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Effect of Mindfulness Training Techniques on Anxiety among Patients with Major Depressive Disorder

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Abstract: Background: Major Depressive Disorder (MDD) is a major contributor to the global disease burden and one of the top causes of disability globally. Depression negatively impacts patients, their families, and the entire community with serious economic, social, and health consequences. The **aim** of the study is to evaluate the effects of mindfulness training techniques on anxiety among patients with major depressive disorder. ***Subjects and method:*** The current study used a quasi-experimental research design [one group pretest - posttest] with a sample of 60 patients diagnosed with major depressive disorder admitted to Psychiatry Inpatient Department at Mansoura University Hospital. Three tools were used to gather the data: socio-demographic characteristics and clinical data sheet, Beck Depression Inventory (BDI-II) scale, and Beck Anxiety Inventory (BAI) scale. ***Results:*** This study's findings showed that, prior to using the mindfulness training technique, over half (51.7%) of the patients experienced severe depression. Additionally, over half (53.3%) of the patients in the study exhibited a moderate level of anxiety. At the end of eight weeks of intervention, the mindfulness training techniques were associated with significant decreases in the severity of symptoms associated with depression ($p \leq 0.001$). Also, results showed significantly alleviating anxiety symptoms from pre- to post-intervention ($p \leq 0.001$). **In conclusion**, using a mindfulness training program with patients who are depressed help them feel less anxious and depressed. It is **recommended** that mindfulness training practices be used as a therapeutic intervention to lower anxiety and depression levels for all patients with depression. Moreover, further studies will be recommended to measure the effect of mindfulness interventions in the long run.

Key Words: Major depressive disorder, Severity of depression, Anxiety, Mindfulness training techniques.

INTRODUCTION

It is believed that depression could possibly be one of the earliest and most commonly recognized diagnosed psychiatric disorders. In fact, depression is so prevalent in society that it is often referred to as the "common cold" of psychiatry ***(Kandhakatla et al., 2018)***.The term "depression" is often used to describe emotions of sadness, discouragement, hopelessness, lack of motivation, and overall loss of interest or pleasure in life. If these feelings are only present for a brief time, it may be referred to as a temporary bout of "the blues". However, if these feelings persist for longer than two weeks and disrupt daily routines, it is probable that one is experiencing a Major Depressive Disorder(MDD)***(Marx et al., 2023)***.

MDD is a challenging health condition throughout the lifespan ***(Sayed et al., 2022)***. Depression is a debilitating condition that impairs an individual's ability to take care of themselves and fulfill their duties **(Huang et al., 2019)**.Patients with major depressive disorder often exhibit maladaptive coping strategies and difficulties in managing their daily tasks and interactions with others. In addition, these patients have lower levels of academic and occupational achievements, which negatively impacts their overall life goals ***(Gómez Maquet et al., 2020)***.Depression is a widespread and costly disorder, with a significant economic burden due to its high prevalence and substantial functional impairments entailed in the illness***(Greenberg et al., 2021).***

Despite the fact that the estimated number of patients with major depressive disorder diagnoses has increased, the exact causes of the rising prevalence and the exact causes of depressive disorders remain a mystery***(Clarke et al., 2018)***. Even sometimes, genetic factors and external environmental factors (such as stressful events) are believed to play a role in the development of depression***(Yang et al., 2015)***. The significance of stressful life events in the etiology of major depressive disorder is widely acknowledged. Stress can cause anxiety, but if anxiety persists and is left untreated, it can develop into more serious mental diseases like depression ***(Chao et al., 2020)***.

A major contributor to the general disease burden is the high frequency of experiencing both symptoms of depression and anxiety ***(Lallukka et al., 2019)***. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) fifth edition introduced the "anxious distress" specifier to help identify patients who have both disorders within the major depressive disorder category because depression and anxiety frequently co-occur. Anxious depression is highly prevalent, the research indicating that 50–75% of patients with major depressive disorder also fit the DSM-5 criteria for anxious depression***(American Psychiatric Association (APA), 2013)***. When compared to patients with major depressive disorder alone, patients with anxiety and major depressive disorder together also have much worse functioning and a lower quality of life. Furthermore, compared to patients with major depressive disorder without anxiety, those with

anxiety also take significantly longer to reach remission and have a lower chance of doing so***(Hopwood, 2023)***.

In addition to being the most prevalent mental illness, depression is also one of the most stubborn diseases, according to research. After going through a serious depressive episode, up to 80% of people may relapse. Drugs may become less effective with time, even if they are initially beneficial ***(M. Atia & E. Sallam, 2019).*** Mindfulness is "a psychological process that focuses attention specifically and non-judgmentally on present-moment experience and can be developed through meditation and other training practices." Techniques for mindfulness training show promise in improving the general well-being and health of individuals suffering from depression, as well as lowering symptoms of anxiety and depression, enhancing focus, and enhancing the capacity to manage daily stressors ***(Falsafi, 2016)***.

To the best of my knowledge, not much research has been done on examining the effects of mindfulness training techniques on anxiety symptoms among patients with depressive disorders in developing countries, especially in Egypt. Additionally, mental health professionals and psychiatric nurses are becoming less knowledgeable about how to use practical interventions for patients with major depressive disorder. Therefore, this research may be a starting point to conduct more studies about the role of mindfulness therapy on anxiety among patients with depressive disorders in Egypt.

Aim of the study:

The aim of the study is to evaluate the effects of mindfulness training techniques on anxiety among patients with major depressive disorder.

Research Hypothesis:

Patients with major depressive disorder who receive mindfulness intervention will express a reduced level of depression and anxiety.

SUBJECTS AND METHOD

Study design:

This study used a quasi-experimental research design with a single-group pretest and posttest.

Setting:

The study was carried out at the Psychiatry Inpatient Department at Mansoura University Hospital.

Subjects:

Sixty patients with major depressive disorder who met the following criteria were included in the study: all patients with major depressive disorder according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as determined by their medical records, both genders, age from 18 to less than 60 years old, patients who were able to communicate, and patients who were granted permission to take part in the study. Patients with major depressive disorder related to substance abuse and organic disease are excluded from the study.

Tools: Three tools was used to collect data, includes:

A semi structured interview questionnaire was used to obtain the socio-demographic characteristics and clinical data of the studied patients.

Tool I: Socio-demographic characteristics and clinical datasheet:

This researcher-designed questionnaire is based on a review of relevant, recent literature. It consisted of information about:

A. Socio-demographic data: Patient's name, age, sex, educational level, marital status, residence …etc.
B. Clinical data: This comprised the diagnosis, onset and duration of illness, previous number of psychiatric hospital admissions, family history, suicide …etc.

Tool II: Beck Depression Inventory (BDI-II)scale:

The Beck Depression Inventory (BDI-II) scale was created by ***(Beck et al., 1996)***in response to the American Psychiatric Association's revised Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) depression criteria, which changed many of the criteria for major depressive disorder. This tool is a rating scale used to determine the severity of depressive symptoms. There are 21 items in this tool, and each one's intensity varies based on how severe the symptoms are. The patient has four options for each item, ranging from no symptoms to severe symptoms. A scoring system of BDI-II follows the following: from 0-13, there is no depression; from 14-19, there is mild depression; from 20-28, there is moderate depression; and from 29-63, there is severe depression. This tool has good validity and reliability in a community sample***(Emilio García-Batista et al., 2018)***.

Tool III: Beck Anxiety Inventory (BAI) scale:

The Beck Anxiety Inventory (BAI) scale was created by ***Beck et al., (1988)***.This scale was created as a highly standardized assessment tool for evaluating how severe anxiety symptoms were. This tool has good validity and reliability in a community sample. The 21 items in the BAI have a Likert scale with a range of 0 to 3 and raw scores that go from 0 to 63. This scale has a rating system of 0 to 3, where 0 represents no symptoms and 3 represents severe symptoms. Minimal anxiety (0-7), mild anxiety (8-15), moderate anxiety (16-25), and severe anxiety (26-63) are the four categories used in the BAI scoring system. The patient is asked to describe their feelings during the last week for each item ***(Muntingh et al., 2011)***.

Procedure:

An administrative approval:

The head of the psychiatric department at Mansoura University Hospital and the dean of the nursing faculty gave their approval after the researcher had described the goal of the research and the questionnaire that was utilized.

Ethical considerations:

The Mansoura University Faculty of Nursing's Research Ethical Committee granted ethical permission. The study's aims, procedures, risks that exist, and benefits were explained to the patients. They were also informed that it is entirely voluntary to participate in the study. Those who consented to take part in the study gave their informed consent. Participants received assurances on the

confidentiality of their personal data. They were also told there would be no consequences if they left the study at any moment.

A Pilot study:

A pilot study was carried out on twelve patients prior to starting data collection in order to assess the tools' clarity, applicability, and completion time. The pilot study sample was excluded from the total study sample.

Pre-intervention phase:

All patients with major depressive disorders will be assessed using the research tools (socio-demographic characteristics and clinical data sheet), the Beck Depression Inventory (BDI-II) scale, and the Beck Anxiety Inventory (BAI) scale to obtain baseline data. If a participant meets the inclusion criteria, they will all take part in the study.

The intervention phase:

The implementation of these mindfulness training techniques is intended to be applied to the study sample after the pre-intervention phase. Reducing the severity of anxiety and depression symptoms in patients with major depressive disorder is the main purpose of the sessions. The intervention group attended eight consecutive weekly sessions that lasted approximately 60 minutes. For each of the eight sessions, these mindfulness training techniques have a set of precise objectives. This was accomplished by using a range of instructional techniques, including role-playing, data shows, videos, and pictures.

Demonstrations and re-demonstrations are performed under the supervision of researchers, after which patients use the mindfulness techniques independently. All of the sessions were centered around practical mindfulness methods that could be used in everyday life. During the first two sessions, the researcher gives lectures about the nature, concept, and guiding principles of mindfulness techniques. Practices of mindfulness include: body scans, three-minute mindfulness, mindfulness breathing, mindfulness of thoughts, mindfulness meditation, and mindfulness eating techniques.

Post Assessment Phase:

The study tools will be used to evaluate depressed patients both immediately following program implementation and a month later.

Statistical analysis:

To analyze the data, SPSS version 22 was utilized. Qualitative data was described in terms of numbers and percentages. The "chi-square test" was applied in order to examine the correlation between the category variables. For parametric data, continuous variables were described as "mean ± SD (standard deviation). Significance is achieved for all statistical tests conducted when the probability of being error is 5% or less ($p \leq 0.05$).

RESULTS

Table (1): Distribution of studied patients according to Socio-demographic characteristics:

Socio-demographic Characteristics	No(60)	%(100)
Age (years)		
18<30 years	19	31.7
30<45 years	29	48.3
45 < to less than 60 years	12	20.0
Mean ± SD = 36.37 ± 8.09 years		
Sex		
Males	27	45.0
Females	33	55.0
Level of Education		
Illiterate	7	11.7
Read & write	21	35.0
Diploma or secondary school	13	21.7
University	19	31.7
Marital status		
Married	33	55.0
Single	19	31.7
Divorced	5	8.3
Widow	3	5.0
Occupation		
Not working	13	21.7
House wife	25	41.7
Manual work	9	15.0
Professional work	13	21.7
Residence		
Urban	27	45.0
Rural	33	55.0
Income		
Insufficient	38	63.3
Sufficient	22	36.7
Total	60	100%

Table (1) demonstrates that the age of the studied patients ranged from 18 to less than 60 years, with a mean ± SD of (36.37 ± 8.09). Nearly half of the studied patients (48.3%) were among age group of 30 to 45 years. More than half of the studied patients (55.0%) were female. According to level of education, about half of the studied patients (46.7%) were illiterate or read and write. Regarding marital status, (40.0%) of studied patients reported that they were single or

divorced (31.7% and 8.3%) respectively. Concerning occupation, nearly two thirds of studied patients (63.4%) were not employed. According to the residence, more than half of the studied patients (55.0%) live in rural areas. Regarding satisfactory of income nearly two thirds of the studied patients (63.3%) had insufficient income.

Table (2): Distribution of the studied sample according to clinical data:

clinical data	No(60)	%(100)
Psychiatric illness in the family		
No	35	58.3
Yes	25	41.7
Duration of disease		
Less than 1 years < 2 years	37	61.7
2 < 5 years	3	5.0
4 < 10 years	16	26.7
10 +	4	6.7
Mode of hospital admission		
Involuntary	33	55.0
Voluntary	27	45.0
Number of hospitalization		
Once	28	46.7
Twice	24	40.0
Three times	4	6.7
Four times	1	1.7
Five times	3	5.0
Previous psychiatric treatment		
No	7	11.7
Yes	53	88.3
Drug adherence		
No	32	53.4
Causes of non-adherence		
Lack insight	16	50.0
Expensive treatment	10	31.3
Long treatment duration	2	6.2
Side effects of medications	4	12.5
If Yes	28	46.6
Yes regularly	11	18.3
Yes interrupted	17	28.3
Suicidal thoughts		
No	15	25
Yes	45	75
Total	60	100%

Table (2) shows that more than one-third (41.7%) of the studied patients had a history of mental illness in their families. Regarding the duration of the disease, about one-third (33.4%) of the studied patients reported that they had been suffering from depression for five to more than ten years. More than half of the studied sample (55.0%) were admitted to the hospital in an involuntary way, and the majority (86.7%) were admitted to the hospital once or twice. The majority of the studied sample (88.3%) had a history of taking psychiatric medications. According to medication adherence, (53.4%) of the studied patients had no adherence to medication, and half of them (50.0%) had no adherence related to a lack of insight. Three-quarters (75%) of the studied patients had suicidal thoughts.

Table (3): Severity of depression symptoms among the studied sample according to Beck Depression Inventory (BDI-II) Scale before and after the program's implementation (immediately and one month later):

Severity of Depression symptoms	Pre		Immediately		After one month		Test	
	No	%	No	%	No	%	χ^2	P
No	0	0.0	22	36.7	18	30.0		
Mild	14	23.3	12	30.0	14	23.3	55.58	<0.001**
Moderate	15	25.0	22	36.7	22	36.7		
Severe	31	51.7	4	6.7	6	10.0		
Total	**60**	**100%**	**60**	**100%**	**60**	**100%**		

X2: chi-square
**** Highly significant p ≤ 0.001, * significant p <0.05**

Table (3) demonstrates that over half of those participating in the study experienced severe depressive symptoms (51.7%) before intervention, which decreased to (6.7%) immediately post-intervention. While month after the program, the depression level of the studied patients slightly increased (10.0%) compared to immediately after the program. There were highly statistically significant variations in depression severity levels for the studied patients pre-, immediately post-, and one month after mindfulness intervention ($p \leq 0.001$).

Table (4): Severity of Anxiety symptoms among the studied sample according to Beck Anxiety Inventory (BAI) before and after the program's implementation (immediately and one month later):

Severity of Anxiety symptoms	Pre		Immediately		After one month		Test	
	No	%	No	%	No	%	χ^2	P
Low anxiety	18	30.0	42	70.0	37	61.7		
Moderate anxiety	32	53.3	18	30.0	23	38.3	34.050	<0.001**
High anxiety	10	16.7	0	0.0	0	0.0		
Total	60	100%	60	100%	60	100%		

X2: chi-square
**** Highly significant p ≤ 0.001, * significant p <0.05**

Table (4) demonstrates that moderate anxiety symptoms were present in more than half of the individuals in the study (53.3%) before intervention, which decreased to (30.0%) immediately post-intervention. While one months after the program, the anxiety level of the studied patients slightly increased (38.3%) compared to immediately post-program. There were highly statistically significant differences in anxiety severity levels for the studied patients pre-, immediately post-, and one month after mindfulness intervention ($p \leq 0.001$).

DISCUSSION

The results of the current study showed that more than half of the patients in this study had a severe level of depression before applying the mindfulness training techniques. This is in accordance with ***Lutfi & Lami, (2019)*** and ***Khalaf et al., (2020)***in Egypt, who reported that severe depression symptoms were present in half of the group they evaluated. This finding, however, is inconsistent with ***Al-Jabi et al., (2021)*** and ***Kreppke et al., (2023)***, who reported that about half of the patients were classified as having mild depression.

One possible explanation for the high prevalence of severe depression in this study could be that only moderate-to-severe symptoms attracted the attention of caregivers and others. Also, patients admitted to psychiatric hospitals were diagnosed with a moderate or severe level of depression. As well as, mild symptoms of depression will not be recognized as a treatable medical disease due to lower levels of education, as reported in the present study.

Moreover, some families may consider the mild symptoms of depression as normal or temporary symptoms that will improve with time. Alternatively, some families may consider some symptoms of depression, like quietness, as advantages or positive characteristics rather than referring to a disorder. Moreover, the general awareness of the community regarding depression symptoms is very minimal. Additionally, patients in the present study did not undergo behavioral or psychosocial programs that could reduce the severity of depressive symptoms.

According to the effect of the mindfulness intervention on the severity of depression symptoms among the studied patients, the current study showed that more than half of the studied patients had a severe level of depression before intervention, which decreased immediately post-intervention. While month after the program, the depression level of the studied patients slightly increased compared to immediately post-program.

This result is consistent with the research conducted by ***Hong et al., (2022)*** and ***Ding et al., (2023)***, who proposed that mindfulness interventions have greater effects on patients with more severe depression. On the other hand, ***Gallegos et al., (2013)*** and ***Chiodelli et al., (2020)***revealed that mindfulness interventions had a greater impact on the lower depression level. Because people who are depressed tend to ruminate more, it may be difficult for them to complete their regular mindfulness training.

One possible explanation might be that the patients were committed to following instructions and completing assignments; the interventional program used a variety of sessions and well-structured techniques. Patients are given psycho-educational sessions from the beginning regarding the nature of the illness, managing symptoms, and preventing recurrence through adherence to the treatment plan. Furthermore, people who are severely depressed might be more motivated to overcome bad feelings and seek inner peace, as well as more open to training and performing higher-quality mindfulness exercises. Also, the slightly increased depression level of the studied patients one month of the program indicates the importance of continuous implementation of mindfulness interventions for depressed patients in the long run.

Additionally, the use of mindfulness training techniques, which entail self-regulation of attention and an emphasis on the present moment, may have contributed to this outcome. Also, it helps patients concentrate their thoughts from a general negative way of thinking to a more targeted, present-focused way by activating particular emotion control skills.

The results of the current study showed that before the mindfulness training was implemented, more than half of the studied patients experienced moderately severe anxiety symptoms. This result is in line with ***Alagizy et al., (2020)***in Egypt and ***Shehata et al., (2021)***, who reported that three-quarters of depressed patients had moderate severity of anxiety symptoms. However, ***Solomou & Constantinidou, (2020)*** revealed that about half of their studied sample reported symptoms associated with mild anxiety. Similarly, ***Besirli, (2020)***confirm their results.

This finding may be attributed to that patients before interventions had insufficient awareness of the disorder and were overwhelmed by a number of stressors and

unanswered questions about how they should handle their different stressful situations as well as challenging and difficult tasks. As a result, patients with depression may have an anxious mood. Additionally, when depressed patients are distressed, they more likely to focus on only bad experiences, such as feelings of inadequacy or failure, which makes them feel anxious and result in negative emotion.

Regarding the comparison of the severity of anxiety symptoms before and after mindfulness training techniques, the current research found that over half of the patients had moderately severe anxiety symptoms before intervention, which decreased immediately post-intervention. While month after the program, the anxiety level of the studied patients slightly increased compared to immediately post-program.

On the same line, studies conducted by ***Güney et al., (2022)***noticed that mindfulness interventions alleviated average anxiety symptoms in the studied group. Additionally, ***Pouyanfard et al., (2020)*** and ***Leng et al., (2023)***mentioned that the greater improvement produced by mindfulness intervention relative to anxiety symptoms was sustained.

This result is inconsistent with ***Krusche et al., (2018)***, who reported that no significant difference was observed between the control and intervention groups regarding anxiety level after mindfulness intervention.

The possible explanation of the current result may be attributed to mindfulness intervention, which encourages individuals to develop meditative awareness through practicing self-regulation of attention, paying attention to the present, and responding to stress rather than reacting to it. With attitudes of non judgment and acceptance, people with depression may feel more in control of their anxious mood and more alert to their current emotions, which may help to lower their anxiety levels.

According to these findings, "mindfulness training techniques are a promising intervention for alleviating depression and anxiety symptoms in clinical populations.

CONCLUSION

The implementation of mindfulness training approaches with patients who are depressed can help them feel less anxious and depressed.

RECOMMENDATION

Patients with depression will receive mindfulness training techniques as a therapeutic interventions to lower their anxiety and depression levels. Moreover, further studies will be recommended to measure the effect of mindfulness intervention in the long run.

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