



Examine the Relationship between Mindfulness and Drug Craving in Addicts Undergoing Methadone Maintenance Treatment

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Abstract

Background: The aim of this study was examination the relationship between mindfulness and drug craving in addicts undergoing methadone maintenance treatment.

Methods: The subjects of this research were 80 addicts undergoing methadone maintenance treatment selected through available sampling from four addiction treatment center in Ahvaz from March 2012 to September 2012. Two questionnaires to examine the variables of this study were the five facets mindfulness questionnaire (FFMQ) and heroin craving questionnaire (HCQ). The data were analyzed using SPSS version 16.

Results: The Pearson correlational results indicated significant reverse relation between mindfulness factors and craving sub scales ($P < 0.05$). Besides, the regression results indicated that four factors of mindfulness such as observation, describing, acting with awareness and non-reactivity to inner experience can totally predict 48 percent of craving variance ($P < 0.01$).

Conclusion: There is a reverse relation between mindfulness and craving. Therefore we advise the researchers in addiction fields that in line with various studies that indicated effectiveness of mindfulness based interventions in improving various psychological problems, be researcher in effectiveness of this intervention in addiction fields. Moreover, we advise the addiction therapists to use mindfulness based interventions and technics in order to reduction of emotional and cognitive problems co morbidities with addiction such as craving that is one of potential factors affecting survival and relapse to drug abuse.

Keywords: Mindfulness, Craving, Methadone, Treatment, Addiction

Introduction

The drug abuse is a chronic relapsing disorder that overshadowed individual's life and creates many problems for the family and the community. The emotional problems, mental problems and ways of dealing with stress were stated as reasons for drug use (1). The clinical findings suggest that due to the chronic and relapsing nature of the substance dependence, after the De-

tox phase, a lot of people return to use the drug again (2). Fadaee (2007) states that in the best conditions and the best treatments, six months after leaving, 95% of the addicts return to the drug addiction cycle again, and the remaining 5% will return to the cycle during the next one or two years (3). Among the effective factors in the substance abuse, craving has a more important

role in returning and maintaining the position of substance abuse and drug-dependence in maintaining the situation of drug abuse and drug-dependence. Craving is an uncontrollable desire for the drug, a desire that if not be fulfilled, then, it is followed by a frequency of the physical and psychological sufferings as weakness, anorexia, anxiety, insomnia, depression and aggression (The National Institute on Drug Abuse (NIDA), 1996, quoted by 4). After reaching the state of abstinence, a strong desire to re-experience the drug effects is seen. This feeling may be seen for a few hours after quitting drugs up to several months after the end of treatment. This phenomenon usually is reported very much in the early months of detoxification, then, its frequency and severity is reduced, although it rarely disappears (5).

Recent studies have emphasized the fact that the processes of attention and craving (temptation) occupy the same neural areas in the brain. For example, Dave (2002) found evidence that showed the substance or drug-related cues activate areas of the brain, which are related to the attention process. It seems that these distinct identified areas have a role in the attention performance and in the drug craving (6).

In this regard, Westbrook et al. (2011) showed that the brain areas involved in the phenomenon of craving, including the *anterior cingulate cortex* (ACC), have less activity when the attention to the images of smoking is associated with the presence of mind compared to the attention without the presence of mind to these images. In addition, during the attention along with the mindfulness, clearly a reduced functional link existed between the ACC and other areas involved in craving (7).

In the recent ten years, mindfulness has attracted a lot of attention in the scientific community, and it is defined as the moment to moment awareness of the experience gained and purposeful attention along with the acceptance without judgment of the existing experiences (8). The mindfulness causes the enhanced attention to the experience of the person. To create an attention along with the presence of the mind, or what Tiffany (1999) calls it as non-automated processing or needed to try,

is different directly with allocation of attention without thinking or automated attention caused by the memory network of drug usage and automated navigation (9). Compared with Tiffany's theory, attention or automated processing does not prevent behavioral maps for the drug use, but it observes the mental or emotional output of the memory network. Paying attention to these mental events without subjective judgment means a change in the viewing experience or a decentralized perspective. Changing the perspective of an actor or subject to a viewer can reduce the inherent urgency of desire, or excitement, and in this way, the mindfulness can reduce the mental pressure created by the recall actuator and decrease the risk of relapse (8). Due to the lack of studies in this field at home and abroad, the need for more studies in this area was felt by the researchers.

The purpose of this study was to determine the relationship between mindfulness and craving as a potential factor in relapse of addiction among the drug addicts undergoing the maintenance treatment of methadone.

Materials and Methods

The population, sample and sampling method

The present research was a *descriptive-correlational* design center in Ahvaz, southern Iran from March 2012 to September 2012. The study sample included subjects referred to the treatment centers for treating the addiction, which 80 people were selected by a convenience sampling from four centers for treatment of addiction, and the survey questionnaires were distributed among them and collected.

The inclusion criteria for the study were having literacy for reading and writing, consent of the people, age range between 18 to 55 years, and having DSM-IV-TR diagnostic criteria for substance dependence disorders. The patients and their legally authorized representatives provided written informed consent under the procedures defined by Chamran University. Protocol of thesis was approved by Chamran University Ethical Committee.

How to run

First, a brief interview was conducted to gain the trust and cooperation of subjects in order to ensure that the information given will be completely confidential.

They were then given a questionnaire was collected after completion. All the people in the study were men aged between 22 and 46 years. The mean duration of addiction was about nine years old. The substance abuse in 80% of the sample was opium, and remaining were other drugs such as Amphetamine and Tramadol; and 40 % of people reported a history of abuse in the family.

Tool

Mindfulness Inventory:

The Five Facet Mindfulness Questionnaire (FFMQ) has been devised by Bauer *et al.* (2006). The five facets of the questionnaire are non-reactivity to the inner experiences, observing, acting with awareness, describing, and non-judging. This questionnaire consists of 39 questions that are graded in the form of a *five-point Likert Scale*. Bauer *et al.* (2006) reported a good internal consistency of the factors, and coefficient alpha for the dimensions were: non-reactivity, 0.75; describing, 0.91; observing, 0.83; acting with awareness, 0.87; and non-judging, 0.87 (10). This questionnaire was validated by Ahmadvand *et al.* (2010) and the overall coefficient of Cronbach's alpha was obtained as 0.80 (11).

Heroin Craving Questionnaire (HCQ): This questionnaire was codified to measure craving in heroin -dependent patients, but due to its overall structure and the ability to assess the substance cravings, later it was used for assessing other substances craving as well.

This questionnaire is five -factor and a seven-point-Likert scale. The following five main subscales of this questionnaire are as follows: “anticipation of a positive outcome from the substance use”, “relief from boredom and the signs of the withdrawal”, “intention and plan to use substances”, “desire to use substances”, and “a lack

of control over the substances use”. The studies on this tool have reported reliability of the subscales equal to 0.93, 0.83, 0.81, 0.69, and 0.94, respectively .

The studies could prove the reliability and validity of the sub-scales of the tool to measure the intensity of craving in drug -dependent patients (12). Reliability and validity of the Persian format of the tool have been studied and confirmed in Iran (13).

Results

A significant correlation exists between the majorities of the five subscales of craving with the five aspects of mindfulness (Table 1). As a significant reverse correlation from -0.39 to -0.53 exists between all craving subscales with the observing factor ($P < 0.05$).

A reverse correlation exists between the subscales of the relief from boredom and the mindfulness factor as -0.45. A significant reverse correlation about -0.38 to -0.05 exists between the subscales of anticipation of positive outcomes, relief from boredom, lack of control and total craving scores with the “acting with awareness” .

A significant reverse correlation about -0.31 exists between the subscales of the relief from boredom and “non-judging.

The correlation between all subscales of the craving with the “non-reactivity factor” is significant and from -0.32- to -0.57.

The last column of Table 1 shows that a significant relationship from -0.22 to -0.55 exists between all the subscales of the craving with " the total mindfulness scores ". According to the above table, a significant relationship of -0.45 exists between the total craving scores with total mindfulness ($P < 0.05$).

The results of regression analysis showed that all three factors, (namely mindfulness, acting with awareness and being non-reactivity reversely and the factor of describing directly) predict totally 48 % of the variance in drug craving ($P < 0.01$) (Table 2).

Table 1: Correlation coefficient between the craving and mindfulness subscales

Variable	Observing	Describing	Acting with awareness	Non-judging	Non-reactivity	Mindfulness total
Desire to use substances	*-0.53	0.04	-0.12	0.11	*-.032	*-0.22
Plan to use substances	*-0.42	-0.02	-0.16	0.15	*-0.34	*-0.23
Anticipation of positive outcome	*-0.39	-0.19	*-0.49	0.18	*-0.48	*-0.45
Relief from boredom	*-0.42	*-0.45	*-0.50	*-0.31	*-0.45	*-0.52
Lack of control	*-0.39	-0.15	*-0.44	-0.19	*-0.57	*-0.55
Total craving	*-0.51	-0.17	*-0.36	0.14	*-0.49	*-0.45

$P < 0.05$

Table 2: The coefficients of the regression analysis of the subscales of mindfulness with the craving

Source	b	B	t	sig	Adjusted R ²
Observing	-5.16	-0.45	-4.51	0.001	
Describing	4.23	0.54	4.48	0.001	
Acting with awareness	-4.43	-0.52	-4.83	0.001	
Non-judging	1.83	0.17	1.85	0.06	
Non-reactivity	-3.80	-0.30	-2.60	0.01	0.48

Discussion

The results of this study showed that a significant reverse correlation exists between the factors of mindfulness (observing, describing, and acting with awareness, non-judging and non-reactivity) with the aspects of craving. It indicates that following the increasing presence of mind or the mindfulness in the person, the amount of the craving will be reduced and therefore, the addiction can be better managed and controlled by the learning and the institutionalization of the feature, *i.e.* mindfulness in the people with substance abuse. The results showed that desire to use substances, and anticipation of positive outcomes from its use will be reduced following the increasing factors such as self-observation, acting with awareness, and non-reactivity to the inner and outer events of the body, and ability to control the person increases in order to deal with situations motivating the substance use.

Regression analysis of the factors of mindfulness suggests that three factors of mindfulness, *i.e.* observing, acting with awareness, and being non-reactivity, predict craving reversely; so, this verifies the hypothesis of this research on a reverse relationship between the factors of the mindfulness and craving. This finding is consistent with the findings of previous studies that have shown the impact of the application of the techniques of the mindfulness in reducing craving and consequently, the control and management of addiction (14-16). In explaining the cause of this effect it must be said that one of the main features of mindfulness is a person's self-conscious attention to the thoughts and feelings. In the field of addiction, similar to a stimulus recalling for the substance use, the process might act as the negative emotion. From the perspective of conditioning, the self-conscious attention to such stimuli can be used as a kind of "covert exposure". In addition, mindfulness practice includes being with thoughts

or emotions rather than react to it, what it can be described as a form of the response substitution. This does not mean to prevent or inhibition of responses while the responses and automated incompatible answers refers to the bias in the thoughts, feelings and behaviors resulting from activation of the memory network of the drug use (17).

But as we can see in Table 2, among the factors of the mindfulness, factor of describing directly predicts craving; i.e. with the increase in the factor of describing of craving, craving also increases, which this finding rejects the research hypothesis. Perhaps this is because a link has been established between physical and mental disorders and the use of the substances in order to relieve this discomfort by passing of time; it means that if a person can describe his or her state better, as a result he or she is also more conscious of physical and emotional problems that often are associated with the addiction; so, this awareness tempts a person for the substance use to get rid of this mental scenarios. It also may be said that the participants in this study even if know their physical and mental states, but they will not be able to accept, and will go to the substance use in order to relieve themselves; therefore, this would necessitate the use of the techniques of the mindfulness to increase the presence at the moment and the acceptance of their physical and mental problems and the lack of reaction to them.

One of the phenomena in the problem of drug abuse is being sensitive to the symptoms of temptations, including inner or outer signs such as the negative emotions of depression and anxiety. Therefore, it is recommended that the practices of the mindfulness can be used to increase tolerance to these symptoms and their control. By observing along with the presence of mind and experience of thoughts and feelings with full consciousness, a drug user during the abstinence, who is faced with a risky position, can cause decasualization to the stimuli. In total, the practice of mindfulness includes conditional answers; and it causes the shut-down of incompatible response caused by the activation of the memory network of the drug use. The performance of multiple processing systems

in cognitive therapy has been conceptualized, and it has been confirmed experimentally.

So, paying attention along with the presence of mind to symptoms related to the substances or stimulators, along with awareness and the behavioral response without avoidance can decasualize a person to them. Along With exercising, paying attention along with the presence of mind to the thoughts and feelings can cause to create a new method of the emotional processing of events related to the substances (18).

Conclusion

There was a reverse relation between mindfulness and craving. Addiction clinician should use mindfulness based interventions in order to prevention of relapse addictive behavior.

Ethical considerations

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc) have been completely observed by the authors.

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