



Examination of the Relationship Between Severity of Addiction and Personality: The Mediating Effect of Social Alienation and Emotional, Cognitive Regulation

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Abstract

Background: The current research investigated the mediating roles of social alienation and emotional and cognitive regulation in the relation between personality and severity of substance abuse in students. This study is a descriptive-correlational research design.

Objectives: This study, used a structural equation modeling (SEM) approach to evaluate the correlates of the severity of the addiction. This path analytical strategy allowed for the simultaneous examination of the mentioned variables.

Methods: The sample of this study included all students in Tehran province (the academic year of 2022). Five hundred fifty students took part in the current research. NEO-PI-R, social alienation, and the Severity of Dependence Scale (SDS) were used. Data analysis was done using descriptive statistics, correlation analysis, and structural equation modeling.

Results: Considering that the model fit indices represent a good fit of the model and the mean root square of the estimation error (RMSEA) was equal to 0.029, which shows a very good fit, and according to the presented indicators, the research model is confirmed. The results indicate that the relationship between variables is significant (P value 0.05). The direct effect of personality on the severity of addiction and social isolation is equal to -0.68 and -0.73, respectively, and in terms of cognitive emotion regulation is estimated to be 0.85. The indirect effect of personality on addiction severity was calculated at 0.86 by social alienation and -0.79 by emotional cognition.

Conclusions: Our results suggest that personality features mediated by social alienation and emotional and cognitive regulation can be used to predict the severity of the addiction. Therefore, the proposed model was cleared to be an appropriate model for predicting substance abuse in students.

Keywords: Addiction, Emotion Cognitive Regulation, Social Alienation, Personality

1. Background

Addiction is a neuropsychological disorder characterized by the persistent use of a drug, despite substantial harm and other negative consequences (1). As a social issue, addiction among students has attracted researchers' attention in recent years (2). Students with addiction symptoms in clinical reports acknowledge the role of social and psychological factors in the severity of addiction (3, 4). Noticeably, university and its unique life are very important in the career development and future of students due to the conditions of the educational performance. Addiction, in all its broad dimensions, is associated with certain personality traits. Personality traits can predict the severity of students' addictions (5-7). In substance abuse, it

is universally believed that the addictive personality does not exist, and no personality type is more likely to be involved with substance abuse. Addiction involvement depends on some underlying elements: Biological, social, familial, and psychological. Noticeably, none of these elements could be the unique determinant of addiction. It is worth mentioning that it is of interest to review recent data on the connection between personality characteristics and substance abuse. No unique personality disorder emerged using the DSM and ICD categorical systems; instead, a variety of personality disorders have been assessed in addicted people.

There is good support for the idea that some personality traits, such as the sensation seeker character, are vulner-

able to addiction (7). It is believed that substance abuse, so-called, refers to a psychological resource model. It means substance abuse habits are obtained because they provide a functional performance for addicted people, and the essence of the performances they fulfill is connected to the personality traits of the 'substance abuser.' In some people, this resource function spreads into a form of substance abuse, and it is recommended that the reason is connected to uncontrolled dopamine activity. This issue, in turn, is applied to recommend the essence of the substance abuser's character (5, 8). The accurate causes for the dependent results of dopamine are still being discussed, but obviously, there is a direct effect connecting personality and biological effects in the development of dependent behavior (5, 9-11). In addition to neuroticism, some personality trait, such as extroversion, has been consistently linked to addiction (12-14). No prior study has examined the relationship between neuroticism and addiction severity.

Historically, difficulty in regulating emotions is one of the important elements that has received great attention (15, 16). So far, other researchers have cleared that social alienation plays a considerable role as a moderator variable for any substance abuse (1, 17, 18). Park (17) showed that addiction and social alienation presented a significantly positive relation. Other studies by multiple regression analysis also reported that social alienation was an important independent variable for social networking services and substance abuse (17). Moreover, isolation has been demonstrated to be a mediating variable between attachment style and substance abuse (18).

Essentially, the model of difficulty regulating emotions is applied in a wide field, including difficulty recognizing and expressing emotions, emotional regulation, and behavior (19, 20).

Social, emotional, and behavioral disorders have considerable consequences for students' lives, education, and psychological well-being. One of the major features of emotional development is emotion regulation. Emotion regulation is a principal element in developing and continuing social, emotional, and behavioral disorders (21). The limited proportion of emotional regulation that is caused by the incapacity to deal productively with emotions and management contributes to the beginning of substance abuse (22, 23). Authors have clarified that difficulty regulating emotions could predict high-risk behaviors such as substance abuse and sexual behavior (24, 25). Students with greater self-regulation ability participate in social behaviors (4) and tend less to engage in high-risk behaviors such as sexual behaviors, addiction (26), and alcohol consumption (27). Therefore, self-regulation is a key part of the appropriate psychological function (28). It is assumed that social alienation in addicted people will grow more,

and the lack of constructive interactions in addicted people will provide the ground for deepening addiction. Feelings of loneliness and lack of supportive family and friends have been reported in addicts as a predisposing factor to the onset or exacerbation of addiction (6).

Nowadays, some authors investigate the simple relationship among mentioned variables. It seems assessment of intermediate variables can be effective in developing novel insights in the presented areas.

2. Objectives

This study, used a structural equation modeling (SEM) approach to evaluate the correlates of the severity of the addiction. This path analytical strategy allowed for the simultaneous examination of the mentioned variables. We hypothesized that personality traits predict the severity of the addiction. And that these relationships would be mediated by social alienation and emotional and cognitive regulation. Therefore, the conceptual model of the current study is presented in Figure 1.

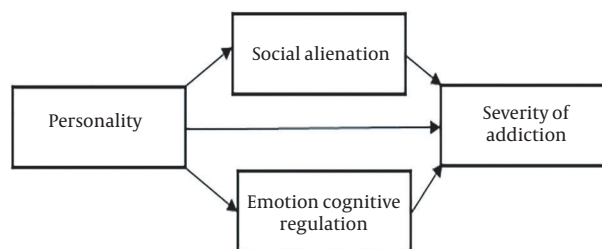


Figure 1. Conceptual model of research

3. Methods

3.1. Participants

This study is a descriptive-correlational research design. The sample of this study included all students in Tehran province (the academic year of 2022). The data collection process lasted from January to March 2022. Totally 570 individuals were selected by random cluster sampling. All of them used some kind of substance on a regular basis. The statistical method of SEM is largely analogous to some dimensions of multivariate regression analysis, so you can use the factors for calculating the sample size in multivariate regression analysis. So, 10 to 20 samples for each measured variable were considered (29). Therefore, there are 5 measured variables (and subscales) in the proposed model; the appropriate sample size is up to 200 samples. Also, since some authors believe that the minimum

required sample size in SEM is 200 to 400 (30), in this study, considering the possibility of dropping the samples, at least 570 students completed the scales. After removing missing data, 550 questionnaires were entered into the analysis. Fortunately, the number of uncompleted questionnaires was small, and the missing data was very small. In order to address potential sources of bias, participants were matched in terms of age, educational background, geographical location, and cultural-economic conditions. Eligibility criteria included being a student who ranged in age from 18 to 33 years and was familiar with the purpose of the research.

3.2. Procedures

The authors acquired consent from the developers and translators by email to conduct the below questionnaires. The participants were university students from Tehran. Data gathering lasted from January 1st to February 16th, 2022. Ethically, students were instructed on the research aim, the take part phases, the risks and advantages of the study, confidentiality, and the right to leave the research at any phase.

3.3. Data Analysis

The gathered data were investigated using SPSS 21.0 (IBM Corp., Armonk, NY, USA) and AMOS 21.0 (IBM Corp, Armonk, NY, USA). In order to evaluate the features of the sample and the main elements, descriptive statistics were applied. Moreover, the Pearson correlation was applied to assess the relationship between the latent variables. For assessing the fitness of the proposed model, χ^2 , root mean square error of approximation (RMSEA), the Goodness of Fit Index (GFI), the comparative fit index (CFI), the normal fit index (NFI), and the Tucker Lewis index (TLI) were applied.

3.4. Measures

3.4.1. NEO

Well-known authors Costa and McCrae provided a revised manuscript of 240 items (NEO-PI-R) (31). Also, their team constructed a brief version of this modified scale (named NEO-FFI as well). The reliability was calculated between 0.68 and 0.86 in some previous studies (32). Others reported reliability was calculated between 0.62 and 0.84 and between 0.50 and 0.84 (33, 34). Some researchers analyzed the psychometric features of the German manuscript of the NEO-FFI. The results showed reliability was between 0.71 and 0.85 and between 0.66 and 0.84 sequentially (35). In our study obtained reliability was between 0.72 and 0.87 (36).

3.4.2. Social Alienation

Researchers developed this questionnaire with 18 items and four factors: Loneliness, helplessness, social despair, and reduced social tolerance (37). The utility of this tool using Cronbach's alpha method for each of the four mentioned subscales was calculated at 0.79, 0.85, 0.73, and 0.78, respectively. Also, the validity of this questionnaire was evaluated using face validity (38, 39).

3.4.3. Cognitive Emotion Regulation Questionnaire

The Cognitive Emotion Regulation Questionnaire was developed by researchers (40) in the Netherlands and had two versions, English and Dutch. This questionnaire is a self-report tool and has 36 items. This questionnaire can be used for people 12 years and older. It has nine subscales. These subscales include cognitive strategies of self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reassessment, demeaning, catastrophe, and other blame. Scores range from 1 (rarely) to 5 (almost always). Each subscale contains four items. The total score of each of the subscales is obtained by adding the scores of the items. Therefore, the range of scores for each subscale will be between 4 and 20. High scores in each subscale indicate the greater use of this strategy in dealing with stressful and negative events. The Persian version of this questionnaire was validated in Iran (27, 38). In a study, psychometric properties of this form, including internal consistency, retest reliability, content validity, convergent validity, and optimal diagnosis, have been reported (27). Cronbach's alpha for subscales was also reported from 0.67 to 0.89 (41).

3.4.4. The Severity of Addiction

Addiction was assessed by the Severity of Dependence Scale (SDS). Severity of Dependence Scale is completely according to DSM-IV criteria and evaluates a complex of psychological factors of addiction connected to feelings of control, worry, and anxiety about consumption. Also, the SDS consists of 5 items. Every item is scored on a four-point Likert domain: The first four items (0 = never or seldom; 1 = sometimes; 2 = often; 3 = always or nearly always) and item 5 (0 = not difficult; 1 = quite difficult; 2 = very difficult; 3 = impossible). Moreover, item scores are calculated to provide a total SDS score that could range from 0 to 15. Noticeably, 15 provides the highest amount of addiction. Some studies showed SDS provides high test-retest relations and good internal consistency (42-45).

4. Results

Three hundred fifty students were female, and 250 were male. The mean age of participants was 23.4, and

the standard deviation was 1.87. Descriptive and inferential statistics have been used to examine the hypotheses and report the results. To calculate the descriptive statistics indices such as mean, standard deviation, and correlation coefficient and to analyze the hypotheses. These results are presented in Table 1. Also, SEM was used with LISREL 8.8 software. In this method, based on the predicted relationships between the research variables, a model is designed, and the models are evaluated by examining the fit indices and the resulting parameters. Fit indicators are statistical values that help the researcher decide on a more appropriate model. Examination of fit indicators follows accepted standards. There are many fitness indicators, the most basic of which is χ^2 (chi-score). The closer the value of the chi-square index is to zero, the better the model's fit. However, since the value of χ^2 is affected by the sample size, the desired results cannot be achieved by relying on this index alone. So, in addition to this index, other indicators have been used to fit the model. In this study, in addition to χ^2 , the ratio of chi-square to freedom (χ^2/df), (GFI), adaptive Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), root mean square error of approximation (RMSEA) have been applied to fit the model. As a general rule, GFI, AGFI, and CFI fit indices for good models are between 0.9 and 0.95, and values greater than 0.95 indicate excellent models.

Table 1. Descriptive Statistic

Latent and Observed Variable	Mean \pm SD
Personality	
Neuroticism	2.59 \pm 0.38
Extraversion	2.20 \pm 0.46
Openness	1.78 \pm 0.46
Agreeableness	1.57 \pm 0.44
Consciousness	2.20 \pm 0.46
Social alienation	
Alienation	3.60 \pm 0.79
Helplessness	3.93 \pm 1.00
Social desperation	3.26 \pm 0.60
Decrease in social tolerance	4.17 \pm 0.68
Emotion cognitive regulation	
Adaptive	3.78 \pm 0.43
Nonadaptive	3.87 \pm 0.67
Severity of addiction	3.63 \pm 0.79
Personality	2.07 \pm 0.23
Social alienation	3.74 \pm 0.41

In this study, the independent variable was the per-

sonality model, which had five dimensions; the dependent variable was the severity of addiction and social alienation with four dimensions, and cognitive emotion regulation with two main dimensions (adaptive and nonadaptive strategies) were mediator variables. In analyzing the results and the effect of variables on the severity of addiction, direct and indirect effects and, finally, the final effect on the severity of addiction have been used. Table 2 shows the fit of the current research model. As can be seen, the amount of chi-square obtained in the model (508.72) is significant at the level of 0.01 and represents that there is a significant difference between the sample and the observed covariance matrix. The point to note here is that the chi-square value will always be significant in cases where the sample size is above 200. Therefore, the above conclusion does not apply to the difference between the sample and the observed variance-covariance matrix in this regard. Therefore, to solve this problem, the χ^2/df index, which neutralizes the effect of high sample size, has been obtained to the value of 1.28, which is desirable (note: an index between 1 and 3 is desirable).

Table 2. Fit Index of Hypothetical Model and Modified

Index	Amount
RMSEA	0.029
AGFI	0.86
GFI	0.89
NNFI	0.97
NFI	0.90
CFI	0.98
χ^2/df	1.28
χ^2	508.72
df	406

Abbreviations: RMSEA, root mean square error of approximation; AGFI, adaptive goodness of Fit Index; GFI, Good Fit Index; NFI, Normal Fit Index; CFI, Comparative Fit Index.

4.1. Examination of the Dual Mediating Effect

Given that the model fit indices (Table 2) represent a good fit of the model, and the RMSEA is equal to 0.029, which shows a very good fit Gives and according to the provided indicators, the research model is approved. The fitted model and the path coefficients are shown in Figure 2. The results in Table 2 indicate that the direct effect of personality on the severity of addiction (-0.68) and social alienation (-0.73) and on cognitive emotion regulation (0.85) has been estimated. The indirect effect of personality on the severity of addiction has been reported through

social alienation (0.86) and cognitive emotion regulation (-0.79).

5. Discussion

The current study evaluated the dual effects of social alienation and emotional and cognitive regulation on the relationship between personality and severity of addiction in students. Considering that the model fit indices represent a good fit of the proposed model and the RMSEA was equal to 0.029, a very good fit. According to the presented indicators, the research model is confirmed. The results in the table indicate that the direct effect of personality on the severity of the addiction is -0.68 and social isolation is -0.73, and cognitive emotion regulation is estimated to be 0.85. The indirect effect of personality on addiction severity was reported to be 0.86 due to social alienation and -0.79 due to emotional cognition. These findings support previous research (1, 20, 22, 46).

Researchers have shown there were significant positive relationships between attachment anxiety, loneliness, depression, and substance abuse (26). So, the proposed model was cleared to be an appropriate model for predicting substance abuse in students. The authors (30) showed a significant relationship between difficulties in emotion regulation, moral disengagement, and its aspects. Moreover, the recommended model had a good fit, and the fitting indices of the model approved the moral disengagement path to high-risk behaviors with the moderating role of difficulties in emotion regulation. Results showed that moral disengagement with high path coefficients could significantly predict the likelihood of high-risk habits. Also, some authors showed that the relationships between negative emotionality and solitary drinking were completely mediated by adolescents' capability to confront consumption during negative affective states (8). Considering the relationship between emotion regulation and addiction severity, emotional and psychological indicators that are effective at mood regulation and mood swings can be cited. So, mood regulation factors to different degrees in different situations can prevent addicts from extensive consumption to show resistance to temptations (44). Also, since addicted people are mostly weak in the tendency to use drugs, the methods of cognitive regulation of emotions give them internal control to develop habitual behaviors of resistance to drugs (7).

Professionally, there has been no research on the moderating role of social alienation and emotional and cognitive regulation in the relationship between personality and addiction in Iran. Although, there has been new research assessing the mediating effects of loneliness and

impulsivity in the relationship between anxiety and smartphone addiction (47) and the mediating effects of loneliness and university adjustment in the relationship between attachment and smartphone addiction (1). However, there is clear that loneliness affects substance abuse. There are restricted studies that assess the dual-mediated effect of social alienation and emotional and cognitive regulation on the relationship between personality and substance abuse.

The limitations of this study were the lack of cooperation of addicted who were in the stage of denial of addiction, and most of the people who were incapacitated and accepted addiction participated, which may result in biased results. Another limitation of this study was the feeling of shame from the expression of the addiction problem by addicted people or the fear of endangering their condition, so it is suggested to think of a solution to this problem. Given that the severity of the addiction is a hidden variable that most addicts deny, it is suggested that researchers design a more accurate questionnaire to measure this variable. In this study, according to the search in various databases that was done, it seems that the correlation between isolation and emotion regulation in future research will be added to the model of this research because it seems to be effective. Also, the generalizability (external validity) of the study results may be affected by the circumstances of the study. It is suggested that this model be compared in different addiction treatment groups. It is suggested that the role of family behaviors and individuals' cultural and economic levels be considered in future research. It is suggested that the discussion of addiction as a social taboo by addiction counseling becomes a natural disease in the minds of addicted people; perhaps better results can be achieved. In this study, the severity of addiction was the main dependent variable, and it is suggested that in future research, the reasons for turning to drugs concerning the independent and mediating variables of this study. It is suggested that questionnaires with fewer questions but more efficiency be examined in this field so that we do not face the problem of impatience and inaccuracy in answering. Consistent with previous specialization studies in the field of addiction, social and personality factors were able to explain the significant contribution of the severity of the addiction. Certainly, more detailed studies will be able to identify other complex variables in explaining the complex process of addiction and its severity.

5.1. Conclusions

Many cognitive and physical factors influence the severity of addiction in addicts. This study was an attempt to better explain the role of influential variables in predicting the severity of the addiction.

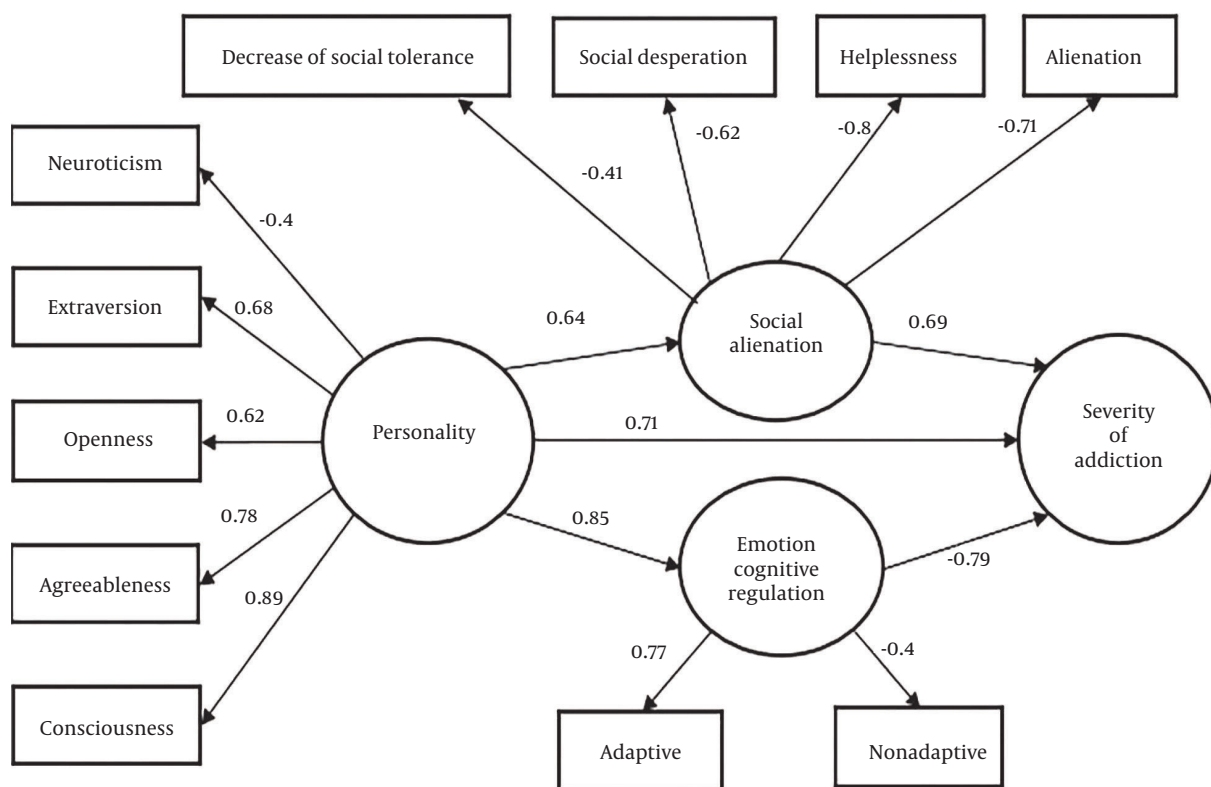


Figure 2. A path model of personality, the severity of addiction, emotion cognitive regulation, and social alienation

Footnotes

Authors' Contribution: S. H created the idea and devised the research plan. Then, she handled the correspondence for official permission in order to conduct the study. M. Gh. Farahani proceeded with the data collection. They wrote the entire article and performed the statistical analyses. S. H. submitted the article. She is the corresponding author.

Conflict of Interests: The authors declare that they have no competing interests.

Data Reproducibility: The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Ethical Approval: This study was conducted in full compliance with the Helsinki Declaration.

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