Brief Article

Comparative personality traits of temperament and character, psychopathology, and onset age of smoking in predicting opiate dependence

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Abstract

Introduction: According to drug gateway theory, smoking cigarette, especially, low onset age of smoking, is one of the risk factors for future use. The present study deals with comparison of nicotine addicts and opiate addicts in order to identify that what differences in personality traits and onset age of smoking exist in these two groups that cause some individuals to appeal to other substances after starting to use cigarette.

Methods: Two groups of opiate addicts and nicotine addicts were randomly selected. Revised version of Cloninger's Temperament Inventory Questionnaire, Fagrastrom's Nicotine Dependence and Maudsley's Addiction Profile were used. The study length was 10 month. ANOVA and logistic regression were applied for data analysis.

Results: Opiate addicts had higher scores in novelty seeking dimension and lower scores in cooperativeness (P= 0/001), compared to nicotine addicts. The onset age of smoking cigarette in opiate addicts was lower than nicotine addicts.

Conclusion: Low onset age of smoking cigarette, high novelty seeking and low cooperativeness in opiate dependents are among the important personality traits in future use of drugs that can predict the subsequent start of using opiate drugs.

Declaration of Interest: None.

Introduction

Drug abuse or dependence is derived from a set of factors including social and family issues, availability, and individual's disposition (1,2). Personality is another factor that may play an important role in preparation, acceleration, or survival of drug abuse or dependence behaviors. Personality disorders are highly observed among drug abusers both in clinical population (3, 4) and non-clinical population (5, 6, and 7). Moreover, personality is a significant clinical feature, which also affects smoking patterns and may influence the nicotine withdrawal syndrome expressions (representations) (8). The influential role of a number of personality traits in drug abuse and dependence has been proved. Transferring from regular smoking stage to dependence stage depends on factors such as personality disorders or psychiatric diseases (9). It has been recognized in numerous studies that in addition to personality traits, onset age of smoking is also one of the important predictor variables in future dependence to other illegal substances. Many studies have concluded that smoking is a risk factor among teenagers to be addicted to other drugs. Frequent use of cigarette is an introduction to consumption of illegal drugs. John Stone et al. (1987) reported that there is a significant link (relation) between smoking cigarette and use of other illegal drugs among high school students; so that the use of illegal

drugs in smokers who smoked daily was much higher than non-smokers (10). Findings of several studies indicate that 98% of hashish users, before starting to use hashish, had used to smoke tobacco, and onset age of using hashish in these individuals has been lower than the starting age of hashish consumption (11). Individual traits such as (genetic preparedness and personality traits) or environmental factors (like drug availability or peer influence) and lower age of starting to smoke are among the strong predictor factors in future dependence that can explain sequence of starting from one drug to another (12). This study established that whether personality characteristics and the age of starting to smoke can predict opiate dependence.

Methods

The present research aims at investigating the personality traits and onset age of smoking cigarette as predictor variables in future use of illegal drugs. This study was a causal-comparative study performed on 45 male nicotine addicts and 45 male opiate dependent individuals. All of them were aware of the aim of study and the results were provided to them. Using random sampling, the researchers went to a smoking cession center in Qazvin and then, individuals who had been recognized to be nicotine dependent, according to Fagstrome's Questionnaire and diagnosis of the physician in that center, were selected. These individuals had passed six months of their treatments in this center and they did not display smoking withdrawal symptoms. The inclusion criteria were lack of severe psychiatric disorders and non-dependence on different types of drugs. Cloninger's temperament and character questionnaire was conducted. Also, the onset age of smoking in these individuals was recorded. Additionally, the researchers randomly went to four treatment centers for drug abuse and dependence in the city of Qazvin and individuals who had been recognized to be drug dependents according to Maudsley's Addiction Profile and physicians'

diagnosis were selected. These individuals had passed six months of their treatments and they did not display any drug withdrawal symptoms. The inclusion criteria were smoking, lack of severe psychiatric disorders and non-dependence on different types of drugs. Cloninger's Temperament and Character Questionnaire was conducted. Moreover, the onset age of smoking cigarette in these individuals was recorded. At the beginning of the sampling process, in both groups, individuals who were qualified to participate in the groups were given a structured interview. Data were analyzed using SPSS 16 software, ANOVA and multivariate regression tests.

Cloninger's Temperament and Character Inventory: This 250-item questionnaire includes two dimensions of temperament and character. Temperament is consisted of novelty seeking, harm avoidance, reward dependence, and persistence; and character dimension includes self-directedness, cooperativeness, and self-transcendence. The internal reliability of this test has been reported to be between 0.80 and 0.89 (13). The internal reliability of the revised version, translated by Ayati, Chemikar, and Pourshahbaz, is 0.82 (14).

Fagerstrom's Nicotine Dependence Questionnaire: This 60-item questionnaire is applied in order to be aware of therapeutic results including four areas: 1. drug use, 2. physical health, 3. mental health, and 4. high-risk behavior. The internal correlation coefficient of this questionnaire is higher than 0.75and its reliability has been reported to be between 0.65 and 0.74 (17).

Madsely Addiction Profile: is a short inventory for diagnosis addiction in four realm: 1. using substance, 2. physical health, 3. mental health and 4. high risk behavior. Its reliability is between. 0.65 to 0.74 (17).

Results

Both groups were homogeneous in terms of their variables. In education variable, a significant inter-group difference was observed. The opiate-dependent group was lower than nicotine-

dependent group. Age-related data is presented in table (1).

Table 1. Statistical Indicator of Subjects' Age

Group	Age statistical indicator	
	Mean	SD
Opiate addicts	35.97	7.24
Nicotine addicts	39.02	6.22
Ordinary population	37.06	8.31

In table 2, statistics related to the comparison of seven personal traits in two groups.

Its dimensions between the two groups are presented. As it can be seen, there is a significant difference between two groups. It means that novelty seeking in dependents of opiate drugs is higher than dependents of nicotine (P=0/001). Also, there is a significant difference in cooperativeness dimension between these two groups. Cooperativeness of opiate addicts is lower than nicotine addicts.

Table 2. Comparison of Personality Traits in Two Groups

Variable / Group	Opiate dependence Mean (SD)	Nicotine dependence Mean (SD)	F
Novelty seeking	86.08 (8.51)	79.33 (7.17)	0.000
Harm avoidance	82.15 (6.11)	79.97 (6.53)	0.28
Reward dependence	75.55 (6.47)	76.13 (7.82)	0.48
Persistence	1.04 (10.43)	1.07 (11.16)	0.52
Self-directedness	91.42 (8.39)	89.73 (12.24)	0.54
Cooperativeness	87.46 (6.52)	97.06 (6.48)	0.000
Self-transcendence	74.33 (8.91)	76.88 (8.69)	0.37

The obtained results indicated that the mean of smoking onset in dependents of opiate drugs was lower than dependents of nicotine.

Table 3 demonstrates the t-test results for the variable of onset age of smoking.

Table 3. Comparison of Two Groups in Terms of Onset Age of Smoking Cigarette

Variable	Opiate drugs M (SD)	Cigarette M (SD)	df	T	P
Onset age of smoking cigarette	17.68 (3.80)	24.88 (4.31)	86.31	-8.40	0.000

The obtained results indicate the significance of logistic regression in variables of onset age of smoking cigarette, education, personality traits in predicting the dependence on opiate substances (table 4).

According to the table, low onset age of smoking cigarette, lower education level, along with lower scores in self-directedness and cooperativeness traits, predict future dependence on opiate substances.

Table 4. predicting opiate dependence with variables

Personality traits	B	SD	Level	Exp (B)
Age	0.18	0.10	0.07	1.20
Marital status	-0.09	1.24	0.93	0.90
Education level	1.12	0.41	0.000	3.06
Onset age of smoking cigarette	0.42	0.14	0.000	1.52
Novelty seeking	-0.24	0.15	0.11	0.78
Harm avoidance	-0.01	0.11	0.88	0.98
Reward dependence	-0.02	0.08	0.79	0.97
Persistence	0.000	0.09	0.99	1.00
Self-directedness	0.13	0.07	0.04	0.87
Cooperativeness	0.44	018	0.01	1.55
Self-transcendence	-0.01	0.09	0.89	0.98

Conclusion

Results indicated that in the dimensions of novelty seeking and cooperativeness, there was a significance difference between two groups. Novelty seeking reflected a hereditary orientation in onset or activation of novelty seeking response, approach to reward cues, active avoidance of conditioned punishment cues, and unconditioned punishment escape. This dimension is observed as an exploratory activity in responding to novelty, impulsivity, exaggeration in approaching to reward cues, indulgence and disorder, fatigue and quick fed up, and active avoidance of failure. Different neural moderators are involved in temperament dimensions. The neural moderator of novelty seeking is dopamine, which is an incentive neural moderator. Behavioral responses, which are sent after novelty seeking, include exploratory pursuit, voracity, active avoidance, and escape. Therefore, opiate addicts have traits such as indulgence in approach to reward cues, impulsivity, novelty seeking and pursuit of reward cues that distinguish them from other two groups. Many of these traits cause an individual to go towards activities in which the person looks for reward cues, seeks novelty, and acts impulsively. Impulsivity is one of the key traits of this dimension. In other research, also, novelty-seeking dimension in drug addicts is higher than ordinary population, and in some studies, it has been higher than alcohol addicts (19, 20, 8, 21, 22).

Thus, findings of this research can be explained as follows that, opiate dependent individuals have traits such as indulgence in approach to reward cues, impulsivity, novelty seeking, and pursuit of reward cues that differentiate them from the other two groups. Drug, itself, is a very strong incentive reward and affects the reward system of the brain. Drug dependent individuals use drugs in order to supply the dopamine for their limbic system, which is the reward system of brain, (18). Also, these people display behaviors such as exploratory pursuits of drugs, active avoidance of withdrawal cues (including pain, and unpleasant physical and mental states), and voracity. Voracity is one of the important factors in drug abuse, staying in withdrawal,

and failure to return. Voracity is high in drug addicts and high voracity has a negative correlation with successful withdrawal. This dimension of personality traits in our research is in accordance with many of the previous studies in this area such as results gained by Ball et al. (2008), Gabel et al. (2009), Libon et al. (2009), Everion et al. (2010), and Harrow et al. (2008) (19,20, 8, 21, 22).

Also, cooperativeness dimension in opiate dependent inpatients was significantly lower than the other two groups. Individuals with higher degrees of this dimension consider themselves as an inseparable member of the human society and are generally sympathetic patient, compassionate, merciful, and supportive, and adhere to principles and rules. People with low cooperativeness are self-attracted, impatient and intolerant, critical, avenger, and opportunistic. These individuals do not usually assist others, and in every situation, first think about themselves. Also, they intend to be inattentive about other people's emotions and right. It seems natural that opiate addicts are lower in cooperativeness dimension. These people are intolerant, do not adhere to principles and rules, and are inattentive to others' emotions and rights (21, 22).

Difference of nicotine addicts and ordinary population with opiate dependent individuals in this dimension relates to supportiveness, adherence to rules and principles, participation in group works, compassion, kindness, and patience. This finding is in agreement with the findings of many previous studies such as Evrin et al. (2010) and Herrow et al. (2008) (21, 22).

High novelty seeking and low cooperativeness in drug dependent people are two distinguishing features. Evrin et al. (2010) argued that high novelty seeking is one of the distinguishing features in category B of personality disorders, namely, the same category in which anti-social personality disorder is placed; therefore, drug dependent individuals with higher novelty seeking may have symptoms of anti-social personality disorder. Libon et al. (2009) found that heroin abusers' (an opiate substance) personality profile indicate more anti-social personality traits compared to alcohol addicts. Evrin et al. (2010) also have pointed out that reward dependence is one of the characteristics

of category A, high reward novelty seeking is one of the characteristics of category B, and high harm avoidance is one of the characteristics related to category C of personality disorders (21).

Moreover, results showed that low onset age of smoking cigarette, lower education, and low cooperativeness and self-directedness dimensions predicted future use of opiate drugs after onset of smoking cigarette. In research performed on the onset of drug use, Chen et al. (2002) identified that low onset age of smoking is one of the predisposing factors for future drug use. This implies that the lower the onset age of smoking, the more probable that the person refers to using other illegal drugs (23). Studies indicated that cigarette could be the gateway drug for other substances including alcohol. Might et al. (2010) reported that the average onset age of smoking in their research samples was 13.4 (13.3 for boys, 13.5 for girls), the mean (average) onset age of using alcohol was 15.1 (15.0 for boys, 15.2 for girls). It implies the lower age mean in smokers. Experiencing tobacco before starting to use hashish has been occurred in 98% of hashish users (12). Guxens et al. (2007) indicated that tobacco and alcohol use precede use of hashish and the performed meta-analyses show that it is 1.7 to 2.6 times more likely that tobacco and alcohol consumers use hashish (11). Therefore, the results obtained from the present research are in accordance with other studies indicating that lower onset age of smoking is a predisposing factor for future use of other drugs. Also, it is natural that when self-directedness traits are cases such as responsibility, purposefulness, trouble-shooting, self-acceptance, and adapting to society's norms, then this dimension can play an effective role in predicting drug dependence. Self-directedness is, to some extent, a component of a coherent (integrated) ego that enables individuals to be able to delay satisfying their needs, be self-accepted, purposeful, and responsible. Low cooperativeness dimension in the present research is another predicting factor of drug dependence. As it was mentioned in previous sections, cases such as empathy, sympathy, usefulness, and having a clean heart, are among cooperativeness traits. Therefore, cooperativeness can also be another component of an integrated (coherent) ego, it means that an individual can

consider norms of the society, be socially useful, and have empathy and a clean heart. In general, three dimensions of self-directedness, cooperativeness, and self-transcendence can be, to some extent, reflective of an individual's integrated (coherent) ego and degree of sophistication (maturation). Then, it can be explained that low character dimensions in opiate addicts (that were low in all three dimensions in this research) can indicate ego incoherence and non-sophistication (immaturity) (24).

Evren, and Erican (2007) in their research, concluded that high novelty seeking and low cooperativeness along with low onset age of smoking cigarette predict drug dependence. In their study, subscales predicting drug dependence were more reasonable than low age, lower scores in subscales of sympathy and compassion vs. malice and usefulness, and higher scores in subscale of spiritual acceptance vs. materialism (24).

Therefore, low self-directedness and cooperativeness; low onset age of smoking cigarette and low education can predict drug dependence (24).

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