	.43**	1	-	
<b>Recognition</b>	(6.07) 22.51	-.51**	-	-.54**	.36**	-.37**	-.15	-.53**	.72*	1	
<b>Ambivalence</b>	(3.57) 13.31	-.46**	-	-.45**	.31**	-.33**	-.10	-.47**	.67*	.85	1
<b>Taking steps</b>	(7.32) 26.05	-.51**	-	-.47**	.34**	-.29	-.10	-.44**	.72*	.91	.88

\*\* P<.01; \* P<.05

The number of 129 subjects with the mean and standard deviation of 31.41 and 7.97 years participated in this study. Among this sample, the number of 101 participants (78.3%) was male and the number of 28 participants (21.7%) was female. In terms of education, the number of 11 participants (8.5%) had primary education, 47 participants (36.4%) had junior high school education, 53 participants (41.1%) had senior high school education, and 18 participants (14%) held bachelor's degrees. In terms of employment, 4 participants (3.1%) held government jobs, 68 participants (52.7%) were self-employed, 56 participants (43.4%) were unemployed, and one participant had not responded to this question. In terms of monthly income, 3 participants (2.3%) reported a monthly income lower than 100 dollars, 38 participants (29.5%) reported a monthly

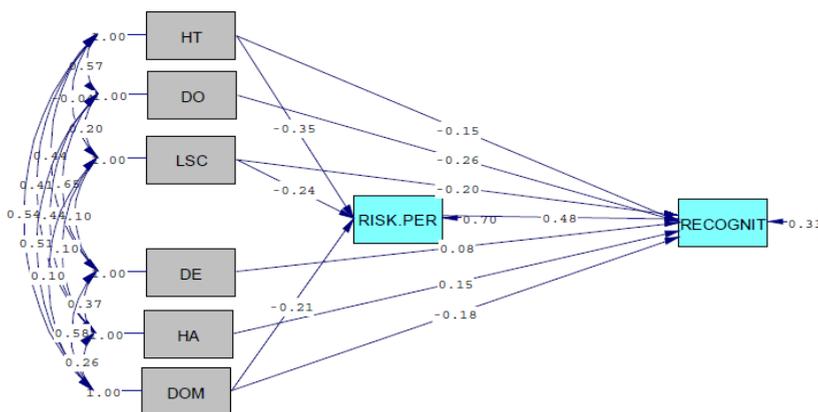
income between 100 and 180 dollars, 75 participants (58.1%) reported a monthly income between 180 and 330 dollars, and 13 participants (10.1%) reported a monthly income above 330 dollars. The number of 42 participants (32.6%) had history of previous drug abstinence while 87 participants (67.4%) did not report any history of previous drug abstinence.

The results of regression analysis pertaining to motivational factors based on deviance personality traits are presented below.

**Table 2: Results of regression analysis pertaining to motivational factors based on deviance personality traits**

<i>Criterion variables</i>	<i>Predictor variables</i>	<i>R<sup>2</sup></i>	<i>F</i>	<i>Sig.</i>	<i>B</i>	<i>SE B</i>	<i>β</i>	<i>t</i>	<i>Sig.</i>
Recognition	Hostile thoughts				-.43	.12	-.32	-3.55	.001
	Denigration of others				-.35	.13	-.26	-2.67	.009
	Lack of self-confidence	.53	21.81	.001	-.40	.08	-.32	-4.8	.001
	Dependency				.07	.12	.06	.65	.51
	Hostile acts				.35	.12	.22	3.00	.003
Ambivalence	Submissiveness				-.39	.12	-.29	-3.32	.001
	Hostile thoughts				-.28	.08	-.35	-3.59	.001
	Denigration of others				-.12	.09	-.15	-1.35	.17
	Lack of self-confidence	.44	14.91	.001	-.22	.05	-.30	-4.06	.001
	Dependency				.01	.07	.01	.07	.94
Taking steps	Hostile acts				.23	.08	.24	2.97	.004
	Submissiveness				-.20	.07	-.25	-2.65	.009
	Hostile thoughts				-.71	.15	-.44	-4.64	.001
	Denigration of others				-.32	.17	-.20	-1.89	.06
	Lack of self-confidence	.47	17.06	.001	-.51	.11	-.33	-4.59	.001
	Dependency				.11	.15	.07	.71	.47
	Hostile acts				.50	.15	.26	3.34	.001
	Submissiveness				-.28	.15	-.17	-1.83	.06

Results of the table above show that 53% of the recognition variance, 44% of the ambivalence variance, and 47% of the taking steps variance are accounted for by deviant personality traits. Results of regression coefficients also show that hostile thoughts, denigration of others, lack of self-confidence, and submissiveness reversely predict recognition while hostile acts directly anticipate recognition. Hostile thoughts, lack of self-confidence, and submissiveness reversely predict ambivalence while hostile acts directly predict ambivalence. In addition, hostile thoughts and lack of self-confidence reversely predict taking steps while hostile acts directly predict taking steps.



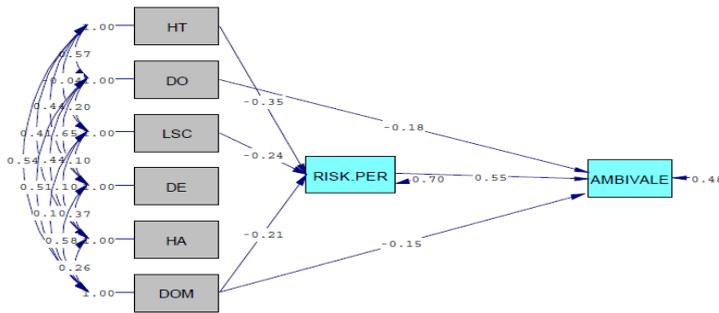
**Figure 1: Flow diagram of deviant personality traits and recognition: the mediating role of risk perception**

Figure 1 shows that hostile thoughts, denigration of others, lack of self-confidence and dominance have a direct negative impact on recognition; however, hostile acts have a direct effect on it. Moreover, the path model shows the three traits of hostile thoughts, lack of self-confidence, and dominance indirectly affect recognition via the mediation of risk perception.

**Table 3: Goodness of fit indexes for the path model of deviant personality traits and recognition: mediating role of risk perception**

<i>Goodness of fit indexes</i>	<i>Value</i>	<i>Acceptable level</i>	<i>Model status</i>
<b>Chi-square (significance level)</b>	(.78) 1.08	P<.05	Good fit
<b>Ratio of Chi-square to df</b>	.36	<3	Good fit
<b>GFI</b>	1	0 (no fit) to 1 (perfect fit)	Good fit
<b>AGFI</b>	.97	0 (no fit) to 1 (perfect fit)	Good fit
<b>RMSE (CI)</b>	.01 (0.0-.10)	<.08	Good fit
<b>NFI</b>	1	0 (no fit) to 1 (perfect fit)	Perfect fit
<b>NNFI</b>	1.03	>.90	Perfect fit
<b>CFI</b>	1	0 (no fit) to 1 (perfect fit)	Perfect fit

According to the different statistics pertaining to the goodness of fit indexes, the model enjoys a good fit and the theoretical model fits the observed data in the sample.



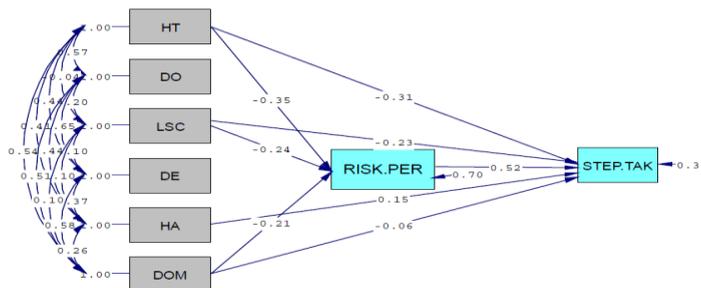
**Figure 2: Flow diagram of deviant personality traits and ambivalence: the mediating role of risk perception**

The above figure shows that denigration of others and dominance have a direct negative impact on ambivalence; however, hostile thoughts, lack of self-confidence, and dominance indirectly affect ambivalence via the mediation of risk perception.

**Table 4: Goodness of fit indexes for the path model of deviant personality traits and ambivalence: mediating role of risk perception**

<i>Goodness of fit indexes</i>	<i>Value</i>	<i>Acceptable level</i>	<i>Model status</i>
<b>Chi-square (significance level)</b>	12.35 (.08)	P<.05	Good fit
<b>Ratio of Chi-square to df</b>	1.76	<3	Good fit
<b>GFI</b>	.98	0 (no fit) to 1 (perfect fit)	Good fit
<b>AGFI</b>	.88	0 (no fit) to 1 (perfect fit)	Good fit
<b>RMSE (CI)</b>	.07 (0.0-.15)	<.08	Average fit
<b>NFI</b>	.98	0 (no fit) to 1 (perfect fit)	Good fit
<b>NNFI</b>	.95	>.90	Good fit
<b>CFI</b>	.99	0 (no fit) to 1 (perfect fit)	Good fit

As per the different statistics pertaining to the goodness of fit indexes, this model also enjoys a good fit and the theoretical model fits the observed data in the sample.



**Figure 3: Flow diagram of deviant personality traits and taking steps: the mediating role of risk perception**

The above figure shows that hostile thoughts and lack of self-confidence have a direct negative impact on taking steps, but hostile acts have a positive direct effect on taking steps. Moreover, hostile thoughts, lack of self-confidence, and dominance indirectly affect taking steps via the mediation of risk perception.

**Table 5: Goodness of fit indexes for the path model of deviant personality traits and taking steps: mediating role of risk perception**

<i>Goodness of fit indexes</i>	<i>Value</i>	<i>Acceptable level</i>	<i>Model status</i>
<b>Chi-square (significance level)</b>	7.55 (.18)	P<.05	Good fit
<b>Ratio of Chi-square to df</b>	1.51	<3	Good fit
<b>GFI</b>	.99	0 (no fit) to 1 (perfect fit)	Good fit
<b>AGFI</b>	.90	0 (no fit) to 1 (perfect fit)	Good fit
<b>RMSE (CI)</b>	.06 (0.0-.15)	<.08	Average fit
<b>NFI</b>	.99	0 (no fit) to 1 (perfect fit)	Good fit
<b>NNFI</b>	.97	>.90	Good fit
<b>CFI</b>	1	0 (no fit) to 1 (perfect fit)	Perfect fit

As per the different statistics pertaining to the goodness of fit indexes, this model also enjoys a good fit. This means that the theoretical model fits the observed data in the sample.

### **Discussion and Conclusion**

Over the past few years, although researchers and clinicians have paid increasing attention to the concept of motivation and its role in improving the problems associated with drug use, the important factors influencing it have not yet been studied. Therefore, the present study aimed to determine the direct and indirect effects of personality deviation traits on treatment motivation among drug-dependent individuals through the mediating role of risk perception. The results of this study showed that personality traits of hostile thoughts, denigration of others, lack of self-confidence, and dominance have a direct negative effect on recognition whereas hostile acts have a direct positive effect on recognition. These results, representing the relationship of deviant personality traits with substance use, are consistent with findings of the studies done by Jaff (2005), Mehrabizadeh Honarmand, et al. (2008), Parker et al. (2008), Embry, et al. (2009), and Pluddemann, et al. (2010). The common feature of these three traits, i.e. hostile thoughts, denigration of others, and domination is external punishment, which is characterized by projection of hostility to the outside environment. It seems that people with these personality traits disclaim any dysfunctional behaviors and are less likely to recognize the available difficulties in their behavior. In addition, lack of self-confidence is associated with low self-efficacy in control of behavioral consequences; therefore, it can be claimed that

it is followed by low motivation for treatment. Path analysis results showed that the three traits of hostile thoughts, lack of self-confidence, and dominance indirectly affect recognition with the mediation of risk perception. These findings, representing the association of personality traits with risk perception, are also consistent with those of the studies conducted by Vollrath (1999), Ulleberg & Rundmo (2003), Fyhri & Backer-Grondahl (2012), and Hosker-Field, et al. (2016). Risk perception is a cognitive assessment of the risks caused by situational factors or by one's own behavior. People with hostile and domineering thoughts are less worried about the consequences of their actions since they are impulsive actors.

On the other hand, in risky decision-making process, it has been suggested that the perceived risk assessment requires cognitive and emotional processing (Weber & Johnson, 2009). It can be argued that the weakness of this process in people with deviant personality traits may be associated with low engagement. In addition, drug dependent individuals with lower self-confidence assign negligible value to their abilities and, thereby, do not notice the behavioral consequences of their actions and show a higher level of risk-taking.

Results of the study also showed that denigration of others and domination have a direct negative effect on ambivalence. These results represent that various deviant personality traits are related with drug use and are consistent with the findings obtained by Jaffe (2005), Mehrabizadeh Honarmand, et al. (2008), Parker, et al. (2008), Embry, et al. (2009), and Pluddemann, et al. (2010). Ambivalence is a condition in which a person is exposed to opposing forces for action. Denigration of others and domination are negative factors in moving toward behavioral change. The results of this study also showed that hostile thoughts, lack of self-confidence, and domination have an indirect effect on ambivalence with the mediation of risk perception. These results are consistent with the findings of the studies done by Vollrath (1999), Ulleberg & Rundmo (2003), Fyhri & Backer-Grondahl (2012), and Hosker-Field, et al. (2016). Hostile thoughts, domination and lack of self-confidence can be considered as the inefficient defense mechanisms that occasion the sense of indecision and hesitation or indecisiveness and ambivalence.

Path analysis results also showed that personality traits of hostile thoughts and lack of self-confidence have a direct negative impact on taking steps, but hostile acts have a direct positive effect on taking steps. These results are also consistent with the findings of the research done by Jaff (2005), Mehrabizadeh Honarmand, et al. (2008), Parker, et al. (2008), Embry, et al. (2009), and Pluddemann, et al. (2010). People with a high score in taking steps usually do some activities to create positive changes in their behavior and may gain some achievements in this regard. It is noteworthy that any practical action for bringing successful changes requires optimism and efficacy in the continuation of treatment; therefore, one can argue that hostile thoughts and lack of self-confidence can be considered as the main obstacles in this process by increasing mental rumination.

However, since hostile acts represent the use of purposeful action and anger expression, they can be a positive factor towards taking steps through the reduction of rumination. Furthermore, emotional discharge of hostile thoughts can be another contributory factor. The results of the current study also showed that hostile thoughts, lack of self-confidence, and dominance indirectly affect taking steps via risk perception.

In line with the results obtained by Vollrath (1999), Ulleberg & Rundmo (2003), Fyhri & Backer-Grondahl (2012), and Hosker-Field, et al. (2016), it is possible to claim that these three personality traits negatively affect the assessment of cognitive behavioral outcomes of drug use. Hence, these traits can lead to poor risk perception of these behaviors and may be followed by poor taking steps in treatment. A second explanation for the interaction of deviant personality traits with taking steps can reduce concerns about morality in people with deviant personality traits, which is associated with lower risk perception (Glenn, Iyer, Graham, Koleva & Haidt, 2009).

The results of this study showed that deviant personality traits, especially hostile thoughts, lack of self-confidence, and dominance both directly and indirectly affect low risk perception and are associated with low motivation for treatment in drug-dependent individuals. The use of drug-dependent persons who referred to outpatient rehab centers and inability to control the type of the substance used were two major limitations of the present study. Therefore, it is recommended that future studies be done on the individuals dependent on some types of drugs who have not referred to detoxification centers. In addition, due to the variability of motivation for treatment among users of different drugs, it is recommended that similar studies be done on the users of only one drug. The results of this study suggest the importance of attention to deviant personality traits in treatment plans on drug dependent people. Moreover, the increased perception of such people of the risks of addictive behaviors is considered as an important factor in the enhancement of treatment motivation among them.

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