Assessing the Effectiveness of Cognitive Behavioural Therapy on Depressive Symptoms among Polycystic Ovary Syndrome Patients Receiving Fertility Treatment

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Abstract:-**This study examined the Cognitive Behavioural Therapy (CBT) on Depressive Symptoms among Polycystic Ovary Syndrome Patients Receiving Fertility Treatment in Enugu State. The purpose of the study was generally to determine whether CBT will relieve depressive symptoms among PCOS patients that are receiving fertility treatment in the University of Nigeria Teaching Hospital (UNTH), Itukwu-Ozalla, Enugu State. A total of 30 patients from the University of Nigeria Teaching Hospital, Itukwu-Ozalla, Enugu (UNTH) served as the participants in the study. Their ages ranged from eighteen (18) to forty-seven (47) years and their mean age is 33.2. The standard deviation of their age is 8.96. One instrument (Symptom Checklist) developed by Derogatis, Lipman and Covi (1977), was employed in the research; the depression domain (Domain D) of the SCL 90. There were two Groups for the study; A and B. The members of Group A were given CBT, but Group B received not any treatment; each member of Group A was administered CBT (brief CBT) individually based on their arrival and Group B members did not receive any treatment but, served as a control for group A. Pretest-posttest between group experimental design was employed and T-Test statistics was adopted for testing the postulated hypothesis. The results indicated that the hypothesis which stated that CBT will significantly relieve depressive symptoms among PCOS patients receiving fertility treatment when compared with controls was confirmed at t(28)= -4.088, p=000. Finally, limitations of the study were stated and it suggested that more research should be done in the aspect of applying other approaches of psychotherapies on the same population to ascertain their effects in order to broaden psychotherapeutical options. Also, clinical psychologists should delve into this area of research in order to provide succor to these group of patients.**

Key words: **Cognitive Behavioural Therapy, Polycystic Ovary Syndrome, Depressive Symptoms**

I. INTRODUCTION

Polycystic Ovary Syndrome (PCOS) was first discovered in 1935 and it has both physical and psychological dimensions. Had it been that it is curable, its physical and psychological consequences on patients would probably be less severe. But, the absence of medical cure for the disorder has made it a difficult health challenge to battle with by the patients (Medica, 2017). PCOS is one of the most common female endocrine disorders. It is a complex endocrine disease and the leading cause of anovulatory infertility in women. Other names for this syndrome include polycystic ovary disease, functional ovarian hyperandrogenism, ovarian hyperthecosis, sclerocystic ovary syndrome and Stein-Leventhal syndrome (Spritzer, 2014).

Many of the patients with infertility problem due to PCOS are normally treated with drugs, but some among them who are resistant to drug treatment are treated with laparoscopic surgery which destroys the androgen-producing stroma and thereby induces ovulation in 56-94% of the patients after treatment (Gomel & Yarali, 2004)but, it triggers many psychological effects such as depression in the patients just as any other surgical process(Meningaud, Benadiba, Servant, Herve, Bertrand & Pelicier, 2001). Therefore, this study was triggered by the motivation of ascertaining the effectiveness of CBT and CCT in the management of depressive symptoms among PCOS patients receiving fertility treatment.

American College of Obstetricians and Gynecologists reported the signs and symptoms of PCOS to include; an altered menstrual cycle, which may manifest as an infrequent menstrual cycle, no menstrual cycle, or abnormal uterine bleeding (Practice, 2016). Due to increased androgen levels, patients may have coarse hair on the face, chest, lower abdomen, back, and upper arms or legs. Other signs of increased androgen levels include acne, oily skin, dandruff, baldness, and thinning hair. Weight gain may occur (especially around the abdomen), and skin tags may appear on the neck or in the armpits(Dasgupta & B, 2008). Some patients have darkened skin around the neck, armpits, inner thighs, vulva, or breasts (Royal College of Obstetricians and Gynaecologists, 2007). Polycystic ovary syndrome is a heterogeneous disease condition and as a result allows a wide range of clinical and research works across many disciplines (Teede, Deeks, & Moran, 2010).

Depression is a common mental disorder that presents with low mood, loss of interest or pleasure, decreased energy, feelings of guilt or low self-worth, disturbed sleep or appetite, and poor concentration (*Diagnostic and Statistical Manual of Mental Disorders,* DSM-V, 2013). Moreover, depression

often comes with symptoms of anxiety. These problems can become chronic or recurrent and lead to substantial impairments in an individual's ability to take care of his or her everyday responsibilities. At its worst, depression can lead to suicide.

Almost 1 million lives are lost yearly due to suicide, which translates to 3000 suicide deaths every day. For every person who completes a suicide, 20 or more may attempt to end their lives (WHO, 2012). There are multiple variations of depression that a person can suffer from, with the most general distinction being depression in people who have or do not have a history of manic episodes.

Depressive episode involves symptoms such as depressed mood, loss of interest and enjoyment, and increased fatigability. Depending on the number and severity of symptoms, a depressive episode can be categorized as mild, moderate, or severe.

An individual with a mild depressive episode will have some difficulty in continuing with ordinary work and social activities, but will probably not cease to function completely. During a severe depressive episode, on the other hand, it is very unlikely that the sufferer will be able to continue with social, work, or domestic activities, except to a very limited extent.

Cognitive Behavioural Therapy (CBT) is a psychotherapeutic approach that addresses dysfunctional emotions, maladaptive behaviors, cognitive processes and contents, through a number of goal-oriented, explicit systematic procedures (Mohapatra, Deo, Satapathy, & Rath, 2008). The name refers to behavior therapy, cognitive therapy, and to therapy based upon a combination of basic behavioral and cognitive principles and research. It is "problem focused" (undertaken for specific problems) and "action oriented" therapist tries to assist the client in selecting specific strategies to help address those problems (Gudarzi & Gudarzi, 2014).

Most therapists working with patients dealing with anxiety and depression use a blend of cognitive and behavioral therapies (Sanders, Hill, Hill, & Elliott, 2014). This technique acknowledges that there may be behaviors that cannot be controlled through rational thought. The approach combines both cognitive and behavioral principles and methods in a short-term or long-term treatment approach, and has generated more empirical research than any other psychotherapy model (Corey, 2013).

According to Beck (2016) the model aims to improve understanding and tolerance of emotions in order to facilitate the therapeutic process. Importantly too, it is effective in treating depressive patients and several psychological problems through the process of alleviating negative cognition via substituting the negative schema about self, world and future. Gudarzi and Gudarzi (2014) aligned to this assertion and expressed that CBT being a "problem –focused and "action–oriented enables therapist to influence the client behavior through the processes that allow him/her to cope with various distressing problems leading to the extinction of such abnormal behavior.

Statement of the Problem

Many women who have infertility problem due to PCOS are normally treated with fertility drugs, (Gomel & Yarali, 2004), but prolonged infertility as a condition has been shown by many researchers to trigger depression or depressive symptoms among married women, and as a result should be treated since its presence hampers the positive outcomes of fertility treatment therefore, there is need for psychologists to further venture into this area of research in order to help proffer better solutions to this negative psychological malady associated with this group (Gallagher & McKinley, 2007; Santos, Martins & Oliveira, 2014).

Furthermore, though, many works have been done in the area of psychotherapy and depression, there is gap in knowledge about which of these two psychotherapies can be best fitted in the treatment/management of depressive symptoms among PCOS patients receiving fertility treatment, so, there is need to establish in concrete terms the effectiveness of these two psychotherapies in this population and in this part of the world (Nigeria).

Research Questions

1. Will CBT relieve depressive symptoms among PCOS patients receiving fertility treatment when compared with controls?

Purpose of the Study

The general purpose of the study is to determine whether CBT will relieve depressive symptoms among PCOS patients that are receiving fertility treatment in the University of Nigeria Teaching Hospital (UNTH), Itukwu-Ozalla, Enugu State. Specifically, this study is aimed at determining;

1. Whether CBT will significantly relieve depressive symptoms among PCOS patients receiving fertility treatment when compared with controls

Relevance of the Study

The finding of this research is helpful to health practitioners and patients to understand, appreciate and acknowledge the benefits of CBT in relieving depressive symptoms among PCOS patients receiving fertility treatment. Furthermore, it makes meaningful contribution to existing knowledge regarding the usefulness of psychotherapy in relieving depressive symptoms among patients with physical/medical conditions. Finally, it is a source of literature for further research in the area of psychotherapy.

II. THEORETICAL FRAMEWORK

Cognitive Theory

Cognitive theory was developed by Aaron T. Beck in 1970's. It is both theory of Depression and Cognitive Behavioural

Therapy (CBT). The theory initially focused on depression but, was later expanded to other areas of psychopathology and psychotherapy. Beck became dissatisfied with his psychodynamic training because he felt it did not adequately account for clinical and research phenomena he was seeing (Beck, 1963). He read George Kelly's *The Psychology of Personal Constructs* (1955) and was attracted to the cognitive conception of unique construct systems through which each individual construes the world. From modern cognitive psychology he adopted the theoretical construct of "schema." Schemata are structural units of stored information that also function to interpret new experience.

They act as templates against which new information is compared and incorporated. Schemata vary from representations of simple concepts (e.g., a chair schema operates in the simple act of identifying an object as a chair) to complex interpretive rules (e.g., applying a schema about hotels allows a person to see that the bellhop is hesitating because he expects a tip). Beck's (1972) theory defined depression in cognitive terms. He saw the essential elements of the disorder as the "cognitive triad": (a) a negative view of self, (b) a negative view of the world, and (c) a negative view of the future. The depressed person views the world through an organized set of depressive schemata that distort experience about self, the world, and the future in a negative direction.

A number of typical forms of cognitive distortion were identified early in the development of the theory (Beck, 1963). Arbitrary inference involves the arbitrary assumption that some negative event was caused by oneself. For example, a friend appears preoccupied and the depressed person thinks, "What did I do to make him angry with me?" Selective abstraction occurs when the person focuses on the negative element in an otherwise positive set of information. An employer, while congratulating the employee on a promotion, says, "Don't underestimate your future with this company." The depressive employee thinks, "She thinks I have no self-confidence." Magnification and minimization involve overemphasizing negatives and underemphasizing positives. Inexact labeling involves giving a distorted label to an event and then reacting to the label rather than to the event (Beck, 1976).

The conversation with the boss is labeled a "criticism session," and the person anticipates being fired. It is a basic tenet of the cognitive approach that a schematic interpretation always mediates between an experience and the emotional response to that experience. The negative, distorted cognitions that a person has in a particular situation are termed "automatic thoughts." They are automatic in the sense that the person is not aware of the interpretive process and may not be aware even of the thoughts themselves but only of the emotional consequences of the thoughts. These specific thoughts can be distinguished from underlying assumptions, which are more basic interpretive rules that form the automatic thoughts. In depression, the theme of the automatic thoughts is the perception of loss. Loss is the cognition that relates to depression. In contrast, perceptions of gain produce euphoria, perceptions of danger produce anxiety, and perceptions of offense produce anger.

The National Institute of Mental Health (NIMH) reported the study of that represents an important landmark in depression research. It was the largest (n = 239) multi-model intervention trial of acute depressive disorders ever undertaken. It compared antidepressant medication (ADM) and structured clinical management (CM), with pill-placebo plus CM, CBT and IPT. Although the trial confirmed that CBT was an effective treatment of mild-to-moderate major depressive disorders, it suggested CBT was not an effective treatment for severely depressed out-patients. The trial reported equivocal findings about the effect of CBT as compared with ADM in preventing relapse, but noted that chronic symptomatology was a predictor of poor outcome with any intervention (Huesmann et al., 2003; Weersing, 2006).

Although previous research data did not concur with all of the findings of Elkin and colleagues, the study greatly influenced published treatment guidelines for depression these documents emphasized that CBT was best targeted at mild-to-moderate depression (Parker, Treating, Parker, & Fletcher, 2007). The authors went on to document that there was no robust evidence of any additional benefits of combining CBT with ADM, although they recognized that many clinicians would value advice on when to employ this approach in practice. Empirical data are now explored on the role of CBT in each of these situations to clarify our current understanding (Arch et al., 2008).

Arch and Craske (2009) reported a study which sheds brighter light on cognitive mediation of relapse prevention demonstrating that CBT reduced relapse via changes in the style rather than the content of thinking. Good outcome from CBT was achieved via reductions in absolutist, dichotomous thinking. Individuals with persistent extreme response styles to depression related material (relapse rate = 44%) were more than 2.5 times as likely to experience early relapse as compared with individuals without this extreme style (relapse rate = 17%). This suggests that training individuals to change the way that they process depression related material, rather than changing their belief in depressive thought content may be a critical component of CBT.

Johnsen et al. (2015) *reported works that demonstrated the effectiveness of* the Clinical Management (CM) only and the CBT plus CM groups showed statistically significant changes in overall levels of depressive symptoms and social adjustment over time. However, there were relatively few significant between-group differences in depressive symptom ratings and these only became significant when assessed over the 68-week study period. In comparison with control subjects, CBT subjects showed greater reductions in Raskin Depression Scale (RDS) score and Clinical Interview for Depression (CID) total depression score. While these

differences were statistically significant, the actual differences in mean scores between groups were modest. Furthermore, similar trends on the Hamilton Rating Scale for Depression (HRSD) and Beck Depression Inventory (BDI) scores did not reach statistical significance. It is feasible, but not proven; that there was less possibility of demonstrating treatment effects because patients had lower levels of baseline symptomatology than those reported in acute treatment studies. However, their findings did not demonstrate with any certainty that overall reduction in level of residual depressive symptoms is a clinically meaningful explanation of reduced relapse rates. Significant between-group differences in social adjustment were most marked during the acute treatment phase. Improving social adjustment is important given the 60-80% prevalence of subjective impairment in partially remitted depression and its association with subsequent relapse.

Research Hypotheses

1. CBT will significantly relieve depressive symptoms among PCOS patients receiving fertility treatment when compared with controls.

III. METHOD

Participants

A total of thirty (30) PCOS patients receiving fertility treatment from University of Nigeria Teaching Hospital (UNTH), Itukwu-Ozalla, Enugu State served as the participants in the study. These participants were selected based on the hospital diagnosis with respect to the ESHRE and ASRM (2004) diagnostic criteria for PCOS disorder and the total population was employed for the study. Their ages ranged from eighteen (18) to forty-seven (47) years and their mean age is 33.2 years. The standard deviation of their age is 8.96. Hundred percent (100%) of the participants are married. Seventy-eight percent (78%) are Christians while, twenty-two percent (22%) are Muslims. Seventy-eight percent (78%) are Igbos, sixteen percent (16%) are Yorubas and six percent (6%) are Hausas. It was observed that only two patients filled 18-25 years as their age and three patients filled 40-47 years as their age and that explained the mean age of 33.2.

Instruments

The instrument employed in the study is a 13-item depression scale (Domain D) of the SCL 90 by Derogatis, Lipman and Covi (1973). They provided the original psychometric properties but, Erinoso provided the psychometric properties for the Nigerian sample in 1996. He reported the concurrent validity of .47 with Retirement Stress Inventory by Omoluabi in 1996. The Cronbach Alpha reliability of .77 was also reported. The instrument has a likert response pattern; The response options are: 0. Not at all, 1. A little bit, 2. Moderately, 3. Quite a bit, 4. Extremely.

A pilot test was conducted in order to ascertain the reliability of the instrument among the population. This was done by selecting fifteen (15) out of the sixty (60) available patients (who indicated interest as well as met the required criteria) for the study (who did not eventually participate in the actual study); and a Crombach Alpha reliability of 0.708 was obtained for the study.

Procedure

The researcher obtained permission from Research Ethics Comittee Authorities of University of Nigeria Teaching Hospital (UNTH), Itukwu-Ozalla, Enugu State to conduct the research with a letter of introduction by the Head of Department. The participants were individually administered the inventories by a research assistant. The participants were instructed on how to complete the questionnaires and were encouraged to do so honestly. Participants provided informed consent and received no monetary reward for participating in the study. The researcher recruited an experienced Clinical Psychologist who delivered therapies with the researcher while a qualified nurse who was taught how to administer and score the instrument participated in monitoring the progress; this was done in view of controlling experimental bias. Prior to the treatment, the patients were assessed to determine the severity of their depressive symptoms and the assessment served as the baseline before the therapies and at the end of therapies which generally lasted for ten (10) weeks, patients were reassessed in order to ascertain the effectiveness of the therapies. There were two Groups for the study; A, B. The members of Group A were given CBT, while those of Group B received not any treatment; each member of Group A was administered CBT (brief CBT) individually based on their arrival and Group B members did not receive any treatment but, served as a control for group A.

IV. RESULTS

The results presented in this chapter are arranged in the order in which the hypotheses were tested.

Table 1: A table of means, SD and N of the two levels of treatments in pretest and posttest

Group Statistics					
	PSYCHOTHERAPY	N	Mean	Std. Deviation	Std. Error Mean
PRETEST	CBT	15	2.7795	.27408	.07077
	CONTROL	15	2.9385	.25213	.06510
POSTTEST	CBT	15	2.5641	.18311	.04728
	CONTROL	15	3.0872	.46050	.11890

Table 2: A table of the T-Test for testing hypotheses for the pre and post tests significance.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
PRETEST	Equal variances assumed	.002	.964	-1.653	28	.109	-.15897	.09616	-.35594	.03799
	Equal variances not assumed			-1.653	27.807	.110	-.15897	.09616	-.35600	.03805
POSTTEST	Equal variances assumed	6.992	.013	-4.088	28	.000	-.52308	.12796	-.78518	-.26097
	Equal variances not assumed			-4.088	18.319	.001	-.52308	.12796	-.79157	-.25459

The table above indicates that the there is no significant difference in the scores for treatment and control group in pretest at t(28)= -1.653, p=.109. It also shows that the there is a significant difference in the scores for treatment and control group in posttest at t(28)= -4.088, p=000.

The Summary of Results

The hypothesis one which stated that CBT will significantly relieve depressive symptoms among PCOS patients receiving fertility treatment when compared with controls was accepted at the significant level of (p<0.000).

V. DISCUSSION

The outcome of this study which is based on assessing the effectiveness of cognitive behavioural therapy on depressive symptoms among polycystic ovary syndrome patients receiving fertility treatment was discussed below. The result indicated that CBT is effective in treating depressive symptoms among PCOS patients receiving fertility treatment. This means that the first hypothesis was confirmed. The interpretation of this result is that CBT as a psychotherapy can be used in the treatment of depressive symptoms among PCOS patients and this is in consonance with the findings of The National Institute of Mental Health (NIMH) reported the study of that represents an important landmark in depression research. It was the largest (n = 239) multi-model intervention trial of acute depressive disorders ever undertaken. It compared antidepressant medication (ADM) and structured clinical management (CM), with pill-placebo plus CM, CBT and IPT. Although the trial confirmed that CBT was an effective treatment of mild-to-moderate major depressive disorders, it suggested CBT was not an effective treatment for severely depressed out-patients. The trial reported equivocal findings about the effect of CBT as compared with ADM in preventing relapse, but noted that chronic symptomatology was a predictor of poor outcome with any intervention (Huesmann et al., 2003; Weersing, 2006).

Furthermore, it is consistent with Whitfield and Williams (2003)who reported a work that that separately pursued the effects of CBT by exploring the impact of different lengths of treatment with CBT (8 or 16 sessions) on outcome for mild (Beck Depression Inventory [BDI] score < 21), moderate (BDI = 21−26) and severe (BDI > 26) depression. They demonstrated a significant interaction between initial symptom severity and duration of therapy. Individuals with mild or moderately severe depression did equally well with either 8 or 16 sessions of CBT (50–53% response rate). However, individuals with severe depression demonstrated a significantly improved response rate with 16 sessions (50%) as compared to eight sessions (35%) of CBT.

Finally, it agrees with Arch and Craske (2009) reported a study which sheds brighter light on cognitive mediation of relapse prevention demonstrating that CBT reduced relapse via changes in the style rather than the content of thinking. Good outcome from CBT was achieved via reducing the absolutistic and dichotomous thinking. Individuals with persistent extreme response styles to depression related material (relapse rate = 44%) were more than 2.5 times as likely to experience early relapse as compared with individuals without this extreme style (relapse rate = 17%). This suggests that training individuals to change the way that they process depression related material, rather than changing their belief in depressive thought content may be a critical component of CBT.

VI. LIMITATIONS OF THE STUDY

Though, the work indicated the effectiveness of CBT on depressive symptoms among PCOS patients receiving fertility treatment, it was unable to show week by week progressive remission of depressive symptoms among the patients.

VII. SUGGESTIONS FOR FURTHER STUDIES

More research should be done in the aspect of applying other approaches of psychotherapies on the same population to ascertain their effects (with clear demarcation of different age groups) in order to broaden psychotherapeutical options. Finally, other sociocultural groups should be researched on to

ascertain a wider purview of this research population in this part of the world.

VIII. IMPLICATIONS OF STUDY

The findings of the research have great implications on the management and treatment of depressive symptoms among PCOS patients who are receiving fertility treatment. Firstly, it provided a succor for women who were depressed due to their state of infertility. Secondly, it provided mediating and ameliorating effects for these patients in order for them to live with the right frame of mind (psychological state) thereby enhancing the positive outcomes of the fertility treatment. Finally, the study will serve as a source of literature, with useful data on the effects of CBT on depressive symptoms among PCOS patients who are receiving fertility treatment.

IX. CONCLUSION

The study was based on assessing the effectiveness of cognitive behavioural therapy on depressive symptoms among polycystic ovary syndrome patients receiving fertility treatment. The participants were made up of thirty women from the University Teaching Hospital, Itukwu-Ozalla, Enugu State (UNTH). One instrument was used in the study; the 13-item depression sub-scale of the SCL90 by Derogatis, Lipman and Covi (1977).

The two hypotheses postulated were tested using T-Test, the researcher made suggestions based on the results, the theoretical and practical implications aimed at ensuring further research in this area. Indeed, depression in PCOS patients receiving fertility treatment can be well treated using CBT by the psychotherapists.

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APPENDIX 1:

INSTRUMENT USED IN THE STUDY

Instruction:

Please answer the following questions as they apply to you. Leave none of the questions unanswered for any answered question will render the questionnaire invalid.

SECTION A:

The response options are: 0. Not at all, 1. A little bit, 2. Moderately, 3. Quite a bit, 4. Extremely

How much were you bothered by

S/N	Items	0	1	2	3	4
1	Loss of sexual interest or pleasure					
2	Feeling low in energy or slowed down					
3	Thought of ending your life					
4	Crying easily					
5	Feeling of being trapped or caught					
6	Blaming yourself for things					
7	Feeling lonely					
8	Feeling blue					
9	Worrying too much about things					
10	Feeling no interest in things					
11	Feeling hopelessness about the future					
12	Feeling everything is an effort					
13	Feeling of worthlessness					

PERSONAL DATA

Age: ……

Marital status: Single…….. Married…… Divorced……. Separated……..

Religion: Christian…….. Muslim…….. ATR…….. Others……..

Ethnicity: Igbo…… Hausa……. Yoruba……