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Effectiveness of a Cognitive-Behavioral Psycho-Educational Program on Suicidal Ideation in Patients with Major Depressive Disorder

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ABSTRACT

Objective: This study evaluated the effectiveness of a cognitive-behavioral psycho-educational intervention in reducing suicidal ideation and depressive symptoms among adults with major depressive disorder (MDD) in Sulaimani, Iraq.

Methods and Materials: A quasi-experimental pre-test/post-test design with a control group was used. Sixty adults with MDD were recruited from a psychiatric hospital and allocated to an intervention group (n= 30) or a control group (n= 30). All participants received routine pharmacological treatment. The intervention group additionally attended a six-week psycho-educational program based on cognitive behavioral therapy, delivered in weekly 60–90 minute group sessions covering psychoeducation about depression and suicide, cognitive restructuring, problem-solving, stress management, and family support. Suicidal ideation and depression severity were assessed at baseline and one week after the program using the Beck Suicidal Ideation Scale and Beck Depression Inventory. Because the data were non-normally distributed, the Fisher exact test and the Wilcoxon signed-rank test were applied, with $p \leq 0.05$ considered statistically significant.

Findings: At baseline, groups did not differ significantly in socio-demographic characteristics or severity of depression and suicidal ideation. After the intervention, the experimental group showed a statistically significant reduction in depression scores and suicidal ideation severity, whereas no significant change was observed in the control group. Higher depressive symptom levels were associated with more severe suicidal ideation in both groups.

Conclusion: A CBT-based psycho-educational program appears to be an effective adjunct to usual care for reducing depressive symptoms and suicidal ideation in patients with MDD.

Keywords: Major depressive disorder, suicidal ideation, psycho-educational intervention, cognitive behavioral therapy, Iraq.

Introduction

Major depression has emerged as one of the most common psychological health conditions, affecting around 21% of the population and impacting an estimated 350 million individuals worldwide (Mohammadiyas et al., 2023). Suicide is a significant concern worldwide in the twenty-first century. The World Health Organization (WHO) estimates that annually, over 700,000 patients lose their lives. In Iraq, the suicide rate has been assessed at 1.7 per 100,000 people (Younis & Lafta, 2023). Suicidal thought is a prevalent and deadly problem among individuals with major depressive disorder (Pourjafari & Mirshafiei, 2025). People suffering from depression frequently experience the appearance of suicidal thoughts. These arise from painful, hostile prior experiences and lead to inaccurate, unreasonable beliefs about oneself and society (Sunthorn et al., 2021). In general, 47% to 69% of people with severe depressive illness have suicidal thoughts. Suicide is one of the leading causes of mortality for those suffering from severe depression (Nasution et al., 2019). The degree of depressed symptoms may more reliably predict suicide ideation than hopelessness (Baryshnikov et al., 2020). Furthermore, it is possible to assess the danger. Suicidal thoughts in persons diagnosed with major depressive disorder (MDD) at the individual issue level are associated with biological, medical, and demographic variables (Ge et al., 2020). Throughout life, major depressive disorder is a problematic medical condition (Maquet et al., 2020). Sadness with superimposed hopelessness was present in over half of the older individuals; it is a significant risk factor for suicidal ideation, adverse life events (Laksaneeyanawin & WATTANABURANON, 2022), rumination, community problem-solving, lower self-esteem, and sadness (Ruanjai et al., 2024). Additionally, depression raises the risk of suicidal thoughts, especially in females and youths with a history of suicide attempts (Secundino-Guadarrama et al., 2021).

The association between depression and suicidal conduct was found to be significantly mediated by negative automatic thoughts (Grossberg & Rice, 2023). Psycho-educational intervention has been successful in reducing the severity levels of suicidal ideation and major depressive disorder (Conejo-Ceron et al., 2020). People who have suicidal ideation and attempted suicide

may benefit significantly from psycho-educational support groups and educated patients, as they can lessen the severity of their suicidal thoughts by reducing depressive symptoms (Maple et al., 2022). Numerous published studies on suicidal thoughts in unhappy patients demonstrate that the intensity of sadness is a risk factor influencing suicidal thoughts in depressed persons. De Berardis et al. (2020). Moreover, certain studies have suggested that the intensity of depression is extra powerfully associated with suicidal thoughts (Sojer et al., 2021). Moreover, psychological and psycho-educational therapies are effective in preventing depression (Conejo-Ceron et al., 2020). Psycho-educational support groups may benefit those who have attempted suicide in several ways by lessening the intensity of suicidal thoughts and lowering depressed symptoms. According to individuals' beliefs, interpretations of situations, and automatic thoughts, there are differences in emotional expressions, behaviors, and bodily reactions (Okumura & Ichikura, 2014). When given by individuals or groups, cognitive behavioral therapy (CBT) is beneficial in lowering the intensity of suicidal ideation in patients suffering from severe depression (Mercadal Rotger & Cabré, 2022). To our knowledge, there has never been any prior study that examined how a psycho-educational intervention affected the personality characteristics of severe depressive disorder patients who had suicidal thoughts in Sulimani. Therefore, the purpose of this education is to examine how well a cognitive behavioral therapy-based psycho-educational intervention affects suicidal thoughts in patients with major depressive disorder. The study aimed to evaluate the efficacy of a psycho-educational intervention based on cognitive behavioral therapy on suicidal ideation among patients with major depressive disorder in Sulimani City.

Methods and Materials

The research utilized a quasi-experimental, before-and-after intervention. The research sample comprised sixty individuals diagnosed with Major Depressive Disorder (MDD) who were getting outpatient care at a psychiatric hospital located in Sulaimani City. Within the Kurdistan Region of Iraq. Inclusion and exclusion criteria: Patients previously diagnosed with major depressive disorder by a consultant psychiatrist, males

and females aged 18 years and above, on regular treatment prescribed by a psychiatrist working in the hospital. Patients with psychotic episodes and with a medical condition, as well as pregnant mothers and those not in the postpartum period, were excluded from the current assessment of this study. The included sample voluntarily accepted to participate in this study, and verbal informed consent was obtained from each participant. Consequently, each group was composed of 30 participants, totaling 60. Patients were distributed to the interventional and control groups.

Instruments

Prior to the psycho-educational sessions, a three-part questionnaire was created for data collection. The first portion focused on socio-demographic factors. The Beck Suicide Ideation Checklist was used in the second segment to assess degrees of suicidal thought. This scale consists of 19 items; each is assessed on a 3-point Likert scale (0-2). The overall measure went from 0 to 38. The level of ideation is divided into three categories: mild (0-12), which shows general active thinking; moderate (13-25), which means there are active suicidal thoughts without a specific plan; and severe (26-38), which indicates a clear plan for suicide. In the third segment, the severity of depression was assessed using the Beck Depression Inventory. This assessment involves 21 multiple-choice assertions that examine important signs of unhappiness using a 4-point assessment scale; items are rated zero to three to reflect their power and are expected linearly to produce a mark ranging from 0 to 63. The instructions' intensity marks are comprised. Sadness is classified into four stages: lowest (0-9), mild (10-18), moderate (19-29), and severe (30-63). Twelve specialists, including a professor in psychiatric nursing, a psychiatrist consultant, and a clinical psychologist, evaluated the content validity. The questionnaire's reliability result was 0.907 for the Beck Suicidal Ideation Scale and 0.911 for the Beck Depression Inventory (BDI), and data were collected via in-person interviews with each participant. A psycho-educational intervention based on cognitive behavioral therapy (CBT) sessions was developed for six consecutive weeks, with 60-90 minute sessions each week.

Psycho- educational intervention program:

The program is a knowledge-based psycho-educational intervention based on cognitive behavioral therapy that was developed and implemented for the

treatment of suicidal thoughts among severely depressed patients. A phase of the psycho-educational program clarifies the following:

1. Assessment Phase (Pre-test)

Before implementing the psycho-educational program, the researcher administered a pre-test to the study and control groups to measure suicidality. All sixty cases were recruited for the pretest and then randomized equally into two groups, control and intervention.

2. Implementation Phase

A psycho-educational program was implemented. To ensure their agreement, the researcher notified the patients about the study and discussed the program's plan. The program's implementation includes the following: The psycho-educational program is for the intervention group participants only. The program is implemented over six sessions to discuss and explore its key domains; each session lasts 1 hour.

The psycho-educational intervention program in this research was validated by six specialists: a progressive practice nurse specializing in psychiatric nursing, two professors of psychiatry, and three assistant professors of clinical psychology. They assessed the program's substance, aims, and relevance to therapeutic goals. The validation method yielded a satisfactory validity index (CVI) of 0.91, indicating strong content validity and confirming the program's significance and fit for the target group. Additional information about the program's structure and procedures may be found below:

The content of the sessions

First session: Orientation to the program; introducing the patients and the psycho-educator (researcher) to each other; orienting patients to the session schedule, place, day, and time; and providing guidelines and ethical considerations for participating in the psycho-education program trial.

Second session: Explaining what major depressive disorder is, its causes, symptoms, treatments by medications, and the risk of abruptly stopping medications; Talking about psychotherapy and psycho-education, electroconvulsive therapy, and nutritional education.

Third session: Explaining the meaning of suicidal ideation, prevalence, causes, and risk factors for suicidal thought, nursing interventions, and safety plan.

Fourth session: Identify the suicidal assessment, suicidal intervention, and stress reduction, and understand suicidal prevention.

Fifth session: To understand cognitive behavioral therapy and its benefits for unhappiness, negative automatic thoughts, and common automatic thoughts associated with depression, as well as rational emotive behavioral theory and behavioral interventions such as rumination reduction and activity monitoring. Behavioral activation and enhancing enjoyable activities, mood tracking, emotion management, distress tolerance techniques, cognitive restructuring and problem-solving techniques, family skills training modules (family support, behavioral activation, family emotion regulation, family problem solving, family communication, and family cognitive restructuring), and self-esteem.

Sixth session: Termination session; patient's feedback on the program, benefits, questions and answers, and suggestions.

Control group

This group continued to receive medication prescribed by the psychiatrist, as in the past, without receiving any psycho-educational guidance.

Procedure

Data collection occurred from September to November 2024, following the approval to conduct the study within the Directorate of Health in Sulaimani city. Each patient referred by a consultant psychiatrist underwent a face-to-face talk and was screened according to specific inclusion and exclusion criteria. Samples that satisfied the complete principles were involved as participants in this study. Consequently, the researcher personally administered the questionnaire to each participant to collect data regarding socio-demographic characteristics and psychiatric history. The levels of the Beck Depression Inventory (BDI) and Beck Suicidal Ideation Scale (BSS) were evaluated, serving as baseline data for the pretest. The 60 patients were subsequently divided into two groups: the interventional group, which received a psychoeducational intervention program delivered by the investigator, and the control group, which received only prescribed medications. Outcome assessments were conducted one week after the intervention.

Data Analysis

An analysis was shown using SPSS version 22 to assess the statistical changes in the levels of depression, suicidal ideation, and related mental behaviors pre- and post-intervention program. Prior to data analysis, normality testing was performed, revealing significant deviations from normality as specified by the Shapiro-Wilk test. Therefore, nonparametric methods were deemed appropriate for the non-normally distributed data. The Fisher's exact test was utilized, when applicable, to evaluate the statistical differences in demographic data, psychiatric medical history, and intensity of depression between the groups. The Wilcoxon rank test was employed to compare pre- and post-intervention scores for suicidal ideation and depression between the groups.

Ethical Considerations

On August 22, 2024, the College of Nursing at Hawler Medical University granted ethical approval for this study under the number 2433. Ethical considerations were among the principles of data collection. Formal verbal consent was obtained from patients before the interview by having them sign the informed consent prepared by the researcher. The researcher is well aware of study ethics, including protecting patients' rights, dignity, and values, as well as potential negative effects during data collection. Before gathering data, the researcher provided participants with an explanation of the study's goals, keeping anonymity and privacy in mind. Additionally, the researcher gave participants the chance to voice any concerns or ask questions at any time during the study, and they were free to leave at any moment.

Findings and Results

The 60 patients were subsequently categorized into two groups: the intervention group (30 participants) and the control group (30 participants). The mean + SD of the two groups was 32.6 (+7.30) and 32.2 (+9.10) years, with a median of 35 years. 46.7% of the investigational group and 53.3% of the standard group are categorized within the age range of 31 to 45 years. More than half (73.4%) of the patients were females.

Table 1*Socio-demographic characteristics of two groups.*

Characteristics	Interventional group		Socio-demographic status Control group		Total		p-value
	No.	%	No.	%	No.	%	
Age							
18-30 Years	10	33.3	8	26.7	18	30.0	0.368
31-45 Years	14	46.7	16	53.3	30	50.0	
46-60 Years	5	16.7	4	13.3	9	15.0	
61-75 Years	1	3.3	2	6.7	3	5.0	
Mean (+_SD)	32.6 (+_7.30)	32.2 (+_9.10)					
Gender							
Male	9	30.0	7	23.3	16	26.6	0.572
Female	21	70.0	23	76.7	44	73.4	
Marital status							
Single	6	20.0	6	20.0	12	20.0	0.101
Married	18	60.0	19	63.3	37	61.7	
Divorce	3	10.0	3	10.0	6	10.0	
Widow/widower	1	3.3	1	3.3	2	3.3	
Separated	2	6.7	1	3.3	3	5.0	
Educational level							
Illiterate	5	16.7	5	16.7	10	16.6	1.000
Read & write	4	13.3	3	10.0	7	11.6	
Primary school	8	26.7	9	30.0	17	28.6	
Secondary school	8	26.7	8	26.7	16	26.6	
Institute & university	5	16.7	5	16.7	10	16.6	
Occupational status							
Governmental	6	20.0	3	10.0	9	15.0	0.70
Employee	3	10.0	4	13.3	7	11.6	
Private employee	2	6.7	6	20.0	8	13.6	
Self-employed	10	33.3	6	20.0	16	26.6	
Unemployed	3	10.0	1	3.3	4	6.6	0.999
Retired	6	20.0	10	33.3	16	26.6	
Outwork	3	10.0	2	6.7	5	8.3	
Income status	12	40.0	9	30.0	21	35.0	
Sufficient	15	50.0	19	63.3	34	56.7	0.388
Barley sufficient	22	73.3	19	63.3	41	68.4	
Insufficient	6	20.0	7	23.3	13	21.6	
Residential area	2	6.7	4	13.4	6	10.0	
Urban	22	73.3	19	63.3	41	68.4	
Suburban	6	20.0	7	23.3	13	21.6	
Rural	2	6.7	4	13.4	6	10.0	
Total	30	100.0	30	100.0	60	100.0	

* By Fisher's exact test.

Table 1 reveals that the highest percentage of the experimental group's educational level is at the primary and secondary levels (26.7%), followed by the reading and writing level (13.3%). In contrast, the control group is distributed across the reading and writing levels (10%) and the primary level (30.0%). The majority of contributors per group were unemployed (33.3% and

20.0%, respectively), resided in urban areas (73.3% and 63.3%), and reported monthly incomes that were only marginally adequate (50% and 63%). Additionally, the marital status of individuals in both groups was predominantly married (60% in the investigational group and 63% in the control group).

Table 2

Parameters of the Beck depression inventory and the Beck suicidal ideation inventory before and after the intervention in both groups.

Beck depression inventory.										
Experimental group					Control group					
Pre- Intervention	Post- Intervention	Pre- Intervention	Post- Intervention	P*	Pre- Intervention	Post- Intervention	Pre- Intervention	Post- Intervention	P*	
Mean	Median	Mean	Median		Mean	Median	Mean	Median		
3.43	3.36	2.70	2.53	< 0.001	3.10	3.00	3.00	3.03	0.148	

Beck suicidal ideation inventory.										
Experimental group					Control group					
Pre- Intervention	Post- Intervention	Pre- Intervention	Post- Intervention	P*	Pre- Intervention	Post- Intervention	Pre- Intervention	Post- Intervention	P*	
Severity levels	Mean	Median	Mean	Median		Mean	Median	Mean	Median	
Mild	2.33	2.00	3.08	3.00	< 0.002	2.29	2.00	2.29	2.00	
Moderate	1.93	2.00	2.00	2.17		2.00	2.00	2.00	2.00	0.0
Severe	1.77	2.00	1.06	1.67		1.83	2.00	1.76	2.00	96

*By the Wilcoxon signed-rank test. P: p-value

The Wilcoxon rank-sum test indicated extremely significant differences in the effects of the psycho-educational intervention program on the two dependent variables. The mean and median of the Beck Depression Inventory significantly decreased ($p < 0.001$) after the intervention in the experimental group, with the mean dropping from 3.43 prior to the intervention to 2.70 after. However, the reduction was not significant in the

control group. While the mean and median of the indicators on the Beck suicidal ideation problem scores increased for mild and moderate levels post-intervention, the mean and median decreased for severe levels among the intervention group ($P < 0.001$). Thus, there were no significant differences in the control group (Table 2).

Table 3

shows suicidal ideation by degree of depression in both research groups.

Severity levels of depression	Suicidal ideation levels								p-value
	Experimental group								
	Mild		Moderate		Sever		Total		
	NO.	%	NO.	%	NO.	%	NO.	%	
Minimum	0	0.0	0	0.0	2	100.0	2	100.0	< 0.001
Mild	0	0.0	5	55.6	4	44.4	9	100.0	
Moderate	1	6.7	9	60.0	5	33.3	15	100.0	
Sever	1	25.0	3	75.0	0	0.0	4	100.0	
	Control group								
	Mild		Moderate		Sever		Total		
	NO.	%	NO.	%	NO.	%	NO.	%	
Minimum	0	0.0	0	0.0	1	100.0	1	100.0	0.223
Mild	0	0.0	3	60.0	2	40.0	5	100.0	
Moderate	2	15.4	7	53.8	4	30.8	13	100.0	
Sever	1	9.1	4	36.4	6	54.5	11	100.0	

*By Fisher's exact test.

Table 3 shows that the intensity of depression in the experimental group correlates with the severity of suicidal thoughts. One person with little sadness had severe suicidal thoughts, though 75.0% of persons with severe sadness had moderate suicidal thoughts ($p < 0.001$). Thus, the intensity of depression in the control group is linked with the intensity of suicidal ideation. One participant with mild depression had serious suicidal thoughts, but 54.5% of those with severe depression did ($P = 0.223$).

Discussion and Conclusion

Depression and suicidal thoughts are closely associated. We assessed a psycho-educational therapeutic program in samples with severe depressive disorder and the influence of the psycho-educational mediation program based on cognitive behavioral therapy on general psychological qualities that are related to the intensity of suicidal thought in depressive disorder. We discovered that administering a psycho-

education package can not only aid with suicidal ideation but also lower the severity of unhappiness itself. In this research, it appeared that each patient received a psycho-educational intervention program that influenced the reduction of the severity level of depression and suicidal ideation.

In our current study, almost all socio-demographic characteristics were not significantly linked with suicidal depressive patients ($P > 0.05$), except marital status ($P = 0.002$), which had higher incidence rates of severe suicidal thought levels among married (61.7%) than single (20.0%) or other marital status subgroups. This agrees with research conducted in Australia, which showed that widows had greater levels of suicidal thoughts (Khosravi, 2020).

In our study of patients identified with major depressive disorders, we observed an important prevalence rate of moderate suicidal ideation at 56.7%. A cross-sectional study in Saudi Arabia indicates that 37.7% of participants have a moderate level of suicidal ideation among depression patients (Choi et al., 2021). From a medical psychiatric perspective, the level of suicidal ideation identified in our study aligns closely with findings from other research conducted in Helsinki, Finland, where 60% of 806 patients with depression reported moderate suicidal ideation. Furthermore, our results are consistent with a study from Erbil, Iraqi Kurdistan, which reported that 64% of 100 depressed outpatients aged 18 to 85 years exhibited suicidal ideation (Steer et al., 1999).

A number of the participants in this project who had moderate unhappiness reported per group, in the control group, a moderate level of depression of 53.8%, while in the intervention group, it was 60.0%, so there was a significant relation between the level of depression and suicidal ideation. The study, which agrees with our results, also creates the idea that a strong association exists between the decrease in suicidal thoughts and the decrease in depressive symptoms (Martini, 2016).

This finding aligns with the Martini study (Abdulkarim & Muhsin, 2021), which identified the severity of suicidal ideations as a significant hazard reason for suicide attempts. Additionally, research conducted in Sulaimania City, Kurdistan, Iraq, revealed that persons with a history of suicide attempts exhibited a high prevalence of suicidal ideation; therefore, if previous attempts are not adequately addressed, they

may lead to more severe actions (Kern et al., 2023). These findings highlight the critical need for managing and addressing prior suicide attempts to reduce the risk of further escalation. Providing comprehensive follow-up care and support for persons with a history of efforts could be instrumental in preventing reattempts and further suicidal thoughts. While depression is closely linked to both suicidal ideation and attempts, there is an understanding of the specific features that heighten the risk of suicide among individuals suffering from depression. (Frey et al., 2023). Consequently, the psycho-education group program is more effective in reducing the severity level of depression and suicidal thoughts. The results of this study showed a statistically significant decrease in overall suicidal ideation and depression, as well as during the pre-implemented program ($p=0.96$) when compared to the post-program stage. The project demonstrated a statistically significant enhancement in positive pressure handling strategies during the post-program application phase ($p<0.01$) relative to the before-program stage. Following the session, participants showed better understanding, more adaptable attitudes regarding suicide, and a decrease in the stigma attached to mental health and suicide. This suggests that incorporating psycho-educational interventions and suicide prevention programs into university curricula could improve mental health and reduce the risk of suicide among emerging adult students (Taha Ahmed & M Ahmed, 2020). Patients with moderate symptoms of depression benefit from psycho-educational interventions both in the short and long term. A psycho-educational intervention that reduces the frequency of suicide behaviors in the jail setting has a high remission rate (Pérez-Marín et al., 2024). Reduction of suicidal behaviors in the prison environment with psycho-educational intervention (Foguet-Boreu et al., 2022). These conclusions were reliable, with several education studies demonstrating that cognitive behavioral treatment (CBT) is beneficial in reducing suicidal thoughts and depression in recent suicide attempters. In addition, CBT lowers the frequency of suicide attempts and suicidal thoughts in depressed people (Alimoradi et al., 2022).

Conclusions

Since most participants had moderate levels of depression and suicidal thoughts compared to other levels, it can be concluded that psycho-educational

interventions based on cognitive behavioral therapy are effective in lowering the severity of suicidal thoughts and depression. Following the implementation of a psycho-educational program, there were notable improvements in depression levels from pre- to post-1 or post-2 periods. The impact of the psycho-educational intervention is primarily due to increased knowledge about suicidal ideation, improved problem-solving skills, and encouragement to receive prescribed medication in their own time for major depressive patients.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Ethical considerations in this study included the fact that participation was entirely optional.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contribute to this study.

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