



Predicting Addiction Susceptibility Based on Big Five Personality Traits

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Abstract

Background: Addiction is one of the most prominent problems and the fourth leading crisis worldwide. In Iran, this issue is more complicated because of increasing young population in this country.

Objectives: This study aimed to predict addiction susceptibility regarding students' personality traits at Qazvin universities.

Methods: In this cross-sectional study, 227 students from Qazvin universities were selected using the multistage random stratified sampling method. Data collection tools were demographic information form, Addiction Susceptibility questionnaire (ASQ), and NEO personality inventory. After collecting the required data, SPSS software version 21 was used to analyze the data by running variance analysis and paired sample *t*-test.

Results: In this study, neuroticism ($P = 0.031$) and openness ($P = 0.043$) with regression coefficients of 0.584 and 0.586 had positive and significant effects on addiction susceptibility, respectively. In contrast, extraversion ($P = 0.023$), agreeableness ($P = 0.038$), and consciousness ($P < 0.001$) with regression coefficients of -0.639, -0.186, and -1.342 had negative and significant effects on addiction susceptibility, respectively.

Conclusions: The findings revealed a significant relationship between personality traits and addiction susceptibility. Accordingly, the aforementioned psychological traits must be empathized in educational, preventive, and therapeutic programs so that the vulnerable groups, including students, would receive some help.

Keywords: Addiction Susceptibility, Personality Traits, Students

1. Background

Previous studies indicate that drug dependence has remained as one of Iran's most critical public health problems (1), which is associated with multiple problems such as poor mental health, personality disorders, anxiety, and impaired social functioning (2). Accordingly, this major health issue demands intensive and comprehensive psychological treatments, for which drug treatment services can be easily delivered in the community (3, 4).

According to the data issued by the United Nations Office on Drugs and Crime (UNODC), addiction is the fourth crisis after environmental degradation, atomic bomb, and poverty (4). According to this organization's latest report published in 2017, above 400 million persons are addicted, accounting for 5% of the world population. Two third of consumers are male, and the others are female. Of 400 million persons, 200000 persons, who are mainly from Asia, die from the consumption of drugs, especially

opium. Moreover, according to this report, Afghanistan encompasses the highest rate of substance consumption (2.065%). Russia and Ukraine is the second and third consumers, and unfortunately, Iran is the fourth one with the consumption rate of 1.13% (5). According to the latest report issued by Iran's Drug Control Headquarter in 2017, about 2808000 persons in Iran are substance addicts, the rate reported in which has been doubled compared to the last survey in 2011. Accordingly, individuals aged 15 - 64 years old account for the largest proportion of substance consumers (65%). In 2016, 3190 substance abusers passed away, revealing a 6.2-percent increase compared to the year before (6).

Young adults seem to be more exposed to addiction than the other age groups (7). According to the census from Drug Control Headquarter, 5.6% of addicts consumed drugs for the first time when they were 15 years old, and the mean age in the first experience of drug abuse is 19 -

21 years old, i.e., the critical period (8). Students form a remarkable proportion of the young population (about 4 million) (9). There are inconsistent statistical reports on the prevalence of addiction among students; however, its prevalence rate is estimated to be 2% - 10% on average, including 2.6% of students from Science Ministry Universities and 1.6% of students from Medical universities (10). Personality traits are one of the main factors affecting addiction and a potential predictor of addiction disorder (11). Personality is defined as a collection of behaviors and attitudes in daily life, which is attributed to uniqueness, stability, and predictability (12). Different models have illustrated the structure of personality, one of which is the five-factor model (FFM), addressing neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (13).

Personality traits are considered as the main dimension of individual differences and a critical factor in improving patients' knowledge and the environment where the addictive behaviors are manifested (14). Temperament dimensions seem to be the most significant biological part of personality and play a critical role in exhibiting addictive behaviors; hence, personality traits are the main predictors of substance abuse behaviors (15). Young individuals account for above one-fourth of the population. Given such a young population structure and conditions under which the young consume substances, it is of paramount importance to preserve such a national capital. To this end, researching addiction and factors affecting addiction susceptibility among this age group is urgent.

2. Objectives

Many studies have documented the effect of personality traits on addiction in various groups of individuals at different age groups with different socioeconomic and cultural status. However, there is no comprehensive study addressing personality dimensions and the association between personality traits and addiction susceptibility among students. Accordingly, the present study sought to predict addiction susceptibility based on the personality traits of students from Medical universities.

3. Methods

This cross-sectional study aimed to predict addiction susceptibility based on the big-five personality traits of students. The study population included all students of Qazvin universities, and the sample size included 227 undergraduate students of Qazvin universities in the academic year 2017 - 2018. After receiving permission from

the Ethics Committee at the Qazvin University of Medical Sciences, the researcher referred to the concerned universities, introduced himself to the lecturers of relevant courses, explained the research objectives and procedures, ensured them of information confidentiality, and asked for their cooperation in the research. In this study, inclusion criteria were willingness to participate in the study and passing at least one university semester. The stratified sampling method was used to select the participants. To this end, the Qazvin universities were first classified into four groups (namely Azad Universities, Imam Khomeini International University, Universities of Medical Sciences, and non-profit institutes). Non-profit institutes encompass three layers, including Daralfonoon, Mahram, and Allame Qazvini. According to statistical estimations, the sample size was determined to be 180; however, it was increased by 227 persons with regard to the 20% attrition rate. The samples were randomly selected in each stratum. After receiving the consent forms, the participants filled out the questionnaires. Data collection tools were demographic data forms, Addiction Susceptibility questionnaire (ASQ), and NEO Personality inventory.

3.1. Addiction Susceptibility Questionnaire (ASQ)

This questionnaire was developed by Weed and Butcher (1992). It consists of two factors, namely active readiness and passive readiness, including 36 items plus five lie detectors. Active readiness refers to antisocial behaviors, the tendency to substance abuse, and optimistic attitudes towards the substance, depression, and sensation seeking. On the other hand, passive readiness is associated with the lack of self-expression and depression. The questions are scored based on a four-point Likert scale, ranging from 0 (strongly disagree) to 3 (strongly agree). To calculate the total score of the questionnaire, the total scores of each single item (except for the polygraph scale) must be summed up. The minimum and maximum of this questionnaire are 0 and 144, respectively, with larger scores indicating the respondents' readiness for addiction and vice versa (16). The reliability of the questionnaire was estimated by Cronbach's alpha coefficient to be 90%, and its criterion and construct validity were estimated to be acceptable (17).

3.2. NEO Personality Inventory

This inventory is one of the most comprehensive personality evaluation tests developed by McCrae and Costa (1985). The long-form of this inventory consists of 240 items, each of which, in the form of six eight-item subscales, separately evaluates Big five personality traits. The items are scored based on a five-point Likert scale, ranging from strongly disagree (= 0) to agree strongly (= 4) (18).

Moreover, the short form of this inventory is used to evaluate the five main factors of personality, including neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. In this inventory, the score of each factor is equal to the sum of the scores for items addressing a specific factor. The minimum and maximum scores of each personality factor are 0 and 48, respectively (18). In normalizing the short form of the NEO inventory by Garoosi Farshi, Mahyar, and Ghazi Tabatabaei (2001) among 2000 students from Tabriz and Shiraz universities, and universities of medical sciences in both cities, the correlation coefficient of main five dimensions was reported to be 0.56 - 0.87. Moreover, Cronbach's Alpha coefficients for each of these main factors (namely neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness) were 0.86, 0.73, 0.56, 0.68, and 0.87, respectively (19). In another study by Ziapour et al. (20), the correlation coefficient of the main five dimensions was estimated to be 0.71 and 0.83, respectively.

The researcher was present when the participants were filling in the questionnaires to answer their probable questions. Given that there were three questionnaires, the participants were asked to fill in the questionnaires in two parts, having a 30-minute break. The sampling procedure continued as long as the concerned number was met. Finally, the researchers acknowledged the university authorities and samples. After collecting the required data, SPSS software version 21 was used to analyze the data by running variance analysis and paired sample *t*-test.

4. Results

Among 227 students from the Qazvin universities, there were 109 males (48.0%), 199 single (87.7%), 145 native (63.9%), 148 religious (65.2%), and 111 (48.9%) Azad University students (Table 1).

The multiple regression model was used to examine factors affecting addiction susceptibility (Table 2). A simple linear regression was used to screen the efficient variables with < 0.15 probability during the data modeling process. Finally, the variables selected by multiple regression were fitted to detect factors affecting addiction susceptibility. The results of fitting multiple regression revealed generally significant fit values ($F = 133.18$; $P < 0.001$). On the other hand, there was an acceptable relationship between independent and dependent variables. Moreover, in this model, neuroticism ($P = 0.031$), extraversion ($P = 0.023$), openness to experience ($P = 0.043$), agreeableness ($P = 0.038$), and conscientiousness ($P < 0.001$) had a significant effect on addiction susceptibility. The parameters were interpreted based on the regression coefficients. For example, the regression coefficient of neuroticism was

Table 1. Frequency Distribution of Background Traits Among Students From Qazvin Universities

Background trait	Absolute Frequency	Relative Frequency
Gender		
Male	109	48.0
Female	118	52.0
Marital Status		
Married	199	87.6
Single	82	12.4
Residence status		
Native	145	63.9
Non-native	82	36.1
Religious belief		
A little	44	19.4
Moderate	148	65.2
A lot	35	15.4
University		
Medical sciences	17	7.5
Payame Noor	32	14.1
Azad	111	48.9
International	59	26.0
Non-profit	5	2.2
Applied science	3	1.3

0.568, suggesting that for each one-unit increase in neuroticism, there was a 0.568-unit increase in addiction susceptibility. Moreover, there was a 0.639-unit decrease in addiction susceptibility for each one-unit increase in extraversion. For each one-unit increase in openness to experience, there was a 0.584-unit increase in addiction susceptibility. Furthermore, for each one-unit increase in agreeableness, there was a 0.186-unit decrease in addiction susceptibility. Finally, there was a 1.342-unit decrease in addiction susceptibility for each one-unit increase in conscientiousness.

5. Discussion

Addiction is one of the main socioeconomic problems worldwide; hence, this issue and factors affecting this problem should be addressed. In this study, the multiple regression model fitted the data, and the variables, namely neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness exhibited a significant effect on addiction susceptibility.

In the present study, neuroticism affected addiction susceptibility; the neurotic patients are highly depressed,

Table 2. Results of Multiple Regression Model in Examining Factors Affecting Addiction Susceptibility

Parameter	Non-Standard Coefficients		Standard Coefficients B	Sample Statistic t	Probability	Confidence Level 95%	
	Regression coefficient	Standard Error				Low limit	Low limit
y-intercept	77.213	15.791		4.890	0.000	46.092	108.333
Neuroticism	0.586	0.270	0.138	2.172	0.031	0.054	1.117
Extraversion	-0.639	0.280	-0.154	-2.287	0.023	-1.190	-0.888
Openness to experiences	0.587	0.288	0.119	2.037	0.043	0.019	1.156
Agreeableness	0.186	0.349	-0.035	-0.531	0.38	-0.874	0.503
Conscientiousness	1.342	0.232	-0.383	-5.774	0.000	-1.801	-0.884

stressful, and aggressive. They are also impulsive and incredibly hostile in their communications and use emotion-based conflict styles. Accordingly, the neurotic individuals are more susceptible to substance abuse. This finding is consistent with those reported by Homayouni (21), Farnia et al. (22), Soleimani et al. (23), Dordinejad and Shiran (24), Bogg and Roberts (25), Harley et al. (26), and van Dam (27). These researchers also mentioned that neurotic patients are supremely anxious, aggressive, and stressful and usually feel lonely and abandoned. These patients are highly likely to be inclined to addiction, aggression, and isolation in adverse situations. Moreover, they exhibit many impulsive behaviors and are far more likely to be inclined to substance abuse under negatively emotional conditions. In the present study, extraversion affected addiction susceptibility. The extravert individuals are less likely to be inclined to substance abuse because of their sociability, friends, intimacy with others, and collectivism. Aliakbarzadeh et al. (28) also noted that the extrovert are happy, energetic, and sociable. They have facilitated interactions with others and outperform their tasks. Moreover, they honestly enjoy spending time with others. The low scores of this dimension are associated with risky behaviors such as substance abuse. This finding is consistent with the findings of the present study. In contrast, in Merenakk's et al. study (29), the relationship between extraversion and addiction susceptibility was positive and significant.

In the present study, the effect of openness to experiences on addiction susceptibility was significant. This finding is in line with Homayouni's study (21) and in contrast with Dordinejad and Shiran's study (24). The finding can be explained as the individuals with openness trait are highly imaginative. They tend to accept and revise the political-religious values and are not traditionalist. Open individuals welcome new ideas and unconventional values; hence, their inclination to drug abuse is not far beyond the expectation as they are eager to experience new things. In this study, the effect of agreeableness on addiction susceptibility was significant; the agreeable individuals trust in

others, don't consider themselves as an exception, and understand others, arousing sociability among them. They are generous, modest, and sympathetic and prioritize others. The finding was consistent with those reported by Homayouni (21) and Dordinejad and Shiran (24).

Similarly, in their studies, Oladi et al., Homayouni (21), and Kornor et al. (30) revealed that conscientiousness is significantly associated with addiction susceptibility. Although they mention that highly conscientious individuals tend to be more moral and responsible, lower scores of this scale are associated with risky behaviors such as substance abuse.

In the present study, all hypotheses were confirmed, and the findings suggested a significant relationship between personality traits and addiction susceptibility. Accordingly, the psychological traits must be emphasized in educational, preventive, and therapeutic programs so that the vulnerable groups of society, especially students, would be helped. Accordingly, interventional and preventive plans based on personality traits can decrease students' inclination to drug consumption.

One of the limitations of this study was using self-reporting tools as such bias is likely. For example, some individuals may represent themselves better than what they really are or cannot predict the self-assessment tools. Another limitation in this study was disregarding the family and socioeconomic status, each of which has a significant effect on drug abuse. Finally, given the role of personality traits in students' inclination to drugs, the counseling centers for students are suggested to identify and supervise those with specific traits such as neuroticism. Furthermore, they should provide the required training for improving their status. It is also recommended to make students more self-aware of addiction consequences and put them under indirect supervision. Moreover, future researchers can examine different communities and larger samples.

Footnotes

Authors' Contribution: RZ, MH, NV, and SS designed the study. MH gathered data. RZ, MH, and SS analyzed the data. RZ and NM supervised all the study procedure. RZ and MH wrote the first draft of the manuscript.

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