

Original Article

The Relationship of Metacognitive Beliefs and Tendency to Addiction in Sistan and Baluchistan University, Zahedan, Iran

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Abstract

Background: The aim of this study was to examine the relationship between metacognitive beliefs and the tendency to addiction in the students of the University of Sistan and Baluchistan, located in the South-East of Iran, during the academic year of 2009-2010.

Methods: This was a descriptive, correlational study, and the statistical samples were 200 male BSc students selected with cluster random sampling procedures from the three schools of Literature, Science, and Engineering. The measuring tools were the metacognition Questionnaire-30 (MCQ-30), and Addiction Potential Scale. Data analysis was done by the SPSS software using the Pearson correlation coefficient, and multiple regressions.

Findings: The result of data analysis showed that metacognitive beliefs and their subscales had a significant negative relationship with the tendency toward addiction ($P < 0.01$). The results show that fewer metacognitive characteristics are associated with a high tendency to addiction.

Conclusion: The findings of this study indicate that disturbed metacognitive beliefs is a good predictor of students tendency to addiction, therefore, teaching strategies metacognition is important in the prevention of young people's Tendency toward- addiction.

Keywords: Metacognition, Metacognition beliefs, Tendency to addiction.

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Introduction

Addiction toward natural and artificial substances has increased during the past few decades which indicates the incidence of a new problem in physical and social health.¹ The term addicted individual can be defined as one who has a very strong desire toward addictive substances, regardless of its consequences.² According to the UNODC (United Nations Office on Drugs and Crime), 172-250 million people in the world have used illegal drugs at least once a year³ and according to the latest reports in the rapid situation assessment (RSA) of drug abuse in Iran, the number of addicts are estimated to have been 1,200,000 people in 2007.⁴ On the other hand, statistics indicate that the drug use rate among different communities particularly among youths and adolescents has had an increasing growth in the recent decade.⁵ Scientifically, tendency to addiction is an internal state in which there is a high likelihood of addiction.⁶ Factors influencing the tendency of youths towards addiction are personal, interpersonal and social factors. Anxiety and depression (mental factor) are two of the high risk personal factors.⁷

Some studies have indicated that personal factors, anxiety and depression are the most important causes of the tendency to addiction.⁸

Many studies have emphasized the prevalence of psychiatric disorders such as anxiety and depression among substance users.^{9,10} The findings indicated that depression can occur during substance using and/or after withdrawal. Thus, data show that more than 37% of alcohol abusers and 53% of drug abusers at least suffer from one serious psychological disease. On the other hand, depression, anxiety and other psychological disorders also increase the risk of addiction; given that statistics show 29% of those with one type of psychological disease also suffered from either alcohol or other illegal drugs abuse.⁹ One of the explanatory models of mood disorders, such as depression and anxiety, is the metacognitive model which is a multi-dimensional concept. It includes knowledge, processes and strategies that recognize, assess or control cognition.¹¹ Self-regulatory executive function (S-REF) Model by Matthews is the first theory conceptualize the role of metacognition in etiology and continuation of psychological disorders.¹² S-REF model brought about the

explanatory and therapeutic models for depression and anxiety disorders.¹³

Furthermore, studies have shown that metacognitive beliefs are correlated to depression.¹⁴ Moreover, in a study by Wells titled metacognitive model of anxiety disorder showed that meta-worry and beliefs are in correlation with anxiety related to metacognition.¹⁵

Considering the results of previous studies on the correlation of mood and anxiety disorders with addiction as well as the correlation of these disorders with metacognitive beliefs, it is expected that metacognitive beliefs be correlated with addiction and create the background for drug addiction. One of the studies in accordance with this study was the study of Spada et al.^{16,17} which indicated the relative role of metacognitive beliefs and expectations in alcohol drinking. The study results of Spada et al.¹⁶ showed that three metacognitive factors (positive and negative beliefs, concern, cognitive consciousness, uncontrollability and danger) are significantly and positively correlated with smoking. Moreover, there was a positive and significant correlation between anxiety and depression, and smoking. Generally, metacognition referred to a mediator of emotion and smoking in this study. In general, and according to the literatures, it is concluded that metacognition is a potential factor in the tendency of youths toward addiction and considering that no study has ever been done in Iran in this regard, the present study aims to review the correlation between metacognitive beliefs and the tendency toward addiction among male BSc students in the University of Sistan and Baluchistan in academic year of 2009-2010.

Methods

According to the study objective, this was a descriptive and correlational study, and the predictive variable and criteria in this study were metacognitive beliefs and the tendency toward addiction, respectively. The study population included all the male BSc students in the University of Sistan and Baluchistan in the academic year 2010. Out of this population, 200 male BSc students were selected through the sampling formula of stage cluster sampling from the Schools of Literature, Science, and

Engineering. Thus, first the students in the academic year 2010 in University of Sistan and Baluchistan (Schools of Literature, Science, and Engineering) were identified and then the number of required samples was selected based on the number of students in each school; thereafter three classes were randomly selected from each school and selected as a cluster and the questionnaires were distributed. After the completion of the study, the data were analyzed by the SPSS Software using the Pearson correlation coefficient and multiple regression. The results are illustrated in tables and figures.

Measurement tools

Addiction Potential Scale (APS): APS was used to evaluate the subscale of addiction potential. It was standardized in Iran.¹⁸ The Addiction Assessment Questionnaire which has been extracted from the revised version of the Minnesota Multiphasic Personality Inventory -2 (MMPI-2), has also been standardized in Iran.¹⁸

The original version of APS includes 39 questions. The responses are "Yes" and "No". The content of the scale is quite heterogeneous and it does not seem that many of its articles have any direct connection with substance abuse. Some of its articles are correlated to extraversion, thrill-seeking (risk taking), exploitation and some of its other articles are correlated with self-doubt, self-alienation and pessimistic attitudes.¹⁹ The reliability coefficient of this scale in that study (with a one week interval) was 0.69 and 0.77 in men and women respectively.¹⁹

Wells and Certwright-Hatton²⁰ reported that there was much common variance between AAS (Addiction Admission Scale) and ASP. Their correlation in the total sample was 0.57% and in substance abusers, mental patients and the normal sample it was 0.36 and 0.33% respectively. Weed et al. reported that the data indicated that APS can distinguish well between substance users and mental patients. The standardized version of APS for Iranian high school students¹⁸ has 36 items and its reliability using Cronbach's alpha was 0.53% which was gained through split-half method. According to the study of Minouyi and Salehi, scores 1-18 indicate very low potential for addiction, 19-20 indicate low potential for addiction, 21-22 moderate potential, 23-24 high potential for addiction and above 25 indicates very high potential for addiction.¹⁸ In this

study, the validity estimation test for ASP obtained 0.78 through Cronbach's alpha coefficient.

Metacognition Questionnaire-30 (MCQ-30): The MCQ-30 includes 5 subscales assessed by 65 articles in total. These five subscales evaluated the following metacognitive dimensions: 1. Positive beliefs toward worries e.g. "worry helps me cope with my problems", 2. Negative beliefs toward worries which their concentration is on uncontrollability and danger of thoughts e.g. "when I start to worry, I cannot stop", 3. Low cognitive competence e.g. "I have a poor memory", 4. Negative beliefs about thoughts including the following beliefs e.g. superstition, punishment, responsibility and the need to control such as "inability to control my thoughts is a sign of weakness", 5. Cognitive self-consciousness e.g. "I strongly pay attention to the way my mind works". It seems that this scale has an acceptable reliability and validity.¹⁹ Wells and Certwright-Hatton²⁰ have made the MCQ shorter than its original version. The MCQ-30 similar to the original one includes the following subscales: cognitive confidence, positive beliefs about worry, cognitive consciousness, negative beliefs about uncontrollability and danger of thoughts and beliefs which necessitate the controlling of thoughts. MCQ consists of 30 articles selected from main scales. It is a 30-item self-report scale and evaluates the individual's beliefs about their thoughts. It was designed according to the Self-regulatory executive function (S-REF) Model by Matthews and Wells¹⁹ about emotional disorders and meta-worry disorder.¹⁹ The responses in this scale are calculated based on the 4-degree Likert Scale (1 = I do not agree to 4 = I completely agree). This scale has five subscales: 1. Positive beliefs toward worries, 2. Beliefs about uncontrollability and danger of thoughts, 3. Beliefs about cognitive confidence, 4. beliefs which necessitate the controlling of thoughts and 5. Cognitive self-consciousness. The MCQ-30 has an acceptable reliability and validity. The range of Cronbach's alpha coefficient for the subscales was reported from 0.59 to 0.87.¹⁹ In this study, the validity estimation test for metacognitive scale through Cronbach's alpha coefficient for subscales was 0.71-0.75 and the total score was 0.70.

Statistical Population:

The statistical population included all the BSc

students of the University of Sistan and Baluchistan in the academic year of 2009-2010. According to figure 1, 66% of the study subjects had a very low potential for addiction, 13% had low potential, 9% had moderate potential, 6% had high potential and the rest (6%) had very high potential for addiction. According to figure 2, 46% of the study subjects were in the School of Engineering, 25% in Sciences and 29% in Literature.

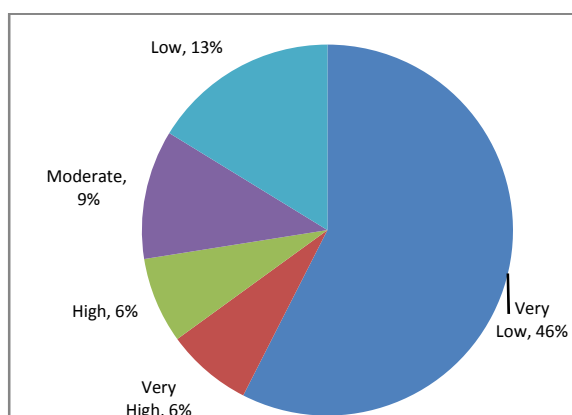


Figure 1. Distribution of tendency toward addiction

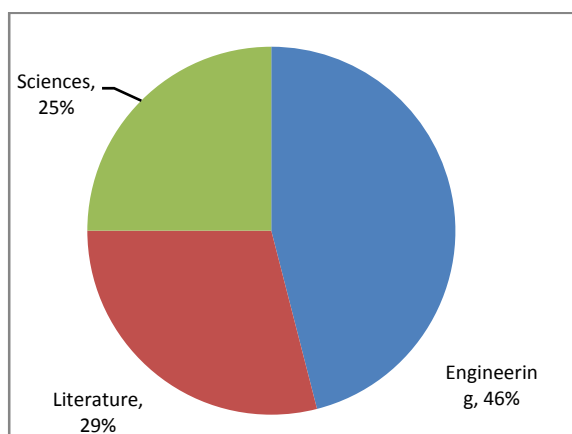


Figure 2. Distribution of students based on school of study

Results

The results of this study showed that the mean (SD) tendency toward addiction's score in the

study subjects was 17.52 (4.036), the score of uncontrollability and danger was 22.36 (5.426), the score of positive beliefs about worry was 17.74 (4.315), the score of cognitive consciousness was 14.59 (3.499), the score of memory confidence was 14.63 (4.081) and the need to control thoughts was 10.58 (2.836).

As indicated in table 1, correlation coefficient between tendency toward addiction was significantly and inversely correlated ($P < 0.01$) to all the factors of metacognitive beliefs (uncontrollability and danger, positive beliefs about worry, cognitive consciousness, memory confidence and the need to control thoughts). Then, the correlation between metacognitive beliefs and its five factors (uncontrollability and danger, positive beliefs about worry, cognitive consciousness, memory confidence and the need to control thoughts) analyzed in regression equation as predictive variable and tendency toward addiction as a criterion variable.

According to table 2, in the first stage, the factor of positive beliefs about worry entered the model which had the most significant partial correlation and in subsequent stages the uncontrollability and danger, cognitive consciousness, memory confidence and the need to control thoughts factors respectively entered the model and the best model was determined. The regression coefficients of predictive variables showed that metacognitive factors can inversely and significantly explain variable variance of students' tendency toward addiction ($P < 0.01$). Furthermore, it indicated that the determination coefficient in the best model was 0.859; in other words, almost 86% of the dependent variable predictions, i.e. tendency toward addiction through independent variables (factors of metacognitive beliefs), was correct.

After reviewing the correlation of metacognitive beliefs with the variable of tendency toward addiction, we evaluated the

Table 1. Correlation coefficient between tendency toward addiction and factors of metacognitive beliefs (n = 200)

	Scales	Correlation coefficient	P-value
Tendency toward addiction	Uncontrollability and danger	-0.645	< 0.01
	positive beliefs about worry	-0.666	< 0.01
	cognitive consciousness	-0.539	< 0.01
	memory confidence	-0.640	< 0.01
	need to control thoughts	-0.608	< 0.01

Table 2. Stepwise regression coefficients between the variables of tendency toward addiction according to the entered variables

Model		Partial correlation	Multiple correlation coefficient	P-value
1	Positive beliefs about worry	-0.666	0.666	< 0.01
2	Positive beliefs about worry	-0.545		< 0.01
	Uncontrollability and danger	-0.511	0.768	< 0.01
3	Positive beliefs about worry	-0.522		< 0.01
	Uncontrollability and danger	-0.486		< 0.01
	cognitive consciousness	-0.443	0.818	< 0.01
4	Positive beliefs about worry	-0.391		< 0.01
	Uncontrollability and danger	-0.443		< 0.01
	cognitive consciousness	-0.443		< 0.01
	Memory confidence	-0.374	0.846	< 0.01
5	Positive beliefs about worry	-0.356		< 0.01
	Uncontrollability and danger	-0.392		< 0.01
	cognitive consciousness	-0.418		< 0.01
	Memory confidence	-0.341		< 0.01
	Need to control thoughts	-0.282	0.859	< 0.01

Table 3. Summary of regression model between the dependent variable (tendency toward addiction) and independent variable (metacognitive beliefs)

Changing source	F	P-value	R	R Square	Standard Error	β	B	t	Standard Error
Regression	548.03	< 0.001	0.857	0.735	0.010	-0.857	-0.235	-23.410	2.085
Remaining									

overall correlation between the two variables of tendency toward addiction and metacognitive beliefs. The results showed that the correlation coefficient between the two variables was -0.857 i.e. tendency toward addiction and metacognitive beliefs had an inverse correlation ($P < 0.01$). Thereafter, the regression correlation between these two variables was assessed which is illustrated in table 3.

As indicated in table 3, variance regression coefficient of the metacognitive beliefs can inversely explain the variable of tendency toward addiction in students ($P < 0.01$); and considering the 0.735 determination coefficient, we concluded that approximately 74% of dependent variable prediction, i.e. tendency toward addiction, was correct through independent variables, i.e. factors of metacognitive beliefs.

Discussion

As mentioned earlier, the aim of this study was to review the correlation of metacognitive beliefs and the tendency toward addiction in university students. This study showed that there was an inverse and significant correlation between the score of subjects in metacognitive belief scales and tendency toward addiction ($P < 0.01$). This finding was in accordance with the study of Tonato¹⁶ which showed there was

a strong correlation between cognitive unpleasant events with drug abuse. The results of this study indicated that metacognition is perhaps the most important mediator of psychoactive drug use in those looking for treatment. In addition it was in accordance with the study results of Spada et al.¹⁷ which also showed that positive and negative metacognitive beliefs are a stimulus for alcohol drinking. Furthermore, the results showed that the tendency toward addiction had a significant correlation with all the factors of metacognitive beliefs (uncontrollability and danger, positive beliefs about worry, cognitive consciousness, memory confidence and need to control thoughts) ($P < 0.01$) which was also in accordance with the results of the study by Spada et al.¹⁷ titled as "Metacognition as a mediator between emotion and smoking dependence". In addition, there was a positive and significant correlation between anxiety and depression, and smoking dependence. No study has ever evaluated the distribution of these variables in order to predict the tendency toward addiction. According to the S-REF theory, the current study predicted that metacognitive knowledge of strategies and metacognitive evaluations are key influences in the vulnerability of individuals toward emotional disorder; in fact, the existence of

impaired metacognitive beliefs in such people can cause the application of non-beneficial coping strategies, and consequently cognitive interactions (struggling illogical beliefs) and ineffective behavioral interactions (ineffective behaviors) are formed, which alone, can provide the basis and context for drug use.

Moreover, multiple regression results showed that out of metacognitive beliefs, uncontrollability and danger are the best predictors for the tendency of youths toward addiction. Finally, it can be said that metacognitive beliefs, and specifically the metacognitive beliefs related to uncontrollability and danger, can cause a tendency toward using drugs by effecting the individual's decision making and causing them to use non-adaptive coping strategies (avoidance and etc.). The World has been faced with the issue of the prevalence of addiction during the past three decades particularly among the young population. Due to the concerns about the harmful effects of drug abuse and addiction, and also given that prevention is prior to treatment and that

preventive strategies are easier, cheaper and more effective than treatment, in order to achieve the above mentioned goals, identifying the causes of the tendency toward addiction is necessary. Although it is difficult to find all the causes of the tendency toward drugs, achieving some intervening factors in such behaviors, particularly tendency toward addiction, has facilitated the prediction of addiction and can help practitioners in primary prevention and developing educational interventions for those at risk.

Conclusion

The findings of this study showed impaired metacognitive beliefs are an appropriate predictor of the tendency of youths toward addiction. Therefore, educating metacognitive strategies can be of importance to prevent youths from addiction tendency. In this study, the study population has been confined to the male BSc students and therefore, it is limited and cannot be generalized to other populations.

Conflict of Interest: The Authors have no conflict of interest.

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رابطه بین باورهای فراشناختی در گرایش به اعتیاد در دانشجویان دانشگاه سیستان و بلوچستان

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چکیده

مقدمه: پژوهش حاضر با هدف، بررسی رابطه باورهای فراشناختی در گرایش به اعتیاد دانشجویان دانشگاه سیستان و بلوچستان واقع در جنوب شرق ایران، مشغول به تحصیل در سال تحصیلی ۱۳۸۹ انجام شد.

روش‌ها: روش پژوهش، روش توصیفی از نوع همبستگی بود و نمونه آماری شامل ۲۰۰ نفر (دانشجوی لیسانس پسر)، که با روش نمونه‌گیری خوشه‌ای تصادفی از سه دانشکده ادبیات، علوم و مهندسی انتخاب شدند. ابزارهای اندازه‌گیری پرسش‌نامه باورهای فراشناختی (۳۰- MCQ) و مقیاس استعداد اعتیاد (APS) بود. داده‌های پژوهش با روش‌های آماری ضریب همبستگی Pearson و آمار استنباطی Multiple Regression و با استفاده از نرم‌افزار SPSS مورد تجزیه و تحلیل قرار گرفت.

یافته‌ها: بین باورهای فراشناختی و خرده مقیاس‌های آن با گرایش به اعتیاد رابطه منفی و معنی‌داری وجود دارد ($P < 0/01$). به طور کلی یافته‌ها نشان داد که هر چقدر فرد ویژگی‌های فراشناخت پایین‌تری داشته باشد، احتمال دارد که گرایش به اعتیاد در او بیش‌تر باشد.

نتیجه‌گیری: با توجه به نتایج این مطالعه که نشان داد، باورهای فراشناختی مختل، یک پیش‌بینی کننده خوب در گرایش دانشجویان به اعتیاد می‌باشد، از این رو آموزش راهبردهای فراشناختی ممکن است در پیش‌گیری از بروز گرایش جوانان به سوی اعتیاد حایز اهمیت باشد.

واژگان کلیدی: فراشناخت، باورهای فراشناختی، گرایش به اعتیاد.

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