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Optimization of Pharmacotherapy through Cognitive Behavioural Therapy in Ambulatory Patients Attending Mental Health Clinic in the University of Uyo Teaching Hospital, Uyo, Nigeria

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ABSTRACT

Background: Pharmacotherapy is the most frequently prescribed form of treatment for depression, but usually ineffective due to frequent relapses. The study aimed at speeding up recovery time of depression through the combination of Pharmacotherapy and Cognitive Behavioural Therapy (CBT).
Method: This study is a cohort study. Simple sampling was used to assign participants into the experimental and control groups respectively. A 16 sessions of CBT was carried out during the 4-month period of clinical research while Cognitive Structuring and Journaling were used. Beck Depression Inventory (BDI) was used for collating data at baseline, at two and four-month post baseline. The results were analyzed by using SPSS version 26 software while p-value was considered significant at < 0.05.
Results: The results of the experimental group at baseline showed that 34 (54.8%) of the study participants were found in the minimum depression category (0 - 13) symptom scores. At 2 months, 50 (80.6%) participants were found in the minimum depression category (0 - 13) symptom scores and at 4 months, 62 (100%) participants were found in the minimum depression category (0 - 13) symptom scores. Sixteen study participants in the experimental group were recovered from the moderate depression category to the minimum depression category at two months of intervention and additional twelve study participants were recovered at four months of intervention. The BDI mean symptom scores of study participants in the experimental groups showed that study participants at baseline (15.79 ± 8.68) and 2-month follow-up (8.90 ± 6.63) had reduced BDI symptom scores at 4-month follow-up (4.53 ± 3.35) with a significant variation ($p < 0.001$) from that of the control group (21.00 ± 9.59). This study observed significant improvement in the BDI symptom scores when psychotherapy was combined with pharmacotherapy in the management of depression.
Conclusion: The study indicated that at 4-month follow-up, study participants receiving CBT and pharmacotherapy had BDI symptom scores (4.53 ± 3.35) that varied significantly ($p < 0.001$) with the study participants on only pharmacotherapy BDI symptom scores (21.00 ± 9.59).

Introduction

Major depressive disorder (MDD), as defined by Diagnostic and Statistical Manual of Mental Disorders (DSM-5), is characterized by a depressed mood or loss of interest or pleasure in everyday activities for at least two weeks associated with other features including changes in appetite, energy and cognitive function[1].

The etiology of depression was described as comprising four dimensions such as biological, psychological, social, and socio-cultural. Each of these dimensions has distinct effects and usually combines to create a depressive episode. Currently, many physicians rely on anti-depressant medicines as a means to relieve symptoms of depression. The most commonly used class of anti-depressant is serotonin re-uptake inhibitors (SSRI's) which are often prescribed by physicians. Report suggested that 12% – 20%

of depressed patients are resistant to psychotropic medicines. This resistance could be accompanied with "functional impairment, poor quality of life, suicide ideation and attempts, self-injurious behavior, and a high relapse rate"[2].

No "unifying theory" has explained all clinical depression because of the heterogeneity of the depressive syndromes and diagnostic criteria that depend on the subjective quality and quantity of symptoms. The common "chemical imbalance" theory of depression, especially in monoamine eg serotonin, noradrenaline, and dopamine neurotransmission shortfalls failed to produce dependable evidence as a causal explanation of depressive syndrome. But clinical studies support the role of serotonergic defect in Mild Depressive Disorder[2].

Clinical evidence suggests that anti-depressants whose mechanism of action increases monoamine neurotransmission are efficacious. Unfortunately, newer anti-deppressants such as selective serotonin reuptake inhibitors (SSRIs) or serotonin and norepinephrine reuptake inhibitors (SNRIs) failed to improve efficacy. It was document that one-third of the patients responded to SSRIs, such as citalopram, following initial treatment. The recent findings that intravenous ketamine, which exerts its effect on glutaminergic systems, can rapidly improve symptoms in treatment-resistant depression prompts further exploration of underlying neurobiological mechanisms of depression[3].

It was documented that an estimates of depressive symptom prevalence in Nigeria ranged from 4-22% and that over 7 million people living in the country were depressed[4]. It was also documented that most of the patients treated for depression in Nigeria received combination therapy such as tricyclics and phenothiazines especially Amitriptyline and Trifluoperazine while others received single therapy such as amitriptyline, SSRIs etc[4].

The first-line treatment for moderate to severe depression is antidepressant medications. But, previous studies indicated that medications were only effective in about one third of patients. New research demonstrated that comprehensive treatments include psychotherapy in addition to pharmacotherapy[5]. Employing a variety of well-specified Cognitive and Behavioural Techniques, cognitive therapy is very distinguished by the detailed structure of each session with its specific goal and by the very deliberate and obviously effective therapeutic style of interacting with the patient's mind through series of questions[6]. Recent studies have demonstrated that CBT is as effective as antidepressants for the treatment of acute phase Moderate Depressive Disorder (MDD). Emerging evidence led the American College of Physicians to view CBT as an equivalent first-line treatment for MDD. CBT helps individuals to identify maladaptive or inaccurate cognitions. Patients learn new skills to counter their inaccurate thoughts and beliefs thereby inducing modified thinking and behavior. Several studies have found face-to-face CBT as an effective depression treatment[7,8].

An estimated 22.1% of people have mental disorders at any given time.[9] Due to the COVID-19 pandemic, the number of individuals suffering from anxiety and depressive disorders increased dramatically in 2020[9,10]. It was estimated that anxiety and major depressive disorders rose by 26% and 28%, respectively[11].

A significant proportion of people with severe mental illnesses may not receive treatment in certain circumstances. One of the key requirements for the provision of high-quality mental health treatments is the regular and sufficient supply of suitable, safe, and reasonably priced drugs[12]. A multicenter study comprised 399 individuals, aged 18 to 65, who were diagnosed with schizophrenia based on the Diagnostic and Statistical Manual of Mental Disorders Revised Fourth Edition (DSM-IV-TR) of the 236 patients who achieved remission at the time of discharge, 94% and 69%, respectively, still had at least one symptom. Remitted individuals consequently had a very high frequency of ongoing symptoms. The most prevalent lingering effects were blunted affect, conceptual confusion, and quiet or apathetic social retreat. Patients with depression may have trouble thinking clearly, lose their appetite, have irregular sleep patterns, and feel depressed[13].

It was estimated that between 20% and 30% of Nigerians are thought to be mentally ill. The population of Nigeria is estimated at 200 million people, this is a highly significant figure[14]. Regretfully, depressive disorders received little attention in Nigeria; the public's awareness of depressive disorders is relatively low[15]. The present treatment of depression in Nigeria does not include addition of Cognitive Behavioral Therapy to Pharmacotherapy.

Objective of the Study

The main objective of this study was to evaluate how addition of CBT to Pharmacotherapy will reduce BDI symptom scores in participants diagnosed with depression.

METHODS

Study Site

The study was undertaken in Nigeria's coastal South-South geopolitical zone, in the state of Akwa Ibom. Mental Health Clinic in the University of Uyo Teaching Hospital (UUTH) in Uyo was used as the study site. UUTH is a referral center in the State with more than 100 bed spaces and over 10 specialties. The Mental Health clinic is situated in a purpose built building to accommodate various types of mental disorders. Clinic visit is opened twice a week, for ambulatory patients while patients on admission are monitored regularly by team of psychiatric physicians.

Study Design

This study was a prospective cohort study to evaluate impact of CBT when it was combined with pharmacotherapy to treat depression.

Ethical Consideration

The UUTH ethical committee granted ethical clearance with the registration number, UUTH/AD/S/96/VOL.XXI/576, and study participants provided written consent before recruitment into the study. Privacy and confidentiality were upheld throughout the sessions, data gathering, analysis, and reporting. The study investigator has obtained Master degree in Clinical Pharmacy and was trained on Clinical trial, Public Health and Clinical Psychology. The study also involved the service of a trained Psychologist.

Sampling Method and Size

From the Records Unit UUTH indicated an average of 120 patients accessed care at the Mental Health Clinic between the months of January to March 2021.

n= - N / (1 + {Ne2}) where N is the population size, e is the margin of error, (5%), n is the sample size[16].

n= 120/1+ (120x0.05^2)

n= 92 persons

Attrition for 5% of 92 persons was calculated and the result was 4 persons. Therefore total sample size was 92+ 4= 96 persons.

Study population

Yamane's formula was used to calculate the sample size. The study recruited 120 study participants who were diagnosed with different types of depression but 96 study participants completed the study. Ballot method was used to assign the participants into experimental and control groups, that is, each participant picked up a wrapped paper from a container and checked the content. The content is either experimental or control group. The picked up paper determined the group of study participants. The study began with 65 study participants in the experimental group and 55 participants in the control group. The study participants were supported on transportation to the clinic on their hospital visit schedules and well also monitored for drug adherence. Some of the study participants had challenges such as care givers' availability to bring them to the clinic and some others come from other States to the healthcare facilities. Study participants that were not adherent to medication and those that did not complete the study follow-ups were removed from the study at the end of data collection. Only 62 participants in the experimental group and 34 participants in the control group completed the study.

Data Collection, Instrument and Analysis

Questionnaires were used to obtain demographic data of the study participants through the participants' care givers. Beck Depression Inventory was a standardized instrument used at baseline to measure symptom scores and categorized the level of depression of study participants.

The experimental group received both Pharmacotherapy and CBT. There were 16 sessions of psychotherapy involving CBT during the four-month period of the study for the experimental group. Each session was conducted for 50 minutes as face to face between clinical psychologist and study participants in groups of four study participants. Journaling and Cognitive Structuring was standardized instrument used for engaging study participants in a conversation that measures cognition and behavior of participants during each session of CBT.

The control group (n = 34) received only pharmacological treatments (pharmacotherapy) for depression in accordance with the clinical guidelines. The experimental group (n = 62) received pharmacotherapy complemented with blended CBT. Data collection was done within the duration of six months. Data on symptom scores were gathered at baseline, two months, and four months after baseline using the Beck Depression Inventory.

Data analysis

Data obtained from the returned questionnaires and the symptom scores were analyzed by using descriptive analysis such as mean, standard deviation. Inferential analysis such as Student's T-test was also done. Statistical Package for Social Sciences (SPSS) version 26 edition

software was used for data analysis. Statistical significance was considered at $p \leq 0.05$.

RESULTS

In this study, the total number of study participants was ninety-six (96) comprising fifty-five (55) males and forty-one (41) females. The control group had a total number of thirty-four (100%) study participants comprising sixteen males (47.06%) and eighteen females (52.94%). Singles in this group were eighteen (52.94%) participants followed by the married with a total number of fourteen (41.18%) participants. Majority (50%) in the control group had secondary education. The most commonly occurring disorder in the control group was major depression with psychotic feature (MDPF) in nine (26.5%) participants followed by a typical depression seven (20.59%) participants (Table 1).

In the experimental group, the male study participants were thirty-nine (62.9%) while the female study participants were twenty-three (37.1%). Fifty (80.65%) participants were single, thirty-four (54.83%) study participants had secondary education. Majority of participants in the experimental group were found in the age range of 26 – 30years with a total number of sixteen (25.81%) participants. The most commonly occurring disorder was major depression with psychotic features (MDPF) in twenty-four (38.71%) participants followed by major depression disorder (MDD) in twelve (19.40%) participants. Olanzapine was the most prescribed medication in the control and the experimental groups (Table 1).

Based on the categorization of Depression by the Beck Depression Inventory, the results of the control group showed that at baseline, 20 (58.82%) study participants were found in moderate depression which range between 20 – 28 symptom scores. The experimental group showed that at baseline, 13 (20.96%) study participants were found in the moderate depression category with 0-13 symptom score (Table 2). At 4-month post baseline, the condition of study participants in the control group declined producing 4 (11.76%) study participants with severe depression while in the experimental group, all study participants moved to minimum depression with 0 - 13 symptom score showing sign of remarkable recovery (Table 2).

At baseline, there was no significant variation ($p > 0.05$) between the control and experimental groups. After two months post baseline, there was a significant variation ($p < 0.001$) between the control group and the experimental group. At four (4) months post baseline, there was a further significant variation ($p < 0.001$) between the control and experimental groups, indicating that the addition of psychotherapy to pharmacotherapy was responsible for the significant variation and improvement in depression status of the participants in the experimental group (Table 3).

Table 1: Demographic data of study participants, N = 96

S/N	VARIABLES	CONTROL GROUP NUMBER=34	EXPERIMENTAL GROUP NUMBER=62
1	**GENDER**		
	Male	16 (47.06%)	39 (62.90%)
	Female	18 (52.94%)	23 (37.10%)
2	**MARITAL STATUS**		
	Single	18 (52.94%)	50 (80.60%)
	Married	14 (41.18%)	10 (16.10%)
	Divorced	1 (2.94%)	0
	Widowed	1 (2.94%)	2 (3.20%)
3	**EDUCATIONAL STATUS**		
	Primary	13 (38.24%)	11 (17.70%)
	Secondary	17 (50%)	34 (54.80%)
	Tertiary	4 (11.77%)	17 (17.27%)
4	**Occupation**		
	Students	5.00 (14.71%)	12 (19.40%)
	Civil Servant	3.00 (8.82%)	7 (11.30%)
	Trading	10.00 (29.41%)	8 (12.90%)
	Not working	11.00 (32.35%)	35 (56.50%)
	Housewife	1.00 (2.94%)	0

	Self-employed	2.00 (5.88%)	0
	Seamstress	1.00 (2.94%)	0
5	**Age Range (years)**		
	20 – 25	7.00 (20.59%)	13 (21.00%)
	26 – 30	7.00 (20.59%)	16 (25.80%)
	31 – 35	5.00 (14.71%)	6 (9.70%)
	36 -40	3.00 (8.82%)	8 (12.90%)
	41 – 45	2.00 (5.88%)	10 (16.90%)
	46 – 50	4.00 (11.77%)	5 (8.10%)
	51 – 55	2.00 (5.88%)	2 (3.10%)
	56 – 60	1.00 (2.94%)	1 (1.60%)
	61 – 65	1.00 (2.94%)	1 (1.60%)
6	**Classification of Depression**		
	RD	5.00 (14.71%)	4 (6.5%)
	MDD	3.00 (19.40%)	12 (19.40%)
	DMD	4.00 (11.77%)	5 (8.10%)
	BAD	4.00 (11.77%)	6 (9.70%)
	AD	5.00 (14.70%)	5 (8.10%)
	MDPF	5.00 (14.70%)	24 (38.70%)
	PPD	8.00 (23.52%)	6 (9.70%)
7	**Medication (Class of drug)**		
	Amitriptyline (TCA)	5 (14.70%)	15 (24.19%)
	Sertraline (SSRI)	2 (5.88%)	4 (6.45%)
	Escitalopram (SSRI)	2 (5.88%)	3 (4.83%)
	Olanzapine (Atypical antidepressants)	25 (73.52%)	40 (64.51%)

RD = Reactive Depression, MDD = Major Depression Disorder, DMD = Disruptive Mood Dysregulation Syndrome, BAD = Bipolar Affective Disorder, AD = Atypical Depression, MDPF = Major Depression with Psychotic Feature and PPD = Prenatal/Postnatal Depression. SSRI= Selective Serotonin Receptor Inhibitors, TCA= Tricyclic antidepressants

Table 2: Categorization of depression with Beck Depression Inventory (Symptoms score), N = 96

PHASE	SYMPTOM SCORE	TYPES OF DEPRESSION	Control Group		Experimental Group	
			No of participants (N=34)	Worsening Condition	No of participants (N=62)	Recovery Condition
0-month	0-13	Minimum depression	6.00 (17.64%)	Baseline	34.00 (54.83%)	Baseline
	14-19	Mild depression	8.00 (23.52%)	Baseline	15.00 (24.19%)	Baseline
	20-28	Moderate depression	20.00 (58.82%)	Baseline	13.00 (20.96%)	Baseline
	29-63	Severe depression	0		0	
2-month	0-13	Minimum depression	6.00 (17.64%)		50.00 (80.64%)	Yes

	14-19	Mild depression	8.00 (23.52%)		7.00 (11.29%)	Yes
	20-28	Moderate depression	18.00 (52.94%)		5.00 (8.06%)	Yes
	29-63	Severe depression	2.00 (5.88%)	Yes	0	
4-month	0-13	Minimum depression	4.00 (11.76%)		62.00 (100%)	Yes
	14-19	Mild depression	8.00 (23.52%)		0	
	20-28	Moderate depression	18.00 (52.94%)		0	
	29-63	Severe depression	4.00 (11.76%)	Yes	0	

Table 3: Comparison of mean symptoms scores of control and experimental groups, N = 96

S/N	Specific period		Control group Symptom scores		Experimental group Symptom scores	Control vs Experimental
		N	Mean ± SD	N	Mean ± SD	p-value
1	0 Months (baseline)	34	18.24 ± 8.55	62	15.79 ± 8.68	0.188
2	2 Months	34	19.15 ± 9.93	62	8.90 ± 6.63	0.000
	0 vs 2 p-value		0.686		0.007	
3	4 Months	34	21.00 ± 9.59	62	4.53 ± 3.35	0.000
	0 vs 4 p-value		0.214		0.000	
	2 vs 4 p-value		0.437		0.002	

Discussion

This research showed that at the base line of the study, the control group consisted of participants who received pharmacotherapy only, had 20 (58.82%) study participants who had highest Beck Depression Inventory Symptom Score ranged 20 - 28 indicating moderate depression. Follow-up at 2-month and 4-month post base line showed that 2 (5.88%) and 4 (11.76%) study participants respectively had highest Beck Depression Inventory Symptom Score ranged 29 - 63 severe depression. The progression of depression from moderate to severe depression suggests resistance to the medication in four study participants that received pharmacotherapy only. This occurred after a team of specialized medical practitioners had monitored all study participants and relevant medications were prescribed according to standard guidelines. The study participants in the control group were monitored for drug adherence by the research team. A previous study explained failure of SSRIs, Citalopram in the treatment of depression. In their study, they recruited

565 adult outpatients who had non-psychotic major depressive disorders who used citalopram for about 12 weeks without remission and were on a dose of 55 mg per day[17]. This study corroborated the observation in our study because the study participants did not show any sign of remission in our study too. Another study documented antidepressants failure on reinstatement of antidepressant for treating depression after initial discontinuation due to remission. In the survey of that study, it reported that ten studies evaluated confirmed failure of antidepressants on reinstatement in depressive disorders. It also reported that 16.5% of patients with depressive disorder in the study experienced antidepressant failure on reinstatement with all classes of antidepressants, the range of response failure varied between 3.8% to 42.9% in the ten studies evaluated by the report[18]. This study is in consonant with our study's observation. There was no sign of remission in the study participants that received pharmacotherapy only in our study.

This research also showed that at the base line of the study, the experimental group consisted of participants who received both pharmacotherapy and Cognitive Behavioral Therapy, had 13 (20.96%) and 15 (24.19%) study participants had highest Beck Depression Inventory Symptom Score ranged 20 - 28 and 14 - 19 respectively indicating moderate and mild depression respectively. Follow up at 2-month post base line showed that there were reduced numbers of study participants with symptom scores, 14 - 19, in 7 (11.29%) study participants and symptom scores 20 - 28, in 5 (8.06%) study participants indicating recovery in depression among the participants in the experimental group. Follow-up at 4-month post baseline indicated that all study participants had symptom scores ranged 0 - 13 suggesting sign of recovery among study participants in the experimental group. The observation that all study participants in the experimental group had symptom scores of 0 - 13 at 4-month post base line suggests its advantage over the control group who had 4 (11.76%) study participants with symptom scores 29 - 63. A randomized clinical trial on the "effect of cognitive therapy with antidepressant medications versus antidepressants alone on the rate of recovery in major depressive disorder" explained that cognitive therapy combined with antidepressant medications treatment enhanced the rates of recovery from major depressive disorder relative to antidepressant medications alone and that this effect was limited to patients with severe non-chronic depression[19]. Another study evaluated literatures on the efficacy of antidepressants with CBT in the treatment of depression and concluded that that there was enhanced efficacy of treatment for depression with CBT in the treatment of depression, responsible for reduction of relapse episodes of depression and residual symptoms[20].

The comparison of the control group from the baseline to the follow-up at 4-month showed there were no statistically significant variation of the increasing symptom scores of the study participants from baseline (18.24 ± 8.55) to 2-month (19.15 ± 9.93, $p > 0.05$) follow-up and from 2-month (19.15 ± 9.93) to 4-month (21.00 ± 9.59, $p > 0.05$) follow-up. There were study participants in all four categories of depression for the control group who received pharmacotherapy only throughout the study. The gradual worsening of symptom scores was an indication of no improvement in the depression status of the study participants who received only pharmacotherapy. It was clearly observed that pharmacotherapy only could not resolve the depression among the study participants. It was previously documented that half of patients receiving antidepressants only will experience relapse during continuation treatment[21]. This observation supports our observation among study participants that received antidepressants only as relapse was clearly observed among study participants who received Pharmacotherapy only in our study.

The comparison of the experimental group from the baseline to the follow-up at 4-month showed there were statistically significant variation of the decreasing symptom scores of the study participants from the baseline (15.79 ± 8.68) to 2-month (8.90 ± 6.63, $p < 0.01$) follow-up and from 2-month (8.90 ± 6.63) to 4-month (4.53 ± 3.35, $p < 0.005$) follow-up suggesting improvement of symptom scores in study participants that received both CBT and pharmacotherapy. It also suggest that there was no relapse as the symptom scores reduced significantly at 2-month and 4-month follow-up. In a recent study, it was concluded that taking CBT together with antidepressant medications followed an existing data support on rationale for combining treatments with differing mechanisms of action and differing efficacy in order to optimize treatment outcomes[22].

The comparison of the symptom scores of the control group with the experimental group showed that there was no statistically significant variation at the baseline ($p > 0.05$). But, there was statistically significant variation between the symptom scores of the control group and the experimental group at 2-month follow up ($p < 0.001$) and at 4-month follow-up ($p < 0.001$) suggesting that the combination of CBT with pharmacotherapy has advantage over the only

pharmacotherapy in the management of depression among the study participants. Our study is supported by the conclusion of another study that indicated that combination of CBT and antidepressant medication for patients who did not achieve remission with antidepressant monotherapy was an effective approach for outpatients diagnosed with major depression disorder[22]. This is also largely supported by other two studies[23,24]. As the study participants who received only Pharmacotherapy were still found in the respective four categories of depression at a period that all participants with depression who were receiving both CBT and pharmacotherapy had reduction in the symptom scores at the level of mild depression suggested that psychotherapy is very important in the management of depression. This observation was corroborated by another study which also reported that cognitive behavioural therapy reduced the reoccurrence of depression[25]. As intervention with psychotherapy continued for four months there was profound significant improvement in the major depressive disorders of study participants who received CBT and Pharmacotherapy as the symptom scores reduced[25]. A review study on treatment of depression reported positive results for health related outcomes when CBT was combined with pharmacotherapy[26].

The finding of this study showed that as the symptom scores reduced the quality of life of the patients that were in the experimental group improved, when CBT was combined with Pharmacotherapy. This implies that patients diagnosed with depression will significantly experience improved quality of life when those patients received Pharmacotherapy and CBT[27]. The second finding of this study indicated that relapse was prevented in the experimental group. This implies that Pharmacotherapy alone is not as effective as Pharmacotherapy combined with CBT to treat major depressive disorders in some patients[28,29]. The third finding of the study indicated that the degree of adherence to Pharmacotherapy was greatly increased in the experimental group. This is because CBT improved cognition of participants in the experimental group that led to increased adherence to Pharmacotherapy[30].

Implications for Practice

First, patients with declining health outcomes such as relapse or resistant major depressive disorder based on BDI symptom scores after initial adequate pharmaceutical dosing should receive CBT. Second, Insurance should provide access to CBT to patients with unimproved depression based on BDI symptom scores after six months on pharmaceutical interventions.

Limitations of the Study

The study participants were not screened based on type of depression before randomized to the two groups that might lead to bias as one group might have more major depressive disorder than the other. Care givers of study participants were also hindered by works that affected some study participants.

Conclusion

The study demonstrated that patients with depression who received both CBT and pharmacotherapy having BDI Symptom scores 15.79 ± 8.68 (representing mild depression) at baseline experienced significant improvement ($p < 0.01$) as it was reduced to 8.90 ± 6.63 (minimum depression) after 2-month follow-up. Further significant improvement ($p < 0.005$) occurred as the symptom scores reduced further to 4.53 ± 3.35 (minimum depression) after 4-month follow-up. The study also indicated that at 2-month follow-up, patients receiving CBT and pharmacotherapy BDI symptom scores (8.90 ± 6.63) varied significantly ($p < 0.001$) with patients on only pharmacotherapy BDI symptom scores (19.15 ± 9.93). The study also indicated that at 4-month follow-up, patients receiving CBT and pharmacotherapy BDI symptom scores (4.53 ± 3.35) varied significantly ($p < 0.001$) with the patients on only pharmacotherapy BDI symptom scores (21.00 ± 9.59). Inclusion of CBT to the conventional pharmacotherapy treatment of depression is hereby recommended.

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