Effect of Mindfulness Based Psycho-education Program on Emotional Regulation, Stimulating Hope and Recovery among Patients with Schizophrenia

Mona Mohamed Barakat[(1)], Eman Nabawy Abo Zeid[(2)], Faten Mohamed Ahmed[(3)]
(1,3) Assistant Professor of Psychiatric and Mental Health Nursing, Faculty of Nursing, Benha University. Egypt.
(2) Lecturer, of Psychiatric and Mental Health Nursing, Faculty of Nursing, Benha University. Egypt.

Abstract

Background: Stigma and discrimination are commonplace for people with schizophrenia, which affects their hope for recovery and have emotional regulation difficulty. Mindfulness based psycho-education program is a useful strategy for those who have Schizophrenia; it is known to promote functional recovery and its factors such as hope and increasing adaptive emotional regulation. The **aim** of this study was to evaluate the effect of mindfulness based psycho- education program on emotional regulation, stimulating hope and recovery among patients with schizophrenia. **A quasi-experimental design** was utilized to achieve the aim of the study. **Setting:** The study was carried out in the psychiatric inpatient wards of Benha City's psychiatric and mental health hospital. **Subjects:** A convenience sample of forty patients with diagnosis of schizophrenia. **Data were gathered using** (1) Structured interview questionnaire consisted of personal and clinical data, (2) Emotion regulation questionnaire, (3) Schizophrenia hope scale, and (4) Recovery assessment scale. **The results** showed that the total emotional regulation of the patients was significantly different before and after the program, which encouraged hope and recovery in individuals with schizophrenia. **Conclusion and Recommendation:** The study concluded that patients with schizophrenia benefited from mindfulness-based psycho education program that improved emotional regulation and encouraged hope for recovery. Program for mindfulness psycho-education were suggested by the study as a way to lessen the effects of schizophrenia.

Keywords: Emotional regulation, Hope, Mindfulness, Psychoeducation, Recovery, Schizophrenia

Introduction

Schizophrenia is a chronic brain disorder. This illness can present with a variety of symptoms, including lack of desire, delusions, hallucinations, and trouble focusing and thinking. There are at least 24 million persons with schizophrenia globally, and it typically strikes between the ages of 15 and 35 **(World Health Organization, 2018)**. Research indicates that this disease is more common in men than in women **(Parekh, 2022)**.

Individuals with schizophrenia frequently face discrimination and stigma, which lowers their chances of recovery. And have difficulty regulating their emotions. Recovery is a lifelong process of transformation that enables people to live freely and enhance their health and well-being while working toward their potential. Hope is cited as an accelerator of the recovery process, although it is not the only factor that affects an individual's recovery. Differ and have an impact on other elements **(Acharya & Agius, 2021)**.

Hope is defined as a person's capacity to acquire understanding and inspire them to accomplish a task. Hope is also considered a protective factor against suicide attempts in psychotic patients and has an association with functional recovery that is good. But according to earlier research, those who have schizophrenia exhibit less hope than the general population **(Coşkun and Altun, 2019; and Hayes, 2020)**. Consequently, depression and a lower quality of life may be exacerbated by this illness **(Vrbova et al., 2022).**

Difficulty in emotion regulation refers to a person's difficulty in modulating the emotions when exposed to situations that evoke strong emotions. Gross's (1998) model of the emotion regulation process explains that regulation of emotion begins with choosing or avoiding circumstances (situation modification/selection) to which attention should paid (attention allocation, inferring an assessment of valence and motivational importance).The situation (cognitive assessment) and emotional modulation, which is the expression of emotions in response to contextual demands **(Gross, 1998)**.

People with schizophrenia have difficulty regulating their emotions. The results show that

they have a significant deficit in emotional awareness and that they initiate more techniques for controlling emotions at a lower negative emotional intensity threshold. Compared to healthy respondents; they used more emotion management techniques, such as rumination, reappraisal, suppression, and situational adjustment. In addition, they lose in the struggle of rumination and try to cope with experiences of negative valence. Negative emotions are linked to schizophrenia's maladaptive use of rumination, reappraisal, suppression, affective impairment, symptom exacerbation, and relapse. Increased reliance on suppression is closely associated with decreased emotional expressiveness or acute affect, with normal or elevated the strength and experience of emotions. Difficulties in emotion regulation are also associated with disturbance in everyday life and impaired interpersonal functioning **(Perry et al., 2022).**

Being attentive and cognizant of the moment, thoughts, and emotions without passing judgment is the state of mindfulness. In individuals with schizophrenia, acting thoughtfully and without passing judgment was associated with a decrease in defeatist thoughts and a decrease in the need for approval. Additionally, mindfulness is linked to less behavioral inhibition, which suggests a decreased desire to avoid unpleasant stimuli, and more adaptive emotion regulation. Patients who receive mindfulness therapy using a calming technique may become more conscious of their breathing and circulation and learn to concentrate in the here and now, the patients' cognitive insight and functional recovery both improved with mindfulness-based therapy. Additionally, mindfulness has been shown to increase recovery variables like hope and life purpose by fostering serenity and assisting with mood control **(Ganguly, 2020; Lam & Chien, 2021).**

By lowering behavioral inhibition, enhancing adaptive emotion regulation, and fostering detachment from dysfunctional attitudes, mindfulness-based interventions are known to enhance well-being **(Ganguly, 2020).** Numerous studies demonstrated the benefits of mindfulness-based therapy for schizophrenia, including improved psychosocial functioning, positive outcomes, awareness of the condition and its need for treatment, and a decrease in negative symptoms **(Lee, 2019)**. Additionally, meta-analysis studies demonstrated the important role mindfulness plays in helping individuals with schizophrenia recover by lowering stress and sadness and boosting functional recovery **(Yılmaz & Okanlı, 2018).**

Despite research demonstrating the effectiveness of mindfulness as a treatment for schizophrenia, it is rarely applied in Indonesia. According to a recent study, nursing students' anxiety levels can be lowered by practicing mindfulness. According to a different study, mindfulness therapy can help people with schizophrenia manage their emotions and lower their risk of aggression (Munif et al., 2019).

Significance of the study:

Schizophrenia is regarded as one of the ten most prevalent illnesses worldwide. Schizophrenia affects about 1% of the general population. Schizophrenia is more expensive to cure and care for socially and economically than it is to occur. Compared to other mental disorders, schizophrenia has a far higher burden of long-term damage. Through re-aligning their consciousness and nonjudgmental acceptance of their ideas and feelings, mindfulness-based intervention (MBI) is thought to assist individuals with schizophrenia in responding to their psychotic symptoms. Create a better coping mechanism to handle and control these psychotic episodes. Because MBI affects attentional control, emotional regulation, and self-awareness, it is strongly associated with well-developed self-regulation **(Ganguly, 2018; & Kim et al., 2021)**

Moreover, for various mental illnesses, professional treatments that concentrate on emotion regulation or dysregulation may be quite beneficial (**Ebeid et al., 2022**). Furthermore, people with schizophrenia reported having low hope which affects level of recovery, despite people with schizophrenia who receive mindfulness therapy report feeling more hopeful and recovering from their illnesses more quickly (**Astuti et al., 2020**). To the best of the researchers' knowledge, no clinical studies have been carried out in Egypt to investigate how mindfulness-based interventions affect patients with schizophrenia disorder's emotional control and mindfulness levels. Thus, it was crucial for the researchers to assess how a mindfulness-based psycho education program affected the way people with schizophrenia regulated their emotions and encouraged hope and healing.

The study's Aim:

The aim of this study was to evaluate the effect of mindfulness based psycho- education program on emotions regulation, stimulating hope and recovery among schizophrenic patients.

This was achieved through:

1. Assessing emotions regulation, stimulating hope and recovery among schizophrenic patients.
2. Designing mindfulness based psycho-education program for promoting emotional regulation, stimulating hope and recovery among schizophrenic patients.
3. Implementing mindfulness based psycho-education program on emotions regulation, stimulating hope and recovery among schizophrenic patients.
4. Evaluating mindfulness impact on emotions regulation, stimulating hope and recovery in patients suffering schizophrenia.

Research hypothesis:

Mindfulness based psycho-education program will have positive effect on improving emotions regulation, stimulating hope and recovery among schizophrenic patients.

Subject and methods

Research design:

A quasi-experimental research design (pre/posttest) for one group sampling was utilized to achieve the aim of the study.

Setting:

The study was carried out in the psychiatric inpatient wards of Benha City's psychiatric and mental health hospital, Qalyubia Governorate. The hospital is affiliated with the General Secretariat of Mental Health. The hospital is divided into three buildings: a building with a department for women, a building divided into five departments for men, and a separate building for the drug treatment center.

Subject:

A convenience sample of 40 schizophrenia inpatients, admitted to a psychiatric and mental health hospital, received standard care and be a part of the study on the bases of this inclusion criteria: (1) duration of illness, (2) absence of speech disorders, and (3) ability to continue participating till study end. Patients who were discharged, did not cooperate, and relapsed during the study were excluded. A simple random sample was used to choose the target participants. Firstly, every patient was given an equal opportunity to take part in the research. With the help of the nurse, who gave the researchers the client's name record, the researchers gathered data. They then randomly selected participants by selecting every fifth patient. Some patients were excluded after being chosen based on the inclusion criteria and then the sample completed from the remaining patients in the other inpatient wards.

Data collection instruments:

Data collected by the following instruments:

Instrument (I): Structured interview questionnaire Sheet:

Based on a comprehensive examination of the literature, the researcher created this instrument to evaluate the patients' personal data including age, sex, marital status, level of education, profession, place of residence, income and cohabitation. Clinical data included the patient's age at the onset of the illness, duration of the illness, type of schizophrenia, number of psychiatric admissions and mode of psychiatric hospitalization.

Instrument (2): Emotion Regulation Questionnaire (ERQ):

This scale developed by Gross & John, (2003). It is a 10-item scale intended to assess respondents' propensity for two types of emotional regulation: (1) "6-item" cognitive revaluation including (1, 3, 5, 7, 8, and 10) and (2) "4-item" expressive elimination including (2, 4, 6, and 9). Two distinct elements of emotional life are covered by the scale items, specifically: emotional experience and emotional expression. Respondents responded to each item on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The total score ranged from 10 to 70, with higher scores indicating higher levels of emotional regulation. It was classified into 3 categories: high use if the score was between 15 and 70, moderate use if the score was between 35

and 52, and low use if the score was between 10 and 34.

Tool 3: Schizophrenia Hope Scale (SHS-9):

The SHS-9 scale was developed by Choe (2014). It used three dimensions to assess hope in individuals with schizophrenia: positive expectations for the future, faith in life and the future, and meaning in life. It's a 3-point Likert scale consisting of nine items which ranged from (0 = disagree, 1 = agree, 2 = strongly disagree). The total score goes from 0 to 18, higher scores indicate higher degrees of hope. It was classified into 3 categories: Moderate if the score falls between 9 and 13 years, low if it falls between 0 and 8 years, and high if it falls between 14 and 18 years.

Instrument (4): Recovery Assessment Scale (RAS-DS):

The RAS questionnaire was developed by Hancock et al., (2015). It included 20 items and was translated into Arabic by the researcher. RAS focused on hope and self-determination while attempting to evaluate various facets of recovery. RAS items were rated on a 5-point Likert scale ranging from (1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, and 5 = strongly agree). Responses graded as a total score and three separate domains: 1-Clinical Recovery 4 items describing how individuals feel about their mental illness and symptoms, 2-Personal Recovery 12 items measuring how individuals consider their preferences and choices during the recovery process. And 3-Social Recovery 4 items about how individuals feel about their support system in the recovery process. Higher scores indicate better personal recovery; the overall score goes from 20 to 100. The scores were divided into three levels: poor if they fell between 20 and 49, neutral if they fell between 50 and 74, and best if they fell between 75 and 100.

Methods

Development of instruments:

In order to construct the program and instruments for data collection, this phase involved reviewing pertinent studies that were related to the research literature topic using books, papers, journals, and the internet. This allowed for a comprehensive understanding of all the aspects related to the research issue.

Ethical considerations:

The study setting was approved by Benha University's Faculty of Nursing's Scientific Ethical Committee to collect the necessary data (REC.PSY.NP7). To get their consent to gather the required data, the dean of the Faculty of Nursing also sent an official letter to the head of the hospital authorities in the designated setting. After receiving a thorough description of the objectives and design of the study, the participants gave their consent, indicating that they were willing to participate. Strict standards were followed throughout the study to protect participant confidentiality. Only the researcher had access to all the gathered information. The top aim was to protect the confidentiality and privacy of the participants.

Validity of the instruments:

To gather data, a participant information form was developed by the researchers. The instruments were translated into Arabic according to standard procedures and then they were translated back into English to ensure linguistic and cultural appropriateness. To ensure that the translated tools retained their content validity, Confirmatory Factor Analysis (CFA) was employed. Additionally, a five-person panel of specialists from the Psychiatric and Mental Health Nursing department at Faculty of Nursing, Benha University assessed the face validity of the scales. The panel concluded that the targeted structures were sufficiently assessed by the scales.

Reliability of the instruments:

By presenting the same tools to the same individuals in identical circumstances on one or more occasions, reliability was used to test the tool's internal consistency, as determined by the Cronbach alpha test. Cronbach's alpha was 0.82 for the emotional regulation questionnaire, 0.91 for the schizophrenia hope scale, and 0.94 for the recovery assessment scale.

Pilot study:

Before starting the work, a pilot study was carried out on 10% (4 patients) of the sample, who were selected at random. This was done to determine how long it would take to complete the forms and to find any issues or barriers during data collection, after which the required adjustments were made. The main study sample

did not include subjects who participated in the pilot trial.

Field work:

The study was conducted in four months from the beginning of December 2023 till end of March 2024. It's implemented through three phases: assessment, designing, implementation and evaluation phase.

Phase one: Assessment phase:

- The patients interviewed in a comfortable room in the psychiatric inpatient wards considering privacy.
- Before gathering data, the researchers welcomed the patients, went over the purpose, time frame, and activities of the study, and got their consent to take part.
- Tools (pre-test) were distributed individually to the study subjects. In the presence of researchers, patients filled out the forms, asking questions and seeking help as necessary.
- The interview lasted 30 to 45 minutes, two days a week, from 10 AM to 1 BM, with four to six patients per day, and took around a month.
- Determining the study subject's needs as a starting point for the psychoeducational program was the goal of this phase.

Phase two: Designing phase (Development of the program):

Based on the results obtained from the assessment tools and review of literature the program content was developed by the researcher in the form of a booklet. Each theoretical and practical session of the mindfulness-based psychoeducation program contains a set of general and specific objectives. The objective of the program is to help patients with schizophrenia better regulate their emotions, feel more hopeful, and recover more quickly.

General objectives of the program:

After complete implementation of mindfulness based psycho-education program, patient with schizophrenia should be able to learn how to better control their emotions, which will encourage hope and recovery.

Specific objectives of the program:

At the end of mindfulness based psycho-education program the patient with schizophrenia acquires knowledge and practical skills about:-

- Overview about schizophrenia like (Definition, signs, symptoms, causes, types, complications, treatment of schizophrenia, benefits and side effects of medication, importance of compliance to medications and methods of recovery). Overview about mindfulness, emotion regulation, hope and recovery.
- Practice skills through applying steps like *mindfulness* (mindfulness breathing exercise, body-scan, mindful walking), wherein participants were urged to relax; *emotion regulation* (emotion regulation skills) in which participants able to control and manage their emotion as anger; *self-awareness* (awareness of self), to be attentive of their environment, including the time, location, and the reason for their hospitalization; *acceptance* (accept their current state and believe that **Allah** can recover them from the disease, accept dysfunctional thoughts and think actively), wherein patients can eliminate symptoms of cognitive, emotional, and behavioral impairment. In this manner, a more positive pattern of thinking and emotion might be shaped in the patient.

Phase three: Implementation phase:

- The program consisted of 8 sessions, the first session was an introductory session, two theoretical sessions, four practical sessions, and a final session summary for all the earlier sessions including a post-test. The subjects were divided into six groups; each group consisted of six to seven patients. Each group attends 8 sessions, two sessions/two groups in/week were taken during the morning and the duration of each session was about (60 minute).
- The mindfulness based psycho-education program achieved through theoretical sessions by using several teaching methods such: A visually appealing PowerPoint presentation was utilized to provide the lecture and handout in an easy-to-understand manner. The researchers developed the presentation in simplified Arabic and included pictures and videos as media. Group discussions and brainstorming sessions are used to encourage active participation, allow study participants to share their real-life experiences, and encourage

them with rewards or other forms of positive reinforcement.

- The mindfulness-based psychoeducation program was also accomplished through hands-on training. To teach practical skills, the researcher employed role-playing, laptop videos, demonstration, and re-demonstration.
- Every session started with handout papers detailing hypothetical scenarios and situations, and role-playing activities were conducted between the patients and the researcher as well as between the patients themselves.
- Every session began with a recap of the previous one's contents, and the goals of the current one were discussed while keeping the language simple enough for all patients. Feedback and further explanations for unclear questions were completed at the conclusion of each session summary. The patient was also given homework, which was evaluated at the start of each session.

Phase four: Evaluation phase (post/test):

The post-test was carried out at the end of the program by using the same tools of the pre-test "Emotion regulation questionnaire scale, Schizophrenia hope scale, and recovery assessment scale. This was done after implementation of program to evaluate the effect of mindfulness based psycho-education program take about one month.

Statistical analysis:

SPSS version 25 was used to statistically analyze the results. The range and mean±SD were used to express the numerical data. Frequency and percentage were used to express the qualitative data. The Fridman test and t-student were used to test the relationships between various variables. The strength and direction of the relationship between two quantitative variables were demonstrated using Pearson's Correlation analysis. Statistical significance at p-value $p \leq 0.05$, and considered highly statistically significance at p-value $p \leq 0.001$.

Results:

Table (1) illustrates that less than half (45.0%) of the patients studied belong to the age group between 40 < 50 years, with a mean age of 40.94 ± 6.39, three quarters (75.0%) of them are males and less than half (55.0). %) are females. 55% of them are married. Furthermore, three-fifths (60.0%) of them have a secondary education level, less than two-thirds (65.0%) are unemployed and 55.0% come from rural areas. Furthermore, less than two-thirds (65.0%) of them do not have sufficient income and most (90.0%) of them live with family.

Table (2) shows that, nearly two thirds (65.0%) of the studied patients have 30 years and more years at the onset of the disease with mean age 31.25 ± 5.58. As well as, more than half (57.5%) of them were having the disease between 5<10 years with mean 9.08 ± 3.01, half (50.0%) of them have residual type of schizophrenia. Also, more than half (57.5%) of them hospitalized from 4-6 times, and more than three quarters (77.5%) were admitted involuntary to psychiatric hospital.

Tables (3) illustrates highly statistically significant differences between pre and post regarding the studied patients` total emotional regulation scale and its subscales (cognitive reappraisal and expressive suppression) with P-value (0.000**). In addition, the total emotional regulation score was (24.62±9.55) at pre-program which was increased to (53.77±13.96) at post-program with P- value (0.000**).

Figure (1) represents that three quarters (75%) of the studied patients have less frequency use of emotional regulation at pre implementation of program, which increased to more than half (55%) of them have great frequency use of emotion regulation post implementation of program.

Tables (4) shows highly statistically significant differences between pre and post regarding the studied patients` total stimulating hope scale and its dimensions (positive expectations for the future, confidence in life and the future and meaning in life) with P-value (0.000**). In addition, the total stimulating hope score was (5.40±2.18) at pre-program which was increased to (13.70±3.50) at the post-program with P- value (0.000**).

Figure (2) reveals that more than three quarters (67.5%) of the studied patients have low level of stimulating hope at pre implementation

of program, which increased to more than half to (55%) have high level of stimulating hope post implementation of program.

Tables (5) illustrates highly statistically significant differences between pre and post regarding the studied patients` total recovery scale and its dimensions (clinical recovery, personal recovery and social recovery) with P-value (0.000**). In addition, the total recovery score was (34.07±5.28) at pre-program which was increased to (70.37±7.29) at the post-program with P- value (0.000**).

Figure (3) shows that three quarters (75%) of the studied patients have poor level of recovery at pre implementation of program, which increased to half (50%) of the studied patients have better level of recovery post implementation of program.

Table (6) reveals that, there is a highly statistically significant positive correlation between the studied patients' total score of emotional regulation, stimulating hope and recovery pre-program implementation with P-value (0.000**). In addition, the same table shows that, a highly statistically significant positive correlation between total score of emotional regulation, stimulating hope and recovery post program implementation with P-value (0.000**).

Table (1): Frequency distribution of studied patients according to their personal data (n=40).

Personal data	No.	%
Age (Years)		
20 < 30	4	10.0
30 < 40	10	25.0
40 < 50	18	**45.0**
50 years and more	8	20.0
$\bar{x}$ S.D	**40.94 ± 6.39**	
Sex		
Male	30	**75.0**
Female	10	25.0
Marital status		
Single	7	17.5
Married	22	**55.0**
Divorced	7	17.5
Widow	4	10.0
Educational level		
Read and write	4	10.0
Primary education	6	15.0
Secondary education	24	**60.0**
University education	6	15.0
Occupation		
Employed	14	35.0
Unemployed	26	**65.0**
Residence		
Urban	18	45.0
Rural	22	**55.0**
Income		
Enough	8	20.0
Enough and save	6	15.0
Not enough	26	**65.0**
Cohabitation		
Alone	2	5.0
With family	36	**90.0**
With relative	2	5.0

Table (2): Frequency distribution of studied patients according to their clinical data (n=40).

Clinical data	No.	%
Age at onset of illness (years)		

15< 20 years	2	5.0
20< 25 years	4	10.0
25 < 30 years	8	20.0
30 years and more	26	**65.0**
X̄ S.D	**31.25 ± 5.58**	
Duration of illness (years)		
5< 10 years	23	**57.5**
10< 15 years	10	25.0
15 < 20 years	5	12.5
20 years and more	2	5.0
Type of schizophrenia		
Paranoid schizophrenia	4	10.0
Catatonic schizophrenia	9	12.5
Undifferentiated schizophrenia	7	17.5
Residual schizophrenia	20	**50.0**
Number of psychiatric hospitalization		
1-3 times	11	27.5
4 - 6 times	23	**57.5**
7 times and more	6	15.0
X̄ S.D	**9.08 ± 3.01**	
of admission to psychiatric hospital		
Voluntary	9	22.5
Involuntary	31	**77.5**

Table (3): Comparison between the studied patients regarding emotion regulation at pre and post implementation of mindfulness-based psycho education program (n=40).

Emotion regulation subscales	Pre-intervention						Post-intervention						X^2	P-value
	Great use		Moderate use		Less use		Great use		Moderate use		Less use			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Cognitive Reappraisal	2	5.0	10	25.0	28	70.0	21	52.5	12	30.0	7	17.5	28.47	0.000**
Expressive Suppression	2	5.0	7	17.5	31	77.5	22	55.0	9	22.5	9	22.5	28.03	0.000**
Total emotion regulation score	**2**	**5.0**	**8**	**20.0**	**30**	**75.0**	**22**	**55.0**	**10**	**25.0**	**8**	**20.0**	**29.62**	**0.000****
x̄ S. D	**24.62 ± 9.55**						**53.77 ± 13.96**						**T=15.79**	**0.000****

t= Paired t. test. X^2: Chi Square Test. (**) Highly statistically significant at p < 0.01.

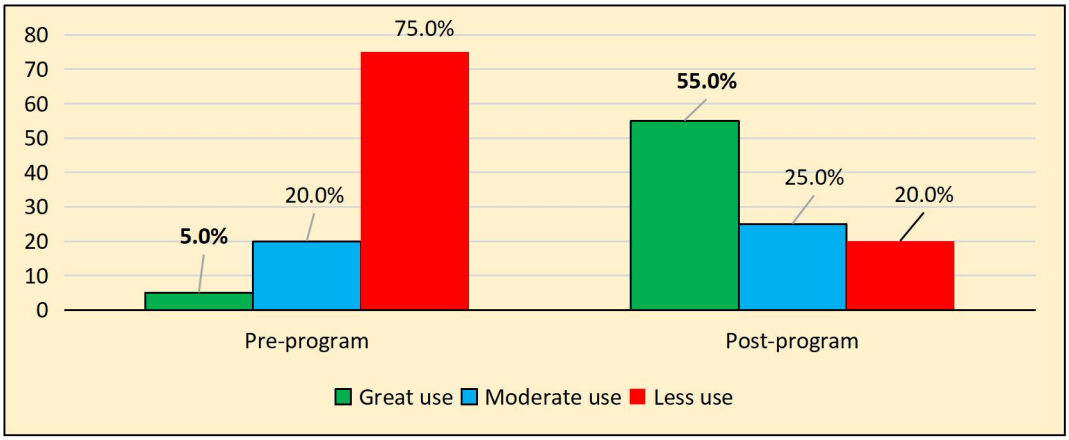

Figure (1): Percentage distribution of the studied patients regarding emotion regulation at pre and post implementation of mindfulness-based psycho education program (n=40).

Table (4): Comparison between the studied patients regarding stimulating hope at pre and post implementation of mindfulness-based psycho education program (n=40).

Hope dimensions	Pre-intervention						Post-intervention						X^2	P-value
	High		Moderate		Low		High		Moderate		Low			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Positive expectations	0	0.0	10	25.0	30	75.0	20	50.0	12	30.0	8	20.0	30.36	0.000**
Confidence in life	4	10.0	9	22.5	27	67.5	23	57.5	13	32.5	4	10.0	34.21	0.000**
Meaning in life	2	5.0	10	25.0	28	70.0	21	52.5	14	35.0	5	12.5	36.79	0.000**
Total stimulating hope score	**2**	**5.0**	**11**	**27.5**	**27**	**67.5**	**22**	**55.0**	**12**	**30.0**	**6**	**15.0**	**38.83**	**0.000****
$\bar{x}$ S. D	**5.40 ± 2.18**						**13.70 ± 3.50**						**T=16.38**	**0.000****

t= Paired t. test. X^2: Chi Square Test. (**) Highly statistically significant at p < 0.01.

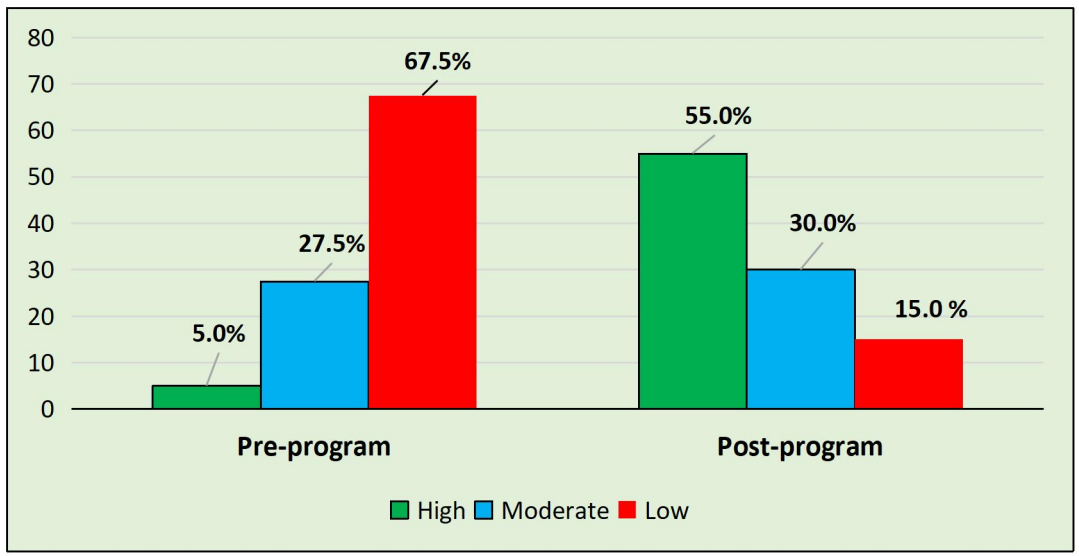

Figure (2): Percentage distribution of the studied patients regarding stimulating hope at pre and post implementation of mindfulness-based psycho education program (n=40).

Table (5): Comparison between the studied patients regarding recovery at pre and post implementation of mindfulness-based psycho education program (n=40).

Recovery dimensions	Pre-intervention						Post-intervention						X^2	P-value
	Better		Neutral		Poor		Better		Neutral		Poor			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Clinical recovery	1	2.5	7	17.5	32	80.0	20	50.0	12	30.0	8	20.0	35.60	0.000**
Personal recovery	2	5.0	11	27.5	27	67.5	22	55.0	14	35.0	4	10.0	35.72	0.000**
Social Recovery	1	2.5	8	20.0	31	77.5	20	50.0	13	32.5	7	17.5	32.57	0.000**
Total recovery score	**1**	**2.5**	**9**	**22.0**	**30**	**75.0**	**20**	**50.0**	**14**	**35.0**	**6**	**15.0**	**34.05**	**0.000****
x S. D	**34.07 ± 5.28**						**70.37 ± 7.29**						**T=28.85**	**0.000****

t= Paired t. test. X^2: Chi Square Test. (**) Highly statistically significant at p < 0.01.

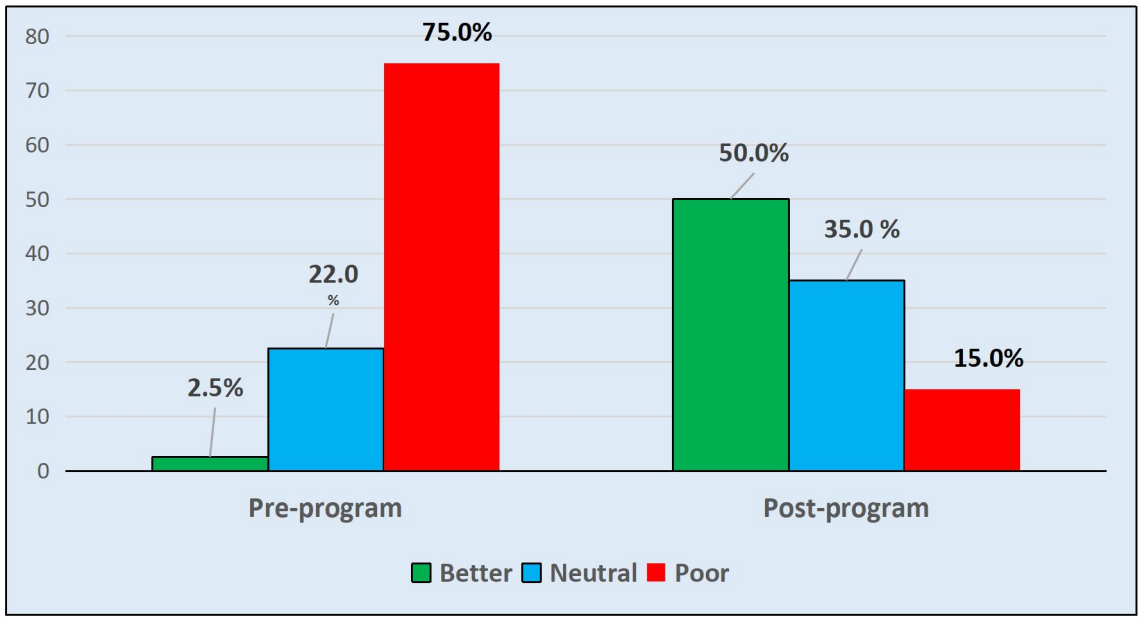

Figure (3): Percentage distribution of the studied patients regarding recovery at pre and post implementation of mindfulness-based psycho education program (n=40).

Table (6): Correlation between total patients' emotional regulation, stimulating hope and recovery at pre and post implementation of mindfulness-based psycho education program (n=40).

Variables		Total emotional regulation		Total stimulating hope	
		Pre-intervention	Post-intervention	Pre-intervention	Post-intervention
Total stimulating hope	**r**	0.426	0.596		
	p	0.000**	0.000**		
Total recovery	**r**	0.491	0.571	0.393	0.665
	p	0.000**	0.000**	0.012*	0.000**

r= Pearson correlation coefficient test. * Significant at < 0.05. ** Highly significant at < 0.01.

Discussion:

Mindfulness is the practice of intentionally focusing attention on the present moment without judgment, a skill that is developed through meditation or other training. In the process of recovering from schizophrenia, hope is essential. People with schizophrenia report feeling hopeless, according to recent studies. There is mounting evidence that mindfulness improves the mental health of individuals with schizophrenia and other chronic illnesses. There is, however, few research assessing how mindfulness affects hope and recovery in individuals with schizophrenia. Patients who practice mindfulness may be able to better accept and understand their illness, control negative emotions, and become more conscious of positive ones **(Astuti, et al., 2020; & Dewi, et al., 2024).**

A large body of research has shown that mindfulness-based therapies are beneficial at reducing stress. However, nothing is known about the advantages of a brief mindfulness-based intervention for emotional regulation. For individuals with schizophrenia, a mindfulness-based intervention may enhance global functioning, emotional regulation, and relapse prevention. Nevertheless, there is insufficient evidence to support its beneficial effects and evidence-based suggestions (**Ebeid et al., 2022**).

According to the results of this study, less than half of the studied patients were between 40 < 50 years, with mean age 40.94 ± 6.39, three quarters of them were males and less than half of them were married. As well as three fifths of them had secondary education, less than two thirds were unemployed, and more than half of them were from rural areas. Moreover, less than two thirds of them hadn't enough income and the majority of them were living with their family.

Regarding clinical data of the studied patients, less than two thirds of the studied patients were 30 years and more at the onset of the disease with mean age 31.25 ± 5.58. As well as, more than half of them had the disease since 5<10 years with mean 9.08 ± 3.01 and half of them had residual type of schizophrenia. Furthermore, more than half of them were hospitalized previously from 4-6 times, and more than three quarters were admitted involuntary to psychiatric hospital.

Concerning the effect of mindfulness-based psycho education program on emotional regulation, hope stimulation and recovery among patients with schizophrenia in this study we can conclude that the program had a positive effect in improvement of emotional regulation, stimulating hope and recovery of the studied patients. This improvement occurred gradually during implementation of program sessions and was a result of the active interaction between the patients themselves and with the researchers during training and application of the program sessions activities.

According to the researchers, the improvement started after the program's first four sessions, when mindfulness exercises—specifically, meditation exercises—were used. The patients' signs of diminished hope and lack of interest in sharing in program sessions were evident in sessions 1, 2, and 3. They appeared bored, uninterested in sharing in the program, spoke little and were only anxious when prompted to speak. Following that, some patients became more engaged during the fourth session and asked questions about the treatment of schizophrenia, the recovery rate, strategies for minimizing the overstimulation of negative or distressed emotions, and the purpose and advantages of mindfulness exercises.

Regarding level of emotional regulation among the studied patients before and after conduction of mindfulness-based psycho education program, the present research illustrated that; there was a highly significant improvement in the studied patients` total emotional regulation scores and its components which included (cognitive reappraisal and expressive suppression) after implementation of the mindfulness-based psycho education program than before the program implementation. This was demonstrated in this study by the fact that, before to the program's implementation, three-quarters of the patients had lower frequency use of emotional control; following program implementation, more than half of them had great frequency use of emotional regulation.

According to the researchers, the impact of mindfulness-based training which was implemented in this study such as deep breathing meditation, walking meditation, emotion regulation skill training and assertiveness training may be the cause of this improvement. All these activities helped the patients to improve their abilities to reduce stress by reappraising the stress inducing situations and thinking positively about them which in turn made the patients feel more positive emotions. Moreover, this helped them to express their stress related emotions in positive ways rather than suppressing them which in turn provide the patients with suitable ways to reduce negative emotions and improve disease symptoms and progression.

According to a study by **Ebeid et al. (2022)**, this outcome was corroborated by the fact that patients' troubles with emotion regulation improved following the implementation of a brief mindfulness-based therapeutic program. Furthermore, the same study concluded that mindfulness might be effective in helping the person deal with challenging feelings and symptoms, like fear and sadness, as well as the high levels of stress that a person with psychosis frequently encounters on a daily basis.

Furthermore, this finding was corroborated by a study by **Ganguly (2018)**, which found that mindfulness improved mental control and emotion regulation, which can assist people with schizophrenia manage some of their symptoms and speed up their recovery. In addition, **Lam et al. (2020)** demonstrated that mindfulness-based interventions seemed to be successful in helping people with schizophrenia better regulate their emotions. Additionally, these findings supported a study by **Peixoto & Gondim (2020)** that claimed mindfulness is linked to the application of adaptive emotional regulation techniques that support psychological well-being.

Regarding level of stimulating hope among the studied patients at pre and post implementation of mindfulness-based psycho education program the present study illustrated that; there was a highly significant improvement in the studied patients` total stimulating hope and its dimensions levels (positive expectations for the future, confidence in life and the future and meaning in life) after implementation of the mindfulness-based psycho education program than before the program implementation. This was evident in this study since, before the program's implementation, three-quarters of the patients had low levels of stimulating hope; following program implementation, more than half of them had high levels of stimulating hope.

According to the researchers, this improvement in level of hope could be because of positive thinking training and hope stimulation which implemented in this study such as how to think positively, how to differentiate between positive and negative thinking, how to get rid of negative thoughts, and positive self-talking. Moreover, training on self-awareness improved the patients to identify exactly what they or others felt in different situations without negative judgment and help them to take more accurate life decisions. All these activities improve patients' level of hope, positive expectations for the future, confidence in life and the future and meaning in life. This finding validated a study by **Astuti et al. (2020)**, which found that mindfulness is a useful tactic to foster hope in individuals with schizophrenia because most study participants experienced a high degree of hope following the application of mindfulness therapy.

Regarding level of recovery among the studied patients at pre and post implementation of mindfulness-based psycho education program the present study illustrated that; there was a highly significant improvement in the studied patients` total recovery scale and its dimensions (clinical recovery, personal recovery and social recovery).

This was clear in this study as three quarters of the studied patients had poor level of recovery at pre implementation of the program, which increased to half of the studied patients had better level of recovery after program implementation.

According to the researchers, this improvement in level of recovery could be the result of gradual response of the patients to all the program sessions which had a positive effect in emotional regulation and stimulating hope which in turn affects the patient's recovery level. Furthermore, the program had a positive effect in many important aspects of schizophrenia symptoms and patient functioning such as decreasing negative symptoms including social withdrawal and lack of motivation which improved gradually during interaction with the researchers and other patients during the program sessions.

Study of **Astuti et al. 2020** confirmed mindfulness therapy's effectiveness in enhancing schizophrenia recovery, with most participants experiencing a high degree of recovery following the therapy. Furthermore, **Shen et al. (2021)** found that mindfulness alleviated negative, general psychopathology, and cognitive impairment symptoms, among other clinical symptoms of schizophrenia.

Concerning correlation between total patients' emotional regulation, stimulating hope and recovery before and after the implementation of a mindfulness-based psychoeducation program, the current study found a highly statistically significant positive correlation between the two variables. Furthermore, following the execution of the program, there was a highly statistically significant positive association between the overall score of emotional regulation, stimulating hope, and recovery. This showed that patients gained more positive emotional regulation also experienced more hope stimulation and moreover, they reached higher levels of recovery.

Conclusion:

The present study proved that mindfulness based psycho-education program has a favorable impact on enhancing emotional control and encouraging hope and recovery in individuals with schizophrenia. Based on the findings of this research and the findings of both observation and program implementation, it's appeared to the researchers that the program had a significant impact on individuals with schizophrenia, which made it very important to use it as an adjunct procedure to be carried out by medical staff especially psychiatric nurses.

Recommendations:

- Mindfulness psycho-educational programs to reduce the consequences of schizophrenia.
- Future studies focusing on the effect of Mindfulness psycho-educational programs recommended especially to stimulating hope as research in this area is limited.
- One nursing intervention that nurses should use to aid in the rehabilitation process of patients with schizophrenia is mindfulness.
- It is advised that future research examine the effects of this intervention on additional symptoms of schizophrenia, including both positive and negative symptoms.
- It is advised to carry out comparable research with outpatients over an extended period of time to guarantee that the study's benefits are applied to patients after they are discharged.

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