

## Effectiveness of Group Cognitive-Behavioral Therapy on Anxiety and Depression in Nigerian Breast Cancer Patients

Maria Chidi C Onyedibe, A Chukwuemeka Nkechi\*, Chuka Mike Ifeagwazi

University of Nigeria, Nsukka, Nigeria

### ABSTRACT

Breast cancer patients are particularly weighed down by a variety of emotional distresses, including anxiety and depression. While the effects of Cognitive Behavioral Therapy (CBT) have been reported in most Western countries, less is known about the effectiveness of CBT in anxiety and depression among Nigerian women with breast cancer. The study investigated the effectiveness of a 12 weeks group CBT on anxiety and depression among Nigerian breast cancer patients. The study adopted randomized controlled Pre-test Post-test design. Thirty one women with breast cancer were randomly allocated to two groups: CBT Group ( $n= 16$ ) and a Control Group (CG,  $n= 15$ ). The CBT group received a 12-week 90-minute CBT session once a week, while the CG received a booklet containing information on cancer and how to cope with cancer. Assessments were carried out for both groups at baseline (pre-test), after the intervention (post-test) and 2-months Follow-Up with measures of Hospital Anxiety Depression Scale (HADS). The results showed that participants in the CBT Group had decreased in anxiety and depression significantly at post-test and 2-month follow-up compared to the participants in the CG. The implications of the study was discussed in line with the inclusion of psychological treatments such as CBT in the management of cancer patients in an oncology setting in Nigeria where such treatments are grossly lacking.

*Key words:* breast cancer, cognitive behaviour therapy, depression, anxiety.

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### Novelty and Significance

*What is already known about the topic?*

- Breast cancer and its treatment is a source of emotional distress, such as anxiety and depression in patients.
- Psychological intervention with patients who have breast cancer has been shown to be effective in reducing emotional stress and improving the quality of life of patients capturing the interest of oncology services.

*What this paper adds?*

- The implementation of CBT for Nigerian women with breast cancer has been shown to reduce anxiety and depression.
- The results of this study allow to strengthen awareness of the problem and promote the use of psychological interventions as a complement to traditional cancer treatment.

Breast cancer is a major public health concern among women (Morgan, 2018) and most common cancer type in women (Carayol *et alia*, 2013; Alacacioglu *et alia*, 2014) globally. Despite recent developments and substantial improvements in screening, diagnosis and treatment, breast cancer remains the second leading cause of death for women in both developed countries (Kumar Tyagi & Dhesy-Third, 2018) and developing countries, including Nigeria. (Afolayan *et alia*, 2012; Morounke *et alia*, 2017). Diagnosis and treatment of breast cancer have a significant effect on the physical, emotional, social and spiritual well-being of women (Reddick, Nanda, Campbell, Ryman, & Gaston-Johansson, 2005). A variety of studies have shown that cancer has significant negative effects, including sexual dysfunction (Ferrandina *et alia*, 2012) cancer-related fatigue (Sekse *et alia*, 2015), anxiety and depression (de Carvalho *et alia*, 2015).

\* Correspondence: A Chukwuemeka Nkechi, Department of Psychology, University of Nigeria, Nsukka, Nigeria. Email: chukwuemeka.nkechi@unn.edu.ng

The prevalence of anxiety and depression has been found to be twice as high in cancer patients compared the general population (Hinz, Krauss, Hauss, Hockel M, Kortmann RD, Stolzenburg, & Schwarz, 2010; Linden, Vodermaier, Mackenzie, & Greig, 2012). Anxiety and depression are the most significant psychopathological comorbidities experienced by breast cancer patients (Celik, Tuna, Samancioglu, & Korkmaz, 2016; Wu, Chen, Huang, Chang, & Hsu 2018). Anxiety has been shown to affect successful treatment decision-making in women with breast cancer and may lead to exacerbation of other symptoms, such as pain and dyspnoea (Traeger, Greer, & Fernández Robles, 2012) and decreased quality of life (Buzgova, Jarosova, & Hajnova, 2015). This may have occurred as a result of reactions to the threatening nature of cancer, cancer treatment and disease progression (Traeger *et alia*, 2012). Similarly, depression results in poorer adherence and prognosis to care, decreased quality of life and impaired health outcomes, increased risk of hospitalization, and increased mortality rates (Arrieta *et alia*, 2013; de Carvalho *et alia*, 2015; Thalén-Lindström, 2014). Depression in breast cancer patients is possible due to certain unforeseen and painful physical causes (such as mastectomy) associated with breast cancer. For example, researchers (Reich, Lesur, & Perdrizet-Chevallier, 2008) indicate that body image impairment from mastectomy and sexuality contributes to higher levels of depression among breast cancer patients.

The complex nature of the medical condition as well as the treatment of the breast (especially tamoxifen) can sometimes limit the use of antidepressants (Lash *et alia*, 2010). Psychotherapy may act as an alternative therapy and has been shown to be effective in the treatment of anxiety and depression in breast cancer patients. CBT is one of the main advances in psychological therapies that have been described as a dominant approach to the treatment of a wide variety of psychiatric disorders. CBT emerged from the work of Ellis (1962) and Beck (1976) and gained its reputation from a wide variety of empirical data validating its effectiveness in the treatment of anxiety, depression and other psychological conditions. Cognitive theory of psychopathology according to Beck (1967) and Ellis (1958) posit that depression and anxiety results from faulty cognitions or faulty cognitive processes and that the remedy is to correct and modify the faulty cognition and replacing it with more rational one. The cognitive theoretical perspective gave rise to the use of CBT in management of psychopathology among people with different illness including women with breast cancer (Edelman & Kidman, 1999) and these had been supported by several empirical evidence. CBT has been shown to be effective in treating anxiety and depression in breast cancer patients (Cocker, Bell, & Kidman, 1994; Kissane *et alia*, 2003; Qiu *et alia*, 2013).

The effectiveness of CBT in anxiety and depression in breast cancer patients has received considerable attention, especially in western countries, but its efficacy in women with breast cancer in developing countries such as Nigeria is less well known. It should be noted that culture is an important factor in understanding the influence of Western based psychological therapies. Hence the need to test the effectiveness of these therapies in the management of psychological distress such as anxiety and depression among Nigerian women with breast cancer. The results of this study could inform public policy on the value of psychotherapy in the context of Nigerian oncology. The objective of this study is therefore to investigate whether group CBT (GCBT) will be effective in the management of anxiety and depression among Nigerian women with breast cancer diagnosis.

## METHOD

### *Participants*

The sample consisted of 31 patients with breast cancer who were receiving treatment as outpatients at the oncology clinic, Lagos State University Teaching Hospital (LUTH) South West Nigeria. They were selected based on purposive sampling method. The inclusion for the study were: 1) ability to speak and understand English; 2) Women with breast cancer diagnosis (stages I to III); 3) women with significant increase in anxiety and depression as reported in the HADS cut-off score (10 for anxiety and 8 for depression) (Moorey & Greer, 2002). The exclusion criteria for the study were: 1) being diagnosed with any severe mental health problem (e.g. psychotic disorders); 2) having any co-morbid health condition (e.g. hypertension, diabetes); 3) taking any anti-depressant or/and anxiolytic medications that may affect their mood and thus confound the results of the research. Written informed consent was obtained from all the participants. The Mean age for the participants of CBT group was 45.37 ( $SD= 9.96$ ), and 48.91 ( $SD= 6.91$ ) for the CG. 93.8% of the participants were married. The study was approved by the Ethical Committee of the Lagos University Teaching Hospital.

### *Instruments*

*Hospital Anxiety and Depression Scale* (HADS, Zigmond & Snaith, 1983). HADS is a 14-item self-report questionnaire designed to measure anxiety and depression for use in non-psychiatric hospital settings and in hospital outpatient departments (Zigmond & Snaith, 1983). The 14 item is divided equally between the two mood states (anxiety 7 items and depression 7 items), with 4-point rating scales for each item. For the degrees of abnormality, Stern (2014) contend that for anxiety and depression scores of 8-10 shows Mild anxiety or depression, 11-14 shows Moderate anxiety or depression while scores between 15-21 indicate Severe anxiety or depression. The Cronbach's alpha for HADS as reported by the developers (Zigmond & Snaith, 1983) are .83 and .82 for anxiety and depression respectively. For this study, the HADS has good reliability with Cronbach's alpha coefficients of .77 for anxiety and .74 for depression subscales.

### *Procedure*

Between November 2018 and January 2019, eighty patients who attended oncology clinic as outpatients at the LUTH and agreed to participate in the study were recruited. Forty nine participants met the inclusion criteria for the study. Thirty-one participants were excluded for the following reasons: severe mental health condition (6), not understanding English (9), being very ill (16). Ten of the 49 participants declined to take part in the study. Of the 10 participants who declined, 6 stated that the study site was very far from home, while 4 indicated other personal reasons. The remaining 39 were included in the baseline assessment. The participants were randomly allocated to CBT Group (GCBT,  $n= 20$ ) and Control Group (CG,  $n= 19$ ). Participants in the CBT program had 12 hours of cognitive behavioral group therapy each week lasting for 90 minutes. Participants in the CG were presented with booklets providing information on cancer, psychological issues in cancer, and how to cope effectively with cancer. Antoni *et alia* (2001) maintain that this form of control has had a substantial advantage relative to non-treatment control or waiting-list control groups because it decreases the attrition rate that is common among non-treatment groups. Both groups were assessed at baseline (pre-test), immediately after the intervention (post-test) and 2-months follow-up. During the course of the twelve

week sessions for the CBT group, 2 participants dropped out from the GCBT whereas 3 participants withdrew from the control group. At the conclusion of the twelve weeks of therapy, a total of 34 participants (CBT= 18, CG= 16) completed the full session and post-test assessment. A total of 31 participants completed the 2-month follow-up assessment (CBT= 16, CG= 15), 2 participants dropped from the CBT group, while 1 participant dropped from the control group. Figure 1 shows the participants flow.

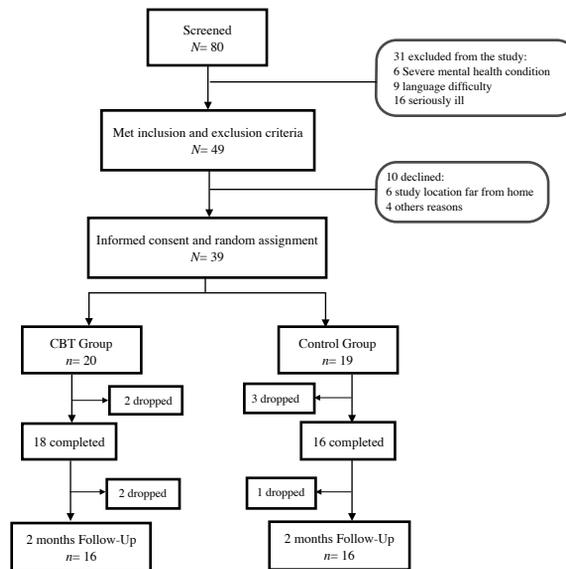


Figure 1. Flow of participants.

### Intervention

The GCBT was conducted by a therapist with a PhD in Clinical Psychology and long experience on GCBT with psychiatric patients. The 12 sessions of treatment were supervised by one of the authors. The CBT package was a closed 12 week sessions, one session a week and lasting for 90min. The CBT focussed on three major goals: cognitive restructuring, behavioral strategies and self-expression. Such three key objectives of CBT have been used in past studies for cancer patients (Edelman & Kidman, 1999), breast cancer patients (Qiu *et alia*, 2013) as well as metastatic breast cancer patients (Coker, Bell, & Kidman, 1994; Edelman, Bell & Kidman, 1999). The cognitive restructuring entail guiding participants to identify their patterns of maladaptive thinking and core irrational beliefs; learn to challenge and modify these maladaptive perceptions. The behavioral strategies involves teaching participants a variety of behavioral coping strategies including deep progressive muscle relaxation and effective communication/assertiveness techniques. Self-expression is at the centre of all group therapy as the participants were allowed to express their issues of concern and associated feelings within the group.

*Sessions 1 to 4.* Cognitive restructuring was introduced within the first four sessions. Participants were guided to identify their patterns of maladaptive thinking and core irrational beliefs through the use of ABC model (A: *Activating events*, B: *Belief*, C: *Consequences*) of Ellis

(1962). The ABC framework of Ellis illustrate the theory behind emotional disorders such as anxiety and depression. In explaining the ABC connection, Ellis posits that the belief (rational or irrational) about the activating events produces either positive or negative consequences (Ellis, 1962). Thus an individual who engages in irrational belief concerning an activating event will be more susceptible to the development of emotional disorders including anxiety and depression compared to an individual with rational belief. This important interaction between activating events, belief and consequences was dealt with in the first four sessions.

*Session 5.* Activity scheduling was introduced in the fifth session and participants were guided on how to use it at home.

*Session 6.* Faulty thinking pattern sheets were introduced and explained to the participants, as well as guidance on how to use the sheets.

*Sessions 7 to 9.* In session seven, participants were guided on how to challenge and modify their maladaptive perceptions through relevant examples related to their experience with cancer. To achieve this, ABC-DEF sheets was introduced and participants were guided on how to use it. In addition to the ABC model, the remaining DEF is the core therapeutic component of the Rational Emotional Behavior Therapy (REBT, Ellis, 1962). With D represents *Disputation* which entails challenging the irrational belief that is presumed to be causing the emotional disorders (Ellis & Dryden, 1997), and the participants are taught to recognize and challenge their irrational self-statements (DiGiuseppe Doyle, Dryden, & Bacx, 2014). Once participants learn the skill of questioning their irrational thinking, is introduced the E represents *Effective Rational Beliefs* that are needed to replace irrational belief (Ellis & Dryden, 1997). In REBT, clients are required to replace the irrational beliefs with effective rational beliefs. Finally, F represents *Functional Emotions and Behaviours* thus by changing one's negative beliefs into more helpful ones, so that the client feels better emotionally and behaves in a more helpful ways (David, Kangas, Schnur, & Montgomery, 2004). In summary, the ABC-DEF relationships indicate that if a person had irrational thought (B) concerning an event (A) which resulted in emotional disorders (C), the client is taught how to challenge their irrational thought (D) which would lead to positive new emotions (E). Functional feelings and behaviors (F) are used to ensure that these positive emotions (E) are reinforced and sustained (Sahin & Voltan Acar, 2019). Empirical testing of the participant's worst concerns about their cancer experiences was introduced in sessions eight and nine. Beck (1976) cognitive interventions rely on empirical hypothesis testing as a way of modifying existing beliefs. Thus, Beck's approach encourages individuals to gather information about themselves and to seek unbiased experiments to discover the inaccuracies in their beliefs.

*Sessions 10 and 11.* A number of behavioral coping mechanisms, including deep progressive muscle relaxation, assertiveness and anger management methods, were taught to participants, and this was achieved in sessions 10 and 11. Thus, sessions 10 and 11 are aimed at channelling discussions on other issues common to the participants, particularly on communication. Progressive deep muscle relaxation was introduced early in the session (during the third session) and subsequent sessions began with relaxation exercise as a way to cope with anxiety. They were supplied with tape recorded relaxation exercises and encouraged to practice them at their convenience.

*Session 12.* At the last session (12), a review of all that was done during the sessions was presented and the participants discussed the benefits of the program as a whole.

Self-expression is at the heart of all group therapy as participants were encouraged to share their thoughts and emotions within the group during the 12 sessions. Specifically, if any participant shared a concern within the group, the therapist and other participants discussed the issue and suggested appropriate coping mechanisms. Homework was a key component of the group sessions as participants were given homework at the end of each session. Homework was very useful because it helped participants better understand how thoughts influence behaviors, which is the core theoretical idea of CBT. Every session usually began with a recapitulation of the previous sessions as well as a summary of the homework of the participant. Table 1 below displays the the summary of the content of each session.

Table 1. Contents of the sessions for 12-week Group Cognitive Behaviour Therapy.

Sessions	Contents of the Sessions	Homework
Session 1	Introduction between the therapists and participants and establishing rapport. Introduction to the CBT and overview of the programme.	Write down personal experiences of how cancer had affected them
Session 2	Psycho-education on emotional distress and its relationship with cancer Introduction of ABC connection of Ellis (how thought influence behaviour).	Practice thought monitoring. Using ABC sheets to identify irrational thoughts
Session 3	ABC connection continued Deep progressive muscle relaxation was introduced.	Identify underlying irrational thought about an event and connecting it to their emotions and behaviours using ABC sheet Practice muscle relaxation at home.
Session 4	Deepening the understanding of the participants on ABC connection, particularly being able to identify the negative thoughts that underlie emotional distress.	Connecting thought, events and behaviours using ABC sheet continued.
Session 5	Introduction of activity scheduling. Participants rated each activity on mastery (M) and pleasure (P) from 0-10 (0=lowest, 10=highest). ABC connection was also used to explain the reason behind each low rating	Using activity scheduling sheet to record their daily activity and rating them on mastery and pleasure
Session 6	Review of activity scheduling Faulty thinking pattern introduced	Faulty thinking pattern sheet used to classify the pattern used throughout the week.
Session 7	Introducing disputation (D) of irrational thoughts. Introduction of Positive new Emotions (E) and Functional feelings and behaviors (F). The ABCDEF was used to explain	Use of ABCDEF sheet to identify, challenge irrational thoughts, replace with alternative positive emotions and more functional feelings and behaviours
Session 8	ABCDEF model discussion continued Participants' worst concern about their cancer and Introduction of empirical testing	Practice the use of ABCDEF sheet to dispute irrational thoughts Empirical/reality testing of their worst concern
Session 9	Empirical/reality testing continued	Reality testing continued
Session 10	Other issues common to the participants particularly on communication. Introduction of assertiveness and anger management	Homework on assertiveness and managing anger. Disputing irrational thought using ABCDEF continued
Session 11	Discussion on assertiveness and anger management continued	Assertiveness and anger management continued Use of ABCDEF sheet continued
Session 12	A general review of all the program.	Monitoring thoughts and use of ABCDEF sheet

### Design and Data Analysis

The study adopted a Randomized Control-Group Pre-test Post-test design. Randomization was done for the eligible participants only and was conducted using sealed envelopes in which the treatment procedures was noted. All study-eligible participants were assigned randomly to either the experimental group or the control group. The participants remained in the assigned experimental and control groups throughout the course of the study. Participants were tested before and after the intervention.

*Standard Mean Difference (SMD)* and 95% Confidence Interval were used to estimate the effect size. This approach had been used in previous studies (Duijts, Faber, Oldenburg, van Beurden, & Aaronson, 2011). The *SMD* was calculated by dividing the mean difference of the two independent groups (CBT and CG) with the pooled standard deviation (Kenny, 1987). According to Cohen (1988) we considered small effect size  $d= 0.2-0.5$ , medium effect size  $d= 0.5-0.7$ , and large effect size  $d= 0.8-2.0$ . Analysis was performed using SPSS25. The baseline demographic and clinical characteristics of the GCBT and the CG was compared by Chi square for categorical or dichotomous variable and by *t*-test for continuous variables (e.g. age). The independent sampled *t* test was used to measure the Pre-test, Post-test and 2-month Follow Up for the outcome variables (anxiety and depression).

Table 2. Baseline Clinical and Demographic Characteristics of Participants.

Characteristics		CBT Group (n= 16)			Control Group (n= 15)			$\chi^2$	P
		n (%)	M	SD	n (%)	M	SD		
Anxiety			12.62	3.09		12.13	2.23	.50	.61
Depression			12.00	3.01		11.80	2.45	.20	.84
Age (years)		33-63	45.37	9.96	38-60	48.91	6.91	-1.11	.27
Marital	Married	15 (93.8%)			12 (80%)			1.3	.25
Status	Single	1 (6.3%)			3 (20%)				
Education	Secondary	7 (43.8%)			12 (80%)			3.04	.08
	Tertiary	9 (56.3%)			3 (20%)				
Cancer	Stage I	4 (25%)			6 (40%)				
Stage	Stage II	7 (43.8%)			4 (26.7%)			.26	.87
	Stage III	5 (31.3%)			5 (33.3%)				
	Less than 1 yr	2 (12.5%)			6 (40%)				
Cancer	1-5 years	11 (68.8%)			3 (20%)			7.75	.052
Duration	6-10years	2 (12.5%)			6 (40%)				
	Over 10years	1 (6.3%)			--				
	Chemotherapy	No	0		2 (13.3%)			2.28	.13
		Yes	16 (100%)		13 (86.7%)				
Treatment	Radiotherapy	No	13 (81.3%)		6 (40%)			1.69	.19
		Yes	3 (18.7%)		9 (60%)				
	Surgery	No	3 (18.7%)		6 (40%)			1.69	.19
		Yes	13 (81.3%)		9 (60%)				

## RESULTS

The baseline demographics and clinical characteristics of the study participants for both CBT and control groups are showed in Table 2. The results showed that there was no significant differences in baseline demographic and clinical characteristics between the two groups. Specifically, Pearson Chi square showed that both group did not significantly differ in such demographics as age, marital status, education, stage of the cancer, duration of cancer diagnosis, previous and current treatment. This showed that the groups are equivalent in baseline demographic and clinical and variables before the intervention.

The results (see Table 3) showed that at Pre-test the independent sampled *t* test resulted in no significant difference between the two groups in all the Baseline outcome measures (anxiety and depression).

In the Post-test (after Intervention) there was a significant difference in anxiety between GCBT and CG ( $t(29) = -4.06, p < .000, CI = -8.39, -2.78, ES = -1.18$ ). Participants in the GCBT ( $M = 6.87, SD = 4.24$ ) had significant decrease in anxiety scores compared to the participants in control group ( $M = 12.46, SD = 3.29$ ). The clinical improvement was maintained at 2-month follow-up ( $t(29) = -5.71, p < .000, CI = -8.43, -3.98, ES = -1.46$ ) with GCBT participants ( $M = 7.18, SD = 3.01$ ) having significantly lower anxiety scores compared to those in control group ( $M = 13.40, SD = 3.04$ ).

Similarly there was a significant difference in depression between participants in GCBT and control group ( $t(29) = -5.32, p < .000, CI = -6.57, -2.92, ES = -1.30$ ). Participants in GCBT had significant reduced mean depressive scores ( $M = 7.25, SD = 2.46$ ) compared to those in the control group ( $M = 12.00, SD = 2.50$ ). There was significant clinical

Table 3. Effects of Group Cognitive Behaviour Therapy.

Variable and Time Point		CBT Group (n=16)	Control Group (n=15)	<i>t</i>	<i>p</i>	95% CI	Between Group Effect Size
		Mean (SD)	Mean (SD)				
Anxiety	Baseline	12.62 (3.09)	12.13 (2.23)	.50	.61	-1.50, 2.48	
	Post-treatment	6.87 (4.24)	12.46 (3.29)	-4.06	.000	-8.39, -2.28	-1.18
	2-months Follow-up	7.18 (3.01)	13.40 (3.04)	-5.71	.000	-8.43, -3.98	-1.46
Depression	Baseline	12.00 (3.01)	11.80 (2.45)	.20	.84	-1.82, 2.22	
	Post-treatment	7.25 (2.46)	12.00 (2.50)	-5.32	.000	-6.57, -2.92	-1.30
	2-months Follow-up	5.00 (2.52)	12.33 (2.58)	-7.98	.000	-9.21, -5.45	-1.65

improvement in depression at 2-month follow up ( $t(29) = -7.98, p < .000, CI = -9.21, -5.45, ES = -1.65$ ); the CBT had significant lower mean scores ( $M = 5.00, SD = 2.52$ ) compared to control group ( $M = 12.33, SD = 2.58$ ).

## DISCUSSION

The aim of this study was to investigate the effectiveness of 12-week GCBT in the management of anxiety and depression among Nigerian women with breast cancer. As hypothesized, we found that GCBT was effective in reducing anxiety and depression among patients with breast cancer. Patients who participated in GCBT had significantly reduced anxiety and depression compared to CG. The observed effect was sustained two months after the intervention. The effect sizes for anxiety and depression was large in this study. For example, for anxiety, the effect size was  $d = -1.18$  and  $-1.46$  for Post-treatment and Follow-Up, respectively. The effect size in this study was greater compared to other studies. For example, Qiu *et alia* (2013) found a moderate effect size for anxiety of  $d = 0.56$  and  $0.66$  for Post-treatment and a 2-month Follow-Up, respectively.

Similarly, in this study the effect size for depression was  $-1.32$  and  $-1.56$  for Post-treatment and 2-month Follow-Up, comparable to other studies (e.g., Hans & Hiller, 2013; Qiu *et alia*, 2013; Thimm & Antonsen, 2014). For example, Qiu *et alia* (2013) found an effect size for depression of  $d = 2.19$  and  $1.51$  for Post-treatment and 6-month Follow-Up. Also, in a meta-analytical analysis of the efficacy of CBT for unipolar depression, Hans & Hiller (2013) found an effect size of  $d = 1.13$  for depression. Our findings therefore confirm previous studies which found that breast cancer patients who received GCBT showed a significant reduction in anxiety and depression compared to control group participants. (e.g., Hans & Hiller, 2013; Kissane *et alia*, 2003; Qiu *et alia*, 2013; Thimm & Antonsen, 2014). This has shown CBT as an effective psychological treatment for management of emotional distress among women with breast cancer.

The results of this study have a number of implications for clinical practice and research, especially in developing countries like Nigeria. First, the effect of CBT of significantly reducing anxiety and depression among breast cancer women will undoubtedly improved their overall health-related quality of life, increase survival rate and decrease mortality rate. Therefore, the results of this study reinforce the need to integrate psychological therapies into oncology in Nigeria. Second, psycho-social assessment of cancer patients could help to identify people in need of psychological care. Third, psychosocial oncology is a developing field that would need to be expanded in sub-Saharan African countries, including Nigeria, for which the results of this study would be generalizable. New studies that will further advance this area are strongly recommended.

Despite the positive effect of CBT found this study has a number of limitations. First, the study had slightly higher rate of attrition (20.52%). The drop-out rate may have been partially due to the fact that the study was conducted among patients who are still undergoing standard oncology care, such as chemotherapy and radiotherapy, as some of them ( $n = 8$ ) dropped out during therapy sessions. New studies are needed that replicate these results with patients patients who have already completed chemotherapy and radiotherapy or newly diagnosed cancer patients who have not yet begun treatment. Second, the study was conducted in one of Nigeria's six geopolitical zones (although the tertiary teaching hospital where the study was conducted provides services to patients from different geopolitical zones in the country). Despite this the findings

should be cautiously applied to the entire Nigerian population. Third, there were fewer participants in the study, making it difficult to generalize to very large cases of breast cancer reported around the country.

In conclusion, the results of this study showed that Group Cognitive Behavioral Therapy was successful in significantly reducing anxiety and depression among breast cancer patients. It underlines the importance of using psychotherapy as an alternative therapy in the treatment of patients with breast cancer. It is recommended that cognitive behavioral therapy be integrated in the management of cancer patients in the Nigerian oncology setting. This would significantly reduce the incidence of anxiety and depression and increase the quality of life of breast cancer patients.

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