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Effect of "Mindfulness-Based Relapse Prevention Program" On Substance Craving and Acceptance of Aversive Experiences among Patients with Addiction

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Abstract: **Addiction is a chronic, relapsing condition characterized by waves of abuse, decreased use and abuse again. Relapse is a common problem among patients with substance abuse. It is more prominent among patients who have stronger cravings upon initiation of treatment. Mindfulness is "the awareness that emerges through paying attention, on purpose, in the present moment, and non-judgmentally to the unfolding of experience". Mindfulness Based Relapse Prevention program (MBRP) is designed to enhance both specific and global intervention strategies and techniques to prevent relapse. MBRP shares the relapse prevention goals of decreasing contact and increasing coping with high-risk situations. It is useful for helping patients with addiction to cope with aversive experiences and drug craving without substance use. Aim of the study: To determine the effect of MBRP on substance craving and acceptance of aversive experiences among patients with addiction. Design: A quasi-experimental research design was used. Setting: The study was conducted at the inpatient rehabilitation unit for patients with addiction at El-Maamoura Hospital for Psychiatric Medicine in Alexandria. Subjects: The subjects comprised 44 patients with addiction in the first week of rehabilitation, free from psychiatric co-morbid diseases. Tools: The Penn Alcohol Craving Scale, Five Factors Mindfulness Questionnaire, Acceptance and Action Questionnaire-II and socio-demographic and clinical data structured interview schedule. Results: An evident statistically significant difference was detected between pre-implementation and post-implementation of the program regarding scores of Penn Alcohol Craving Scale, Five Factors Mindfulness Questionnaire and Acceptance and Action Questionnaire. Recommendations: Assessment of level of craving, mindfulness factors and acceptance is recommended in routine clinical assessment of patients with addiction and in planning rehabilitation programs. In-service training of nurses and health care professionals on MBRP program must be performed to help in practical applications and holistic health promotion for patients with addiction.**

Keywords: **Addiction, Acceptance of aversive experience, Mindfulness, Mindfulness-Based Relapse Prevention Program, Patients with addiction, Substance craving.**

I. INTRODUCTION

Substance addiction is described as a chronic, relapsing condition characterized by waves of abuse, decreased use and abuse again [(1)]. Relapse is unfortunately a common problem among patients with addiction [(2)]. Relapse has been variously defined as "either the return to problematic substance use following treatment or as a process of behavior change" [(3, 4)]. It is difficult to quit or curtail use, and more than one attempt is needed sometimes over a long period of time-before a person successfully quits or gets use under control [(5)]. Relapse rates following treatment for substance use are estimated to be over 60% [(6)]. These rates are fairly consistent between alcohol and all other drugs, indicating that the process of relapse is common across substances [(7)]. Relapse is more prominent among patients with addiction who have stronger cravings at admission into treatment [(8)].

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Craving is used interchangeably with the term urge and is defined as "the subjective desire to experience the effects of a given drug or substance". Substance craving plays a significant role in relapse for substance addiction. Drug craving has often been assumed to precede relapse behavior and is commonly addressed in drug and alcohol treatment centers as a relapse risk [(9)]. The first 3 months of treatment appear to be the most critical for relapsing and thus implementing a program to prevent relapse during this time can be very helpful in improving overall treatment outcomes. So, relapse prevention program (RP) may be helpful during this period [(10)].

Relapse prevention program (RP) is designed to teach clients how to anticipate and cope with the possibility of relapse [(4)]. In the beginning of relapse prevention training, clients are taught to recognize and cope with high-risk situations that may precipitate a lapse which is defined as "a return to previously cessated behavior" and to modify cognitions and other reactions to prevent a single lapse from developing into a full-blown relapse. Because these procedures are focused on the immediate precipitants of the relapse process, they are referred to collectively as "specific intervention strategies." As clients master these techniques, clinical practice extends beyond a microanalysis of the relapse process & the initial lapse. It also involves strategies designed to modify the client's lifestyle and to help him/her identify and cope with covert determinants of relapse and cravings. As a group, these procedures are called "global intervention strategies" [(11, 12)].

Mindfulness has been described as "the awareness that emerges through paying attention, on purpose, in the present moment, and non-judgmentally to the unfolding of experience" [(13)]. Mindfulness Based Relapse Prevention program (MBRP), is the program designed to enhance both specific and global intervention strategies of relapse prevention, providing further techniques that enable clients to increase awareness and practice effective coping strategies [(14)]. MBRP shares the relapse prevention (RP) goals of decreasing contact with high-risk situations, increasing coping in high-risk situations, keeping lapses from becoming full-blown relapses, and developing lifestyle balance [(15)].

In addition, it is useful for helping patients with addiction to cope with aversive experiences and drug craving without substance using behavior [(16)]. Marlatt et al. (2004) found that mindfulness meditation treatment decreased substance use and they theorized that self-regulation with respect to drug craving may be the mechanism of change. Specifically, they stated that craving responses that are common in addiction create a complex system composed of environmental cues and rigid cognitive responding [(14)]. Mindfulness meditation may disrupt this system by providing heightened awareness and acceptance of the initial craving response, without judging, analyzing, or reacting [(15)]. Thus, this study is conducted to determine the effect of mindfulness-based relapse prevention program on substance craving and acceptance of aversive experiences among patients with addiction.

Aim of the study:

This study aims to:

- Investigate the effect of mindfulness-based relapse prevention program on factors of mindfulness and acceptance of aversive experiences among patients with addiction.
- Explore the effect of mindfulness-based relapse prevention program on substance craving among patients with addiction.

Research hypotheses:

- Mindfulness-based relapse prevention program increases factors of mindfulness and acceptance of aversive experiences among patients with addiction.
- Mindfulness-based relapse prevention program reduces substance craving among patients with addiction.

II. MATERIALS AND METHOD

Materials:

Research design: A quasi-experimental research design was used for this study.

Setting: The present study was conducted at the inpatient unit for patients with addiction at El-Maamoura Hospital for Psychiatric Medicine in Alexandria. The hospital is affiliated to the Ministry of Health. It serves three governorates namely Alexandria, Matrouh and El-Beheira. The inpatient department for patients with addiction is divided into two

units, one for females and the other for males. The female unit contains 8 beds only for treatment of patients during withdrawal period. On the other hand, the male unit contains 60 beds and it is divided into two main sections. The first section is for patients during withdrawal period; its capacity is 16 beds and the other section is composed of 44 beds for patients within the rehabilitation period. The hospital also includes a day care center for patients with addiction which is available 2 days per week (Monday & Wednesday).

Subjects: The subjects of the present study were 44 patients with addiction during their rehabilitation period. This sample size was based on Epi info sample size estimation which revealed the minimum sample size to be 44 patients. The epidemiology information statistic program (Epi- info 10) was used to estimate the sample size of this study based on using 10% acceptable error, 90% confidence coefficient, 50% expected frequency and population size of 130/year.

All patients (44 patients with addiction) meeting the following inclusion criteria were included in the study:

1- Being detoxified.

2- In the first week of rehabilitation to avoid contamination from hospital program.

3- Free from psychiatric co-morbid diseases.

4- Have at least primary education to read the handout and make written homework assignment of each session.

5- Willing to participate in the study.

Tools of the study: Four tools were used in this study:

Tool I: The Penn Alcohol Craving Scale (PACS):

This scale was developed by Flannery et al (1999) to assess alcohol craving [17]. It was adapted by Witkiewitz et al (2010) to include craving for both alcohol and other drugs [18]. It is composed of five-items. Those items measure frequency, intensity, duration of craving, the ability to resist drinking or stop taking drugs, and an overall rating of craving for alcohol and drug during the previous week. Each item is scaled from 1 to 6. The total score ranged from 5 to 30, with a score ranging from 5 to 15 reflecting low level of craving & more than 15 up to 30 reflecting high level of craving. The PACS is reliable with strong internal consistency where the Cronbach alpha was 0.87 and has predictive validity for alcohol and drug relapse.

Tool II: Five Factors Mindfulness Questionnaire (FFMQ):

This scale was developed by Baer et al (2006) to measure elements of mindfulness [19]. It is composed of 39-items, which are rated on a five point likert scale. The responses range from 1 (never or very rarely true) to 5 (very often or always true). The scale is divided into five subscales which are observing (notice or attend to internal and external phenomena), describing (label observed phenomena such as thoughts and emotions), acting with awareness (engage with full awareness in current experience or activity), non-judging of inner experience (nonjudgmental awareness of current experience without evaluation) and non-reactivity to inner experience (notice internal phenomena without reacting).

The observing subscale is represented by 8 items, e.g. “When I’m walking, I deliberately notice the sensations of my body moving”. The describing subscale is represented by 8 items, e.g. “I’m good at finding words to describe my feelings”. The acting with awareness subscale is represented by 8 items, e.g. “When I do things, my mind wanders off and I’m easily distracted”. The non-judgment subscale is represented by 8 items, e.g. “I criticize myself for having irrational or inappropriate emotions”. Finally, the subscale of non-reactivity is represented by 7 items, e.g. “I perceive my feelings and emotions without having to react to them”.

The 39-items have a total score ranging from 39 to 195, with scores less than 65 indicating low level of mindfulness, scores ranging from 65 to less than 130 indicating moderate level of mindfulness and 130 and more indicating high level of mindfulness. Each subscale has a score ranging from 8 to 40 except the non-reactivity subscale that has a score ranging from 7 to 35. The first four subscales are divided into three groups, low (8 to 18), moderate (19 to 29), high (30 to 40). The non-reactivity subscale is divided into three groups, low (7 to 16), moderate (17 to 26), high (27 to 35). Higher scores of the subscales represent greater observing, describing, awareness, non- judgment and non-reactivity. The tool is reliable with strong internal consistency as the Cronbach alpha for the total scale was 0.91, with subscale alphas ranging from 0.80 to 0.87.

Tool III: Acceptance and Action Questionnaire-II (AAQ- II):

Acceptance and Action Questionnaire-II (AAQ- II) was developed by Hayes et al (2004) [20]. It is used to assess the ability to accept aversive internal experiences like negative emotions, thoughts and memories and to pursue goals in the presence of these experiences. It is composed of 10-items, which are rated on a seven point likert scale. The responses ranging from 1 (never true) to 7 (always true). Its total score ranges from 10 to 70, with scores less than 24 reflecting low level of acceptance & high level of experiential avoidance, scores ranging from 24 to less than 47 indicating moderate level of acceptance & moderate level of experiential avoidance and 47 and more indicates high level of acceptance & low level of experiential avoidance. The tool is reliable with strong internal consistency as the Cronbach alpha for the total scale was 0.88.;

Tool IV: Patient with addictions' socio-demographic and clinical data structured interview schedule:

This tool was developed by the researchers and it is composed of two parts. The first part elicits socio demographic data as age, marital status, living conditions, occupation, education...etc. The second part elicits clinical data as type of abused substances, number of abused substances, duration of substance addiction, history of previous treatment, lifetime number of treatment episodes, reason for seeking treatment, number of relapses…etc.

Method:

Administrative steps

An official approval was obtained from The General Secretariat for Mental Health at The Ministry of Health in Cairo and from the director of El-Maamoura Hospital for Psychiatric Medicine in Alexandria. An official approval was also obtained from the director of the unit for patients with addiction to exclude the study subjects from routine hospital activity sessions.

Preparation of the study tools

1. The development of patient with addictions' socio-demographic and clinical data structure interview schedule was done by the researchers.

2. The Penn Alcohol Craving Scale (PACS), Five Factor Mindfulness Questionnaire (FFMQ) and Acceptance & Action Questionnaire-II (AAQ- II) were translated into Arabic language.

3. A jury composed of five experts in the field of Psychiatric and Mental Health Nursing was consulted to examine the content-related validity of the study tools (I), (II), (III). Modifications were done accordingly.

4. **Pilot study:** Before embarking on the actual study, a pilot study was carried on 5 patients with addiction who were selected from the day care center, to ascertain the clarity and applicability of the study tools and to identify the obstacles that may be faced during data collection. The results of the pilot study showed that one sentence is difficult to be understood. Changes were done accordingly.

5. Reliability test: The three study tools I, II, and III were applied on twenty patients with addiction who were selected from day care center for rehabilitation of drug addicts taking into consideration the inclusion criteria (Those patients were not included in the actual study).

6. The Chronbach's alpha method was done for the three tools. The Cronbach's alpha for tool I (PACS), was 0.846 indicating high reliability, Tool II (FFMQ) showed significant high reliability (Cronbach's alpha =0.950) & Tool III (AAQ- II) had a Cronbach's alpha = 0.812 which indicated high reliability.

7. **Actual study**

The researcher was trained on meditation related to mindfulness and group therapy in a specialized center.

The program was represented and the recordings of meditation sessions were reviewed with the supervisors on weekly bases for three months before their conduction with the study subjects.

In the rehabilitation unit, all patients' records were checked for inclusion criteria. All patients meeting the inclusion criteria in the rehabilitation section were included in the study and the new admissions to rehabilitation section were added until reaching the sample size. The study group was excluded from routine hospital activity sessions until MBRP program was completed.

The study group was divided into subgroups. Each subgroup size ranged from 6 to 12 patients to receive mindfulness-based relapse prevention program. The application of MBRP program took 4 weeks for each subgroup for 2 hours daily. Two days each week (Saturday & Tuesday) for implementation of the program session and two other days (Sunday & Wednesday) for the revision of each session skills and another two days (Monday & Thursday) for the revision the homework assignment.

Each subgroup was interviewed and the researcher explained the aim of the study. Written consent was obtained from the patients. Then, the researcher stayed with the subgroup in a calm private room to keep privacy, avoid distractibility and to develop rapport.

A second interview was done with each subgroup to apply the study tools (socio-demographic and clinical data interview schedule, The Penn Alcohol Craving Scale (PACS), Five Factor Mindfulness Questionnaire (FFMQ) and Acceptance & Action Questionnaire-II (AAQ- II). This interview lasted between 30-45 minutes according to patients' ability and cooperation. This was considered as a baseline-assessment of study group.

Each study subgroup received eight sessions of mindfulness-based relapse prevention program over 4 weeks period, each session extended for about 2 hours. Patients were met at a time from 10.30 a.m till 11.30 a.m and from 1 p.m till 2 p.m. The second part of each session was delayed due to prayer time based on patients' preference.

During Ramadan month, there were two study subgroups held at the same time as a result of increase number of patients meeting the inclusion criteria to the rehabilitation section. One subgroup session extended from 10 a.m till 12 p.m and another subgroup session extended from 1 p.m till 3 p.m. The sessions proceeded as follow:

- Session 1 (week 1) discusses “automatic pilot” or the tendency to behave mechanically or unconsciously without full awareness of what doing. This is specifically in relation to drug use (acting upon craving and urge “automatically” without awareness). This exploration with an exercise called the “body scan” to practice purposely and bring attention to the body.

- Session 2 (week 1) focuses on learning to experience triggers, cravings, and thoughts of using the addicted substance without automatically reacting. Also, it focuses on recognizing triggers and what the reaction feels like in the body, specifically the sensations, thoughts, and emotions that often accompany craving. Mindfulness used to bring greater awareness to typically automatic process, learning to experience craving and urges in a way that increases patients’ choices in how they respond.

- During session 3 (week 2), patients learn the “SOBER space” which means:

S-stop. When patients are in a stressful or risky situation, or even just random times throughout the day. Patients remember to stop or slow down and check in with what is happening. This is the first step in stepping out of automatic pilot.

O-Observe. Patients observe the sensations that are happening in their bodies. Also they observe any emotions or thoughts they are having. Just they notice as much as they can about their experience.

B- Breath. Patients gather their attention and bring it to their breath.

E- Expand. Patients expand their awareness to include the rest of their bodies, their experience, and to the situation they are in.

R- Respond (versus react) mindfully, with awareness of what is truly needed in the situation and how patients can best take care of themselves. Whatever is happening in their mind and body, they still have a choice in how they respond.

- Session 4 (week 2) focuses on being present in situations or with people that were previously associated with substance use, using mindfulness to learn to experience pressures or urges to use without automatically reaching for a substance. The individual relapse risks identified and ways to cope with the intensity of feelings that come up in high-risk situations explored.

- Session 5 (week 3) moves from noticing warning signs and learning to pause taking skillful action in both high-risk situations and in daily life.

- Session 6 (week 3) explores awareness of, and relationship to thinking, with a focus on experiencing thoughts as merely thoughts and identifies its role in the relapse cycle and ways to work more skillfully with it.

- Session 7 (week 4) focuses on identifying personal warning signs for relapse and the best response when arise. This includes discussion of broader lifestyle choices, balance, self-compassion and the importance of including nourishing activities as part of a full, healthy life.

- Session 8 (week 4) reviews skills and practices, discusses the importance of building a support system and shares individual plans for incorporating mindfulness practice into daily life.

Each session was associated with homework assignment of guided meditation skills recorded by the researcher and which was distributed to the patients using mp3 recorder to be trained on it after each session. The mp3 recorder was distributed on the patients daily on the evening via the volunteer x- addict. Also, handout and homework sheet were distributed on each patient by the researcher in each session.

The researcher revised MBRP skills and discussion of the homework was done during the days between sessions with the study group. One day for revision of MBRP skills and another for discussion about homework of each session until the period of program end. Each session extended 2 hours as usual.

The homework was included in daily practice tracking sheet which distributed by the researcher after each session. The researcher discussed the homework of each session including: how long the guided meditation skills were used, mindfulness of daily activities were used, noticing triggers, how many time and in what situations the SOBER space practice was used, relapse cycle worksheet, daily activities worksheet, reminder card which will help the patients after the discharge during any triggering situations and any challenges, observations& comments that were happened during the homework practice.

A post-assessment was done immediately after the end of the eight sessions for each subgroup of the study using tools I, II & III.

The data were collected over a period of three months starting at the 1 st of June 2015 and ending at the 30 th of August 2015.

Statistical analysis:

- Data were fed to the computer and analyzed using IBM SPSS software package version 20.0.
- The statistical analysis proceeded in the following manner:

✓ Data were described using range (minimum and maximum), mean and standard deviation. Significance of the obtained results was judged at the 1% level.

✓ Paired t-test for normally quantitative variables was used to compare between two periods.

✓ Wilcoxon signed ranks test for abnormally quantitative variables was used to compare between two ordinal data.

III. RESULTS

Table (I) displays the socio-demographic characteristics of the studied patients with addiction. The age of the studied patients ranged from 19.0 to 47.0 years with a mean age 33.11 ± 6.48 years. More than half of the studied patients (59.1 %) were in the age group ranging from 30 to 40. While 29.5 % in the age group less than 30 and 11.4 % were in the age group more than 40.

The table shows that 54.5% of the studied patients with addiction were singles and only 31.8% were married. Speaking about level of education, about two thirds (72.7) of the studied patients had secondary school education and only 22.7% of them had university education. Regarding their occupation, the largest percentage (43.2%) of the studied patients were craft workers, followed by unemployed (25.0%). One quarter (22.7%) of the studied subjects was employee/ worker.

It also appears from this table that most of the studied patients (84.1%) were living in urban areas. Regarding the number of residing family members, it ranged from 1.0 to11.0 persons. In relation to birth order, about half of the studied patients (45.5%) were the last born, 29.5% of the studied patients were first in birth order and 25.0% were second born.

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Table (I): Socio-demographic characteristics of the studied patients with addiction:

Socio-demographic characteristics		N=44	%
Age (in years)	**<30**	13	29.5
	30 – 40	26	59.1
	>40	5	11.4
	Min. – Max.	19.0 – 47.0	
	Mean ±SD	33.11 ± 6.48	
Residence	**Urban**	37	84.1
	Rural	7	15.9
Marital status	**Single**	24	54.5
	Married	14	31.8
	Widowed/ Divorced	6	13.7
Educational level	**Secondary school**	32	72.7
	University degree	10	22.7
	Postgraduate degree	2	4.6
Occupation	**Unemployed**	11	25.0
	Student	3	6.8
	Employee/ worker	10	22.7
	Craft worker	19	43.2
	Retired	1	2.3
Number of family members	**Min. – Max.**	1.0 – 11.0	
Birth order	**1st**	13	29.5
	Middle	11	25.0
	Last	20	45.5

Table (II) presents the distribution of the studied patients with addiction according to their clinical characteristics. In relation to number of substances used, 38.6% of the studied patients used three different types of substances and about one-third (31.8%) used two types of substances. Regarding type of substance used, the majority of studied patients (97.7%) used opioids, while 68.2% of them used psychomimetics and only 18.2% used CNS depressants.

Regarding the main cause of substance addiction according to patient's opinion, more than one-half of the studied patients with addiction stated that curiosity is the cause for their addiction (56.8%). Other mentioned causes were escaping from problems in 47.7%, peer pressure in 43.2%, increase access of money in 9.1% and managing health problems in 4.5% of the patients.

Speaking about patients' age at the beginning of addiction, it ranged from 10.0 to 25.0 years with a mean age equal to 17.18 ± 3.21 years. The duration of substance addiction ranged from 2 to 29.0 years with a mean equal to 15.61 ± 6.53 years. In relation to the duration of substance addiction in years, the majority of the studied patients (79.6%) were substance addicts for more than 10 years. The years of addiction ranged from 2.0 to 29.0 years with a mean equal to15.61 ± 6.53 years.

Table (II): Clinical characteristics of the studied patients with addiction:

Clinical characteristics		N=44	%
Number of substances	**1**	6	13.6
	2	14	31.8
	3	17	38.6
	4 & more	7	16.0
Type of substance used*	**Psycho stimulants**	2	4.5
	Opioids	43	97.7

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	Psychomimetics	30	68.2
	CNS depressants	8	18.2
Main cause of substance addiction according to patient's opinion*	**Peer pressure**	19	43.2
	Curiosity	25	56.8
	Escaping from problems(social /work/financial)	21	47.7
	Increase access of money	4	9.1
	Managing health problems	2	4.5
Patients' age at the beginning of addiction	**Min. – Max.**	10.0 – 25.0	
	Mean ±SD	17.18 ± 3.21	
Duration of substance addiction in years	**<5**	3	6.8
	5 – 10	6	13.6
	>10	35	79.6
	Min. – Max.	2.0 – 29.0	
	Mean ±SD	15.61 ± 6.53	

***Multiple responses**

Table (III) presents the distribution of the studied patients with addiction according to previous treatment. Three quarters (75.0%) of the studied patients were previously treated. Speaking about number of previous treatment trials, it ranged from 1.0 to 12.0 times with a mean equal to 3.73 ± 2.76 times. It was also noted that 59.1% of the studied patients were previously admitted to psychiatric hospitals. In relation to number of previous admission(s), it ranged from 1.0 to 10.0 times with a mean equal to 3.58 ± 3.14 times. Regarding number of relapse ranged from 0.0 to 14.0 times with a mean equal to 3.68 ± 3.64 times including patients' first trial for treatment.

The table also reflects that, two thirds of the studied patients with addiction stated that the need for change is the cause for treatment (65.9%). While 47.7% of them reported that the cause of treatment is social pressure. Other mentioned causes were preventing further losses in 27.3%, remorse 13.6% and loss of health in 6.8% of the patients.

Table (III): Distribution of the studied patients with addiction according to previous treatment:

Previous treatment		**N=44**	**%**
Previous treatment trials	**Yes**	33	75.0
	No	11	25.0
Number of previous treatment trials (n=33)	**Min. – Max.**	1.0 – 12.0	
	Mean ±SD	3.73 ± 2.76	
Previous admission	**Yes**	26	59.1
	No	18	40.9
Number of previous admission(s) (n=26)	**Min. – Max.**	1.0 – 10.0	
	Mean ±SD	3.58 ± 3.14	
Number of relapse	**Min. – Max.**	0.0 – 14.0	
	Mean ±SD	3.68 ± 3.64	
Causes of seeking treatment*	**Social pressure**	21	47.7
	Need for change	29	65.9
	Prevent further losses	12	27.3
	Remorse	6	13.6
	Loss of health	3	6.8

***Multiple responses**

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Table (IV) presents the distribution of the studied patients with addiction according to the presence of family history of addiction. In this table, it is obvious that more than half of the studied patients had no family history of addiction (54.5%). Yet 45.5% of them had family history of addiction. Addict brother constituted 75.0% among studied subjects. Other addicted family relatives were 25.0% of the studied subjects and wives were the addicted family relative in relation to 10.0% of the studied subjects.

Table (IV): Distribution of the studied patients with addiction according to the presence of family history of addiction:

Variables		N=44	%
Family history of addiction	**Yes**	20	45.5
	No	24	54.5
Relation* (n=22)	**Brother**	15	75.0
	Wife	2	10.0
	Others	5	25.0

***Multiple responses**

Table (V) presents the distribution of the studied patients with addiction according to the presence of support for addiction's treatment. In this table, it can be noticed that all of the studied patients had support for addiction's treatment. A large percentage of support (84.1%) was by parents. While 61.4% of support were by sister & brother and 20.5% of support were by wife. The majority of the studied patients (88.6%) received both moral and substantial type of support.

Table (V): Distribution of the studied patients with addiction according to the presence of support for addiction's treatment:

Variables		N=44	%
Is there any support for treatment?	**Yes**	44	100.0
	No	0	0.0
If yes, who? *	**Parents**	37	84.1
	Sister/ brother	27	61.4
	wife	9	20.5
Type of support	**Moral**	2	4.6
	Substantial	3	6.8
	Both	39	88.6

***Multiple responses**

Table (VI) elaborates on the mean scores of Penn Alcohol Craving Scale (PACS) among the study group of patients with addiction pre- and post-implementation of mindfulness based relapse prevention program. It was noted that total score of the studied group before the implementation of the program ranged from 3.0 to 22.0 and after the implementation of the program ranged from 0.0 to 10.0. The mean score among the studied patients with addiction was significantly decreased from 10.80 ± 4.32 to 5.07 ± 2.88 after implementing the program (paired t = 13.998, P <0.001).

Table (VI): The mean scores of Penn Alcohol Craving Scale (PACS) among the study group of patients with addiction pre- and post-implementation of mindfulness based relapse prevention program:

PACS	(Pre-implementation)	(Post-implementation)	Paired t-test	Significance (P)
Min. – Max.	3.0 – 22.0	0.0 – 10.0	13.998	<0.001*
Mean ± SD.	10.80 ± 4.32	5.07 ± 2.88		

* Significant value at $p \leq 0.01$

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Table (VII) illustrates the distribution of the studied patients with addiction according to Penn Alcohol Craving Scale (PACS) pre- and post-implementation of mindfulness based relapse prevention program. Results revealed that before implementing the program, 75% of the studied patients had low score of PACS. While after implementation of the program, all the studied patients had low score of PACS. An evident statistically significant difference was detected between pre-implementation and post-implementation of the program (Z= 3.317, P= 0.001).

Table (VII): Distribution of the studied patients with addiction according to Penn Alcohol Craving Scale (PACS) pre- and post-implementation of mindfulness based relapse prevention program:

PACS	(Pre-implementation)		(Post-implementation)		Z	Significance (P)
	No.	%	No.	%		
Low (5 - 15)	33	75.0	44	100.0	3.317	0.001*
High (>15 - 30)	11	25.0	0	0.0		

Z for Wilcoxon signed ranks test * statistically significant at $p \leq 0.01$

Table (VIII) represents the total mean scores of Five Factors Mindfulness Questionnaire (FFMQ) among the study group of patients with addiction pre- and post-implementation of mindfulness based relapse prevention program. It was observed that total score of the studied group before the implementation of the program ranged from 66.0 to 126.0 and after the implementation of the program ranged from 115.0 to 165.0. The mean score among the studied patients with addiction was significantly improved from 99.34 ± 13.57 to 135.89 ± 12.15 after implementing the program (paired t = 24.188, P <0.001).

Table (VIII): The total mean scores of Five Factors Mindfulness Questionnaire (FFMQ) among the study group of patients with addiction pre- and post-implementation of mindfulness based relapse prevention program:

FFMQ	Pre-implementation	post-implementation	Paired t-test	Significance (P)
Min. – Max.	66.0 – 126.0	115.0 – 165.0	24.188	<0.001*
Mean ± SD.	99.34 ± 13.57	135.89 ± 12.15		

* Statistically significant at $p \leq 0.01$

Table (IX) presents the mean scores of Five Factors Mindfulness Questionnaire (FFMQ) subscales among the study group of patients with addiction pre- and post-implementation of mindfulness based relapse prevention program. The total score of "observe" items subscale in the studied group before the implementation of the program ranged from 12.0 to 35.0 and after the implementation of the program ranged from 23.0 to 39.0. The "observe" items mean score among the studied patients was significantly improved from 24.48 ± 6.42 to 30.64 ± 4.61 after implementing the program (paired t = 12.031, P <0.001).

Total score of "describe" items subscale in the studied group before the implementation of the program ranged from 14.0 to 31.0 and after the implementation of the program ranged from 21.0 to 39.0. The "describe" items mean score among the studied patients was significantly improved from 20.59 ± 4.55 to 28.23 ± 4.01after implementing the program (paired t = 17.035, P <0.001).

In relation to total score of "act with awareness" items subscale, the studied group before the implementation of the program ranged from 10.0 to 25.0 and after the implementation of the program ranged from 18.0 to 33.0. The "act with awareness" items mean score among the studied patients was significantly improved from 17.91 ± 3.80 to 26.09 ± 3.591 after implementing the program (paired t = 15.689, P <0.001).

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As for the subscale of "non-judge" items, the total score in the studied group before the implementation of the program ranged from 11.0 to 27.0 and after the implementation of the program ranged from 20.0 to 32.0. The "non-judge" items mean score among the studied patients was significantly improved from 17.75 ± 3.54 to 26.20 ± 2.81 after implementing the program, with a statistically significant difference (paired t = 16.082, p <0.001).

As regards "non-react" items subscale, the total score in the studied group before the implementation of the program ranged from 11.0 to 30.0 and after the implementation of the program ranged from 18.0 to 32.0. The "non-react" items mean score among the studied patients was significantly improved from 18.61 ± 4.27 to 24.73 ± 3.10after implementing the program (paired t = 13.706, P <0.001).

Table (IX): The mean scores of Five Factors Mindfulness Questionnaire (FFMQ) subscales among the study group of patients with addiction pre- and post-implementation of mindfulness based relapse prevention program:

FFMQ factors		Pre-implementation	post-implementation	Paired t-test	Significance (P)
Observe items	**Min. – Max.**	12.0 – 35.0	23.0 – 39.0	12.031	<0.001*
	Mean ± SD.	24.48 ± 6.42	30.64 ± 4.61		
Describe items	**Min. – Max.**	14.0 – 31.0	21.0 – 39.0	17.035	<0.001*
	Mean ± SD.	20.59 ± 4.55	28.23 ± 4.01		
Act with awareness items.	**Min. – Max.**	10.0 – 25.0	18.0 – 33.0	15.689	<0.001*
	Mean ± SD.	17.91 ± 3.80	26.09 ± 3.59		
Non-judge items	**Min. – Max.**	11.0 – 27.0	20.0 – 32.0	16.082	<0.001*
	Mean ± SD.	17.75 ± 3.54	26.20 ± 2.81		
Non-react items	**Min. – Max.**	11.0 – 30.0	18.0 – 32.0	13.706	<0.001*
	Mean ± SD.	18.61 ± 4.27	24.73 ± 3.10		

* Statistically significant at p ≤ 0.01

Table (X) shows the distribution of the studied patients with addiction according to Five Factors Mindfulness Questionnaire (FFMQ) subscales pre- and post-implementation of mindfulness based relapse prevention program. Regarding to "observe" items, results revealed before implementing the program, 50.0 % of the studied patients had moderate observing items and 25.0% had high observing items. While after implementation of the program, 52.3% of the studied patients had high observing items and 47.7% had moderate observing items. An evident statistically significant difference was detected between pre-implementation and post-implementation of the program (Z= 4.600, P<0.001).

In relation to "describe" items, results showed before implementing the program, 52.3% of the studied patients had moderate describing items and 43.2% had low describing items. While after implementation of the program, 63.6% of the studied patients had moderate describing items and 36.4% had high describing items. An evident statistically significant difference was detected between pre-implementation and post-implementation of the program (Z= 5.260, P<0.001).

Concerning "act with awareness" items, results revealed before implementing the program, 56.8% of the studied patients had low acting with awareness items and 43.2% had moderate acting with awareness items. While after implementation of the program, 79.5% of the studied patients had moderate acting with awareness items and 18.2% had high acting with awareness items. An evident statistically significant difference was detected between pre-implementation and post-implementation of the program (Z= 5.324, P<0.001).

Coming to "non- judge" items, results revealed before implementing the program, 54.5% of the studied patients had low non-judge items and 45.5% had moderate non-judge items. While after implementation of the program, 90.9% of the studied patients had moderate non-judge items and 9.1% had high non-judge items. An evident statistically significant difference was detected between pre-implementation and post-implementation of the program (Z= 5.112, P<0.001).

regarding "non- react" items, results revealed before implementing the program, 59.1% of the studied patients had moderate non-reacting items and 36.4% had low non-reacting items. While after implementation of the program, 75.0% of the studied patients had moderate non-reacting items and 25.0% had high non-reacting items. An evident statistically significant difference was detected between pre-implementation and post-implementation of the program (Z= 4.811, P<0.001).

Table (X): Distribution of the studied patients with addiction according to Five Factors Mindfulness Questionnaire (FFMQ) subscales pre- and post-implementation of mindfulness based relapse prevention program:

FFMQ subscales	Pre-implementation		post-implementation		Z	Significance (P)
	No.	%	No.	%		
Observe items						
Low (8 - 18)	11	25.0	0	0.0	4.600	<0.001*
Moderate (19 - 29)	22	50.0	21	47.7		
High (30 - 40)	11	25.0	23	52.3		
Describe items						
Low (8 - 18)	19	43.2	0	0.0	5.260	<0.001*
Moderate(19 - 29)	23	52.3	28	63.6		
High(30 - 40)	2	4.5	16	36.4		
Act with awareness items						
Low (8 - 18)	25	56.8	1	2.3	5.324	<0.001*
Moderate(19 - 29)	19	43.2	35	79.5		
High(30 - 40)	0	0.0	8	18.2		
Non-judge items						
Low (8 - 18)	24	54.5	0	0.0	5.112	<0.001*
Moderate(19 - 29)	20	45.5	40	90.9		
High(30 - 40)	0	0.0	4	9.1		
Non-react items						
Low (7 - 16)	16	36.4	0	0.0	4.811	<0.001*
Moderate (17 - 26)	26	59.1	33	75.0		
High (27 - 35)	2	4.5	11	25.0		

Z for Wilcoxon signed ranks test * Statistically significant at $p \leq 0.01$

Table (XI) illustrates the distribution of the studied patients with addiction according to Five Facet Mindfulness Questionnaire (FFMQ) pre- and post-implementation of mindfulness based relapse prevention program. Results revealed that before implementing the program, all of the studied patients had moderate FFMQ. While after implementation of the program, 65.9% of the studied patients had high FFMQ and 34.1% of them had moderate FFMQ. An evident statistically significant difference was detected between pre-implementation and post-implementation of the program (Z= 5.385, P<0.001).

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Table (XI): Distribution of the studied patients with addiction according to Five Factors Mindfulness Questionnaire (FFMQ) pre- and post-implementation of mindfulness based relapse prevention program:

FFMQ	Pre-implementation		post-implementation		Z	Significance (P)
	No.	%	No.	%		
Low (<65)	0	0.0	0	0.0	5.385	<0.001*
Moderate (65 - <130)	44	100.0	15	34.1		
High (≥130)	0	0.0	29	65.9		

Z for Wilcoxon signed ranks test * statistically significant at p ≤ 0.01

Table (XII) shows the mean scores of Acceptance and Action Questionnaire (AAQ) among the study group of patients with addiction pre- and post-implementation of mindfulness based relapse prevention program. It was observed that the studied group before the implementation of the program ranged from 13.0 to 38.0 and after the implementation of the program ranged from 26.0 to 49.0. The mean score among the studied patients with addiction was significantly improved from 26.50 ± 6.38 to 39.39 ± 5.98 after implementing the program (paired t = 17.527, P <0.001).

Table (XII): The mean scores of Acceptance and Action Questionnaire (AAQ) among the study group of patients with addiction pre- and post-implementation of mindfulness based relapse prevention program:

AAQ	Pre-implementation	post-implementation	Paired t-test	Significance χ_1^2 (P)
Min. – Max.	13.0 – 38.0	26.0 – 49.0	17.527	<0.001*
Mean ± SD.	26.50 ± 6.38	39.39 ± 5.98		

*statistically significant at p ≤ 0.01

Table (XIII) represents the distribution of the studied patients with addiction according to Acceptance and Action Questionnaire (AAQ) pre- and post-implementation of mindfulness based relapse prevention program. Results revealed that before implementing the program, 61.4% of the studied patients had moderate AAQ and 38.6% of them had low AAQ. While after implementation of the program, 90.9% of the studied patients had moderate AAQ and 9.1% of them had high AAQ. An evident statistically significant difference was detected between pre-implementation and post-implementation of the program (Z= 4.583, P<0.001).

Table (XIII): Distribution of the studied patients with addiction according to Acceptance and Action Questionnaire (AAQ) pre- and post-implementation of mindfulness based relapse prevention program:

AAQ	Pre-implementation		post-implementation		Z	Significance χ_1^2 (P)
	No.	%	No.	%		
Low (<24)	17	38.6	0	0.0	4.583	<0.001*
Moderate (24 - <47)	27	61.4	40	90.9		
High (≥47)	0	0.0	4	9.1		

Z for Wilcoxon signed ranks test *statistically significant at p ≤ 0.01

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IV. DISCUSSION

Results of the present study revealed that the studied patients with addiction have low level of substance craving after the implementation of Mindfulness Based Relapse Prevention (MBRP) program. Such finding may denote MBRP program effect. As, one of the primary goals of MBRP is to target both the experience of and response to craving. Through several exercises and practices, patients developed an increase in their awareness of triggers that elicit craving and the "automatic" craving reaction in response to these triggers. Patients with addiction practice acceptance of the discomfort that was often associated with triggers that they had in the past [15, 19]. In order to feel relief from this discomfort, patients develop craving or a desire for a substance to decrease the intensity of the negative affective, cognitive, or physical state. Also, patients practice acceptance and a nonjudgmental attitude in relating to their experiences and reactions and decreasing the distress which is often associated with self-judgment, frustration or shame associated with craving or substance addiction.

This was almost in line with the findings of several other researchers who found a decrease in the level of substance craving after the implementation of MBRP program among their studied subjects. In this respect, Bowen et al (2009) studied a group of patients with addiction who had completed either inpatient or intensive outpatient treatment and were medically stable to progress into aftercare. As such, all patients had completed initial treatment immediately prior to entering the program and were thus in early stages of abstinence. Following a web-based baseline battery of assessments, patients were randomized to either MBRP or to treatment as usual (TAU) as delivered by the agency, which consisted primarily of 12-step treatment and psycho-educational programming. Following the treatment, a curvilinear effect of treatment on substance addiction outcomes suggested that treatment gains made by MBRP participants, compared to TAU patients. Analyses of craving showed a significantly greater decrease over the follow-up period in MBRP participants as compared to those in TAU [21].

Witkiewitz et al (2013) studied patients with addiction who were recruited from a private, nonprofit agency providing a care for substance addiction and who had completed intensive outpatient or inpatient treatment 2 weeks prior to the study. Analyses of craving showed that the patients who were assigned to MBRP had lower craving scores during and following treatment than patients with TAU [22]. Moreover, Stephanie (2013) studied patients with addiction who were completed a primary treatment, including education about substance use and its effects before joining the MBRP group. The study showed that the MBRP program led to decreasing cravings which had the potential for reducing relapse [23]. Zgierska et al (2009) and other four independent studies had evaluated the effectiveness of MBRP program in the treatment of substance addiction. Results of these studies revealed that patients who received this program reported reduced substance addiction or related improvements, such as reductions in craving and reduced reactivity to substance addiction cues [24-28].

In relation to the effect of MBRP program on five factors mindfulness (observing, describing, acting with awareness, non-judgment & non reactivity), the current results show that the studied patients with addiction have higher levels of total mindfulness and mindfulness factors after the implementation of MBRP program. This may reflect that the studied patients have high discriminative awareness, with a specific focus on acceptance of uncomfortable states or challenging situations without reacting "automatically" [21]. Possible explanation for this finding may be that the MBRP program focuses on raising awareness of environmental triggers to substance addiction, and the physical, affective and cognitive reactions that follow, bringing awareness to the progression of reactions that occur in response to such cues. Although, the studied subjects practiced approaching the reactions with a gentle curiosity, and were given instructions to guide them through "staying with" the experience without exacerbating it, giving into it, or attempting to suppress it. The program's exercise allows the patients to practice imagined exposure and non-reactivity to substance use triggers. They learn skills to stay in contact with the internal reactions to external triggers that put them at high risk for relapse. Additionally, they learn an alternative, competing response to craving by approaching the experience with curious awareness, deescalating the process by not engaging in habitual cognitive or behavioral patterns that tend to intensify the craving reaction.

This finding is consistent with the study done by Bowen et al (2009) that showed a significantly greater increase of five factors of mindfulness over the follow-up period in MBRP participants as compared to those in TAU [21]. Along the same line, Witkiewitz et al (2013) found that studied patients with addiction who were assigned to MBRP had higher scores of five factors of mindfulness during and following treatment than patients with TAU [22].

Berry et al (2010) hypothesized that awareness, acceptance and no-judgment function are necessary and interdependent processes. Each supporting one another and each is an essential factor in the mitigation of the craving response. For example, awareness is a necessary condition for acceptance, i.e., an individual cannot truly accept something of which he or she is not aware. On the other hand, an individual may be aware of his or her experience but unwilling or unable to accept it. This individual may be more likely to attempt to deny or suppress the experience of craving, which may in turn result in even greater craving. In other words, an individual may be aware of an experience, such as an affective response triggered by substance addiction, but may experience self-judgment or shame about the reaction, increasing levels of negative affect and thus putting the individual at greater risk of increased craving. Thus, it was hypothesized that a latent factor indicated by acceptance of experience, acting with awareness, and a non-judgmental attitude toward inner experience, would predict lower levels of craving and would mediate the association between receiving MBRP and changes in craving over time [(29)].

Witkiewitz et al (2010) conducted a study to assess the influence of group membership (MBRP vs. TAU) on the strength of the association between negative affect and craving in the prediction of post treatment substance addiction. The data revealed that differences in craving between the MBRP and TAU groups at the end of treatment were significantly mediated by self-reported mindful acceptance, awareness, and non-judgment. In other words, the reductions in craving among patients who received MBRP could be partially explained by greater mindful acceptance, awareness, and non-judgment among those who received MBRP, in comparison to TAU. These analyses suggest that MBRP might be effective in part by reducing the subjective experience of craving potentially via changes in present moment awareness, increased non-reactivity to salient craving cues by practicing acceptance and non-judgment, and by changing the way individuals respond to negative affect [(18)].

These results may be due to the benefits of MBRP which were incorporated to help the patients to increase present-moment awareness and attentional control, improve their ability to observe and regulate their behavior by not engaging in a pre-potent response (e.g., using substances to alleviate craving), and approach discomfort from a nonjudgmental and nonreactive stance. Patients come into contact with stimuli, such as negative affective states or self-critical cognitions, which in the past have been considered as triggers for substance addiction. Through targeted mindfulness practices, clients maintain contact with these states, engaging in a non-judgmental examination of their physical, affective and cognitive aspects, rather than reactively attempting to avoid or ameliorate the experiences. Through repeated exposure and non-reaction, clients are able to build a repertoire of alternative responses to the cues. For example, in the SOBER space exercise, the patients are taught to “Stop,” “Observe,” “Breathe”, “Expand awareness,” and “Respond mindfully.” The intention of the SOBER breathing space is to help the patients break habitual stimulus-response patterns, such as seeking an immediate “fix” to alleviate a craving experience, by teaching the patients to pause and make conscious, mindful choices [(30)].

Regarding the effect of MBRP program on acceptance of aversive experience, the current results showed that the studied patients with addiction have high level of acceptance after the implementation of MBRP program. As the ultimate goal of MBRP program is to help the patients to accept themselves and move away from the attempt to change who they are. On the other hand, it was found that the experiences of judgment and lack of acceptance increase the intensity of craving. This finding further supports the importance and benefits of MBRP program [(31)].

Acceptance involves developing the skill of relating to all aspects of present experience without judging. In other words, clients are instructed to notice what is happening in the present without evaluating the experiences as being happy, sad, calming, fearful, or whatever else the habitual evaluative process might produce for the individual. A more automatic reaction might be to label the experience as aversive and attempt to extinguish it. Instead, learning to sit with the present experience without judging allows for exploration of the basic constituents of the experience and enhanced self-awareness. Also, MBRP increases exposure to internal experiences and decreases avoidance.

On the other hand, common approaches involve finding ways to cope with cravings through avoidance and distraction. However, this ultimately places a label on cravings for substances as being bad which can result in patients experiencing cravings to turn them into more than what they originally were, i.e. increasing the duration and the intensity of substance addiction. This in turn increases the likelihood that they will resume their substance addiction [(32- 35)].

In this respect, Witkiewitz et al (2013) found that studied patients with addiction who were assigned to MBRP had greater acceptance during and following treatment than patients with TAU [22]. This finding is also congruent with Bown et al (2009) who found a significantly greater increase of acceptance among MBRP participants as compared to those in TAU, as measured by the Acceptance and Action Questionnaire [21].

V. CONCLUSION

Based on the obtained results, it can be concluded that studied patients with addiction have low level of substance craving, high level of mindfulness factors and high level of acceptance of aversive experiences after the implementation of MBRP program. Those results denote that MBRP program helps patients with addiction to gain better control over where they focus their attention; recognize their cravings without necessarily acting on them; and increase their awareness of their thoughts, emotions &bodies. In this way, they accept their experiences rather than avoiding them or acting in impulsive and harmful ways. So, it can be stressed that planning of any treatment and rehabilitation program has to consider the importance of this program in order to achieve success and improve patient's recovery.

VI. RECOMMENDATIONS

1- Assessment of level of craving, mindfulness factors and acceptance must be incorporated into routine clinical assessment of the patients with addiction and in planning rehabilitation programs based on individual needs.

2- In-service training for nurses working with patients with addiction should incorporate an understanding of many factors that affect treatment of those patients as craving, mindfulness factors and acceptance of aversive experiences.

3- Training of nurses and health care professionals on MBRP program to help them in practical applications and holistic health promotion for patients with addiction.

4- Further researches are needed to clarify the effect of MBRP program on relapse rate among patients with addiction.

5- Study the comparison between the effect of MBRP program and other different treatment programs to improve the abstinence rate and reduce the rate of relapse among patients with addiction.

6- Further researches are needed to assess the relationship between substance craving and relapse vulnerability.

REFERENCES

[1] Miller W. What is a relapse? Fifty ways to leave the wagon. Addiction 1996; 91:15-27.

[2] Maisto S, Pollock N, Cornelius J, Lynch K, Martin C. Alcohol relapse as a function of relapse definition in a clinical sample of adolescents. Addictive Behaviors 2003; 28: 449–59.

[3] Witkiewitz K, Marlatt G. Relapse prevention for alcohol and drug problems: That was Zen, this is Tao. American Psychologist 2004; 59: 224–35.

[4] Marlatt G, Witkiewitz K. Relapse Prevention: Maintenance strategies in the treatment of addictive behaviors. 2nd Ed. New York, New York: Guilford Press, 2005; 1-44.

[5] Yahyavi N , Abadi F, Ronald E. Anti-relapse medications: preclinical models for drug addiction treatment. Journal of Pharmacology and Experimental Therapeutics 2009; 124: 235 - 47.

[6] McLellan A, Lewis D, O'Brien C, Kleber H. Drug dependence, a chronic medical illness: Implications for treatment, insurance, and outcomes evaluation. Journal of the American Medical Association2000; 284, 1689-95.

[7] Donovan D. Relapse prevention in substance abuse treatment. In Sorensen J, Rawson R, Guydish J, Zweben J Eds. Drug abuse treatment through collaboration: Practice and research partnerships that work. Washington DC: American Psychological Association Books, 2003; 121-37.

[8] Drummond D, Litten R, Lowman C, Hunt W. Craving research: future directions. Addiction 2000; 95: 47–55.

[9] Kavanagh D, Sitharthan G, Young R, Sitharthan T, Saunders J, Shockley N. Addition of cue exposure to cognitive-behaviour therapy for alcohol misuse: A randomized trial with dysphoric drinkers. Addiction 2006; 101: 1106-16.

[10] Witkiewitz K. Lapses following alcohol treatment: Modeling the falls from the wagon. Journal of Studies on Alcohol and Drugs 2008; 69: 594–604.

[11] Galanter M, Kleber H. Textbook of Substance Abuse. 2nd Ed. Washington: American Psychiatric Press, 1999; 155-94.

[12] O'Farrell T, Choquette K, Cutter H, Brown E, McCourt W. Behavioral marital therapy with and without additional couples relapse prevention sessions for alcoholics and their wives. Journal of Studies on Alcohol 1993; 54:652–66.

[13] Kabat-Zinn J. Mindfulness-based interventions in context: Past, present, and future. Clinical Psychology: Science and Practice 2003; 10: 144-56.

[14] Marlatt G, Bowen S, Chawla N, Witkiewitz K. Mindfulness-based relapse prevention for substance abusers: Therapist training and therapeutic relationships. In Hick S, Bien T Eds. Mindfulness and the therapeutic relationship. New York: Guilford Press, 2008; 180-200, 215-232.

[15] Witkiewitz K, Marlatt G, Walker D. Mindfulness-based relapse prevention for alcohol use disorders. Journal of Cognitive Psychotherapy 2005; 19: 211–28.

[16] Pelissier B, Jones N. Differences in motivation, coping style, and self-efficacy among incarcerated male and female drug users. Journal of Substance Abuse Treatment 2006; 30: 113– 20.

[17] Flannery B, Volpicelli J, Pettinati H. Psychometric properties of the Penn Alcohol Craving Scale. Alcoholism: Clinical and Experimental Research 1999; 23(8): 1289-95.

[18] Witkiewitz K, Bowen S. Depression, craving, and substance use following a randomized trial of mindfulness-based relapse prevention. Journal of Consulting and Clinical Psychology 2010; 78 (3): 362-74.

[19] Baer R, Smith G, Hopkins J, Krietemeyer J, Toney L. Using self report assessment methods to explore facets of mindfulness. Assessment Journal 2006; 13: 27-45.

[20] Hayes S, Strosahl K, Wilson K, Bissett R, Pistorello J, Toarmino D, Polusny M, Dykstra T, Batten S, Bergan J, Stewart S, Zvolensky M, Eifert G, Bond F, Forsyth J, Karekla M, McCurry S. Measuring experiential avoidance: A preliminary test of a working model. The Psychological Record 2004; 54: 553-78.

[21] Bowen S, Chawla N, Collins S, Witkiewitz K, Hsu S, Grow J, Marlatt G. Mindfulness-based relapse prevention for substance use disorders: A pilot efficacy trial. Substance Abuse 2009; 30: 295-305.

[22] Witkiewitz K, Bowen S, Douglas H, Sharon H. Mindfulness-based relapse prevention for substance craving. Addictive Behaviors 2013; 38: 1563-71.

[23] Stephanie R. How mindfulness works: identifying mediating variables in a mindfulness-based intervention on relapse in substance use disorders. The faculty of Fielding Graduate University, 2013. Available at: http://search.proquest.com/docview/654886515/13A8W9ERAA78/1?account id=37552. Retrieved on: 15/5/2016.

[24] Zgierska A, Rabago D, Chawla N, Kushner K, Koehler R, Marlatt A. Mindfulness meditation for substance use disorders: A systematic review. Substance Abuse. 2009; 30:266-94.

[25] Brewer J, Sinha R, Chen J, Michalsen R, Babuscio T, Nich C, Rounsaville B. Mindfulness training and stress reactivity in substance abuse: Results from a randomized, controlled stage I pilot study. Substance Abuse 2009; 30:306-17.

[26] Zgierska A, Rabago D, Zuelsdorff M, Miller M, Coe C, Fleming MF. Mindfulness meditation for relapse prevention in alcohol dependence: A feasibility pilot study. Journal of Addiction Medicine 2008; 2:165-73.

[27] Bowen S, Witkiewitz K, Chawla N, Grow J. Integrating mindfulness and cognitive behavioral traditions for the long-term treatment of addictive behaviors. Journal of Clinical Outcomes Management 2011; 18:473-9.

[28] Kavanagh D, Andrade J, May J. Beating the urge: Implications of research into substance-related desires. Addictive Behaviors 2004; 29:1359-72.

[29] Berry L, May J, Andrade J, Kavanagh D. Emotional and behavioral reaction to intrusive thoughts. Assessment 2010; 17: 126-37.

[30] Kadden R, Cooney N, Kabela E. Coping skills and treatment outcomes in cognitive-behavioral and interactional group therapy for alcoholism. Journal of Consulting & Clinical Psychology 2003; 71(1): 118-28.

[31] Vieten C, Astin J, Buscemi R, Galloway G. Development of an acceptance-based coping intervention for alcohol dependence relapse prevention. Substance Abuse 2010; 31: 108-16.

[32] Bowen S, Chawla N, Marlatt G. Mindfulness- based relapse prevention for addictive behaviors: A clinician's guide. New York: Guilford Press, 2010; 44-5, 95-110.

[33] Marlatt G. Addiction and acceptance. In Hayes S, Jacobson N, Follette V, Dougher M Eds, Acceptance and Change: Content and Context in Psychotherapy. Reno, NV: Context Press, 1994; 175-202.

[34] Bowen S, Witkiewitz K, Dillworth T, Chawla N, Simpson T, Ostafin B ,Marlatt G. Mindfulness meditation and substance use in an incarcerated population. Psychology of Addictive Behaviors 2006; 20: 343-7.

[35] Eagan T. Treatment of Substance Use Disorders by Coping with Drug Cravings Through the Use of Mindfulness Meditation: A Program Development. The Faculty of the Chicago School of Professional Psychology. 2010. Available at: http://search.proquest.com/docview/656898525/11A3W0EYAT70/1?account id=77122. Retrieved on: 22/5/2016.