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Impact Of Cognitive Behavioural Therapy On PHQ-9 Depression Scores In A Cohort HIV Positive Patients

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Abstract

Background

Depression is a mental health problem that has been associated with non-adherence to antiretroviral drugs constituting a major barrier to HIV preventive efforts. Several studies have shown the effectiveness of Cognitive behavioural therapy (CBT) as a non-drug treatment for the management of depression.

The objective of this study was to determine the impact of cognitive behavioural therapy on the Patient Health Questionnaire-9 (PHQ-9) depression scores of HIV infected patients attending the adult ART clinic of Bingham University Teaching Hospital, Jos.

Materials and Method

This study was a hospital based interventional study done at the adult ART clinic of the Bingham University Teaching hospital Jos, Plateau state from January 2019 to April 2019. A total of 30 participants, had their PHQ-9 scores measured before and after CBT. Data were collected using the Patient Health Questionnaire-9 (PHQ-9). The complete data of 28 participants was analyzed using SPSS version 25.0. A p-value of <0.05 was considered statistically significant for the change in depression levels and scores.

Result

The point prevalence of depression was 25.6%, of this proportion, 66.2%, 22.5%, 9.9% and 1.4% had mild, moderate, moderately severe and severe depression respectively. There was a statistically significant difference between the pre and post intervention scores. (p-value=0.002).

Conclusion

Cognitive behavioural therapy has a positive impact on depression scores of HIV positive patients and so can be used in the treatment of depression among this group of persons.

Keyword: *Cognitive behavioural therapy (CBT), PHQ-9, Depression, HIV*

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I. Introduction

Depression is a common mental disorder that presents with depressed mood, loss of interest or pleasure, decreased energy, feelings of guilt or low self-worth, disturbed sleep or appetite, and poor concentration.[1] These problems can become chronic or recurrent and lead to substantial impairments in an individual's ability to take care of their everyday responsibilities. At its worst, depression can lead to suicide.[2]

Globally, approximately 280 million people have depression[3] and the WHO stating that by the depression is the leading cause of disability worldwide.[4] Although the WHO reports that 14% of the global burden of disease is attributed to mental health disorders, it further states that 75% of the people affected are found in the low income countries,[5] with more than 75% of them having no access to treatment.[6] In the African region where most of the countries fall under the low income categories, depression has been noted to affect 5.9% of the general population.[7] The same source reports that in Nigeria, depression has a prevalence of 3.9%, that is slightly over

seven million people out of the total population.[7] However most of the hospital based prevalence studies done in Nigeria show higher prevalence rates of depression: Auwal and Adetunji found depression prevalences of 49.8%[8] and 47.8%.[9] respectively.

Depression is caused by a complex interaction of biological, psychological and social factors.[10] Studies have shown that the prevalence of depression among people living with HIV/AIDS (PLWHA) is approximately twice higher than in the normal population.[11] This can worsen their quality of life, adherence to antiretroviral therapy, and overall health outcomes. Some of the reasons for this increased depression risks include the laboratory testing for HIV and receiving a test result which can be emotionally harrowing. The other reasons are those felt around illness experience, disclosure, adherence, treatment burden and relationship/sexual health issues.[12] The commencement of lifelong antiretroviral treatment with a high adherence demand has also been noted as having the potential to trigger mental health crises.[12] Some HIV medication like Efavirenz cause depression, some others exacerbate mental health symptoms, while others may be associated with side effects with mental health sequelae. For example, changes in body weight can affect mood and self-image.[13]

CBT has been shown as one of the effective interventional methods in the treatment of depression[14,15] This efficacy has been replicated in HIV positive patients with depression.[16,17,18] In some of these studies, the effect of CBT on depression in HIV-positive patients has been sustained for up to 6 months post CBT.[18] The evidence relevant to the application of CBT is rarely found in low- and middle income countries and this is partly because depressed patients in these countries are financially impoverished and have different perceptions, cultures, and values.[19]

The nine-item Patient Health Questionnaire (PHQ-9) is a depressive symptom scale and diagnostic tool introduced in 2001 by Kroenke and colleagues to screen adult patients in primary care settings. The instrument assesses for the presence and severity of depressive symptoms and a possible depressive disorder.[20]

The high prevalence of HIV and depression, the limited mental health resources, the potential for task-shifting and the possible integration of depression treatment are some of the reasons that brought about this work. This study was therefore designed to generate scientific evidence among depressed HIV positive patients in a Nigerian setting.

II. Materials And Methods

This study was conducted in the adult ART clinic of the Bingham University Teaching Hospital, Jos, Plateau State.

The study was a hospital based interventional study conducted within a 16-week period involving 30 study participants who were randomly selected and given group CBT. Two of the participants dropped out of the study.

The PHQ-9 questionnaire was administered pre- and post- CBT and the scores computed.

Ethical clearance for the conduct of the study was received from BHUTH HREC. Informed consent was given by the participants and documented appropriately.

III. Result

Table 1a. Age and gender characteristics of the study participants.

Variables			
Age (Years)	**No**	**(%)**	**Mean ± SD** **42.1±9.6**
	< 30	2	(6.6)
	30-39	11	(36.7)
	40-49	11	(36.7)
	≥ 50	6	(20.0)
	Total	30	(100.0)
	Gender		
	Male	15	(50.0)
	Female	15	(50.0)
	Total	30	(100.0)

Table 1b Marital status, marriage types and level of education of the study participants.

Variables		
Marital status	**No**	**(%)**
Single	8	(26.7)
Married	19	(63.3)
Divorced	1	(3.3)
Widowed	2	(6.7)
Total	30	(100.0)

Marriage type		
Monogamous	14	(66.7)
Polygamous	7	(33.3)
Total	21	(100.0)
Level of Education		
Primary	1	(3.3)
Secondary	10	(33.3)
Tertiary	19	(63.4)
Total	30	(100)

Table 2. Pre- and Post- intervention depression status of the study participants

Category	Pre intervention	Post intervention
No depression	0	16
Mild	21	11
Moderate	5	1
Moderately severe	4	0
Total	30	28

Pre and Post intervention PHQ-9 scores of the individual participants

Pre-CBT PHQ-9 score	Post-CBT PHQ-9 score (p-value=0.002)
19	2
6	7
20	3
7	3
10	3
7	5
6	4
5	4
11	8
8	7
8	8
19	9
5	3
17	-
8	-
7	6
12	1
6	5
5	3
6	4
5	4
5	1
5	3
12	7
5	4
13	11
6	4
6	3
7	6
7	6
Total 30	28

IV. Discussion

The study showed that CBT can significantly reduce the depression scores measured using the PHQ-9 questionnaire. Comparing the Pre and Post intervention scores, it was observed that there was a significant reduction in the scores post CBT and ultimately, a reduction in the depressive symptoms. The T-test showed a statistically significant difference when the pre and post intervention scores were compared (p-value=0.002). There was an improvement on the PHQ-9 scores of all the participants after the CBT. However, the degree of improvement varied for the various participants. This could be attributed to their ability to integrate the

groundlaying principles of the intervention and apply it to their thinking and behaviour which now reduced their depression severity.

It is notable that a greater proportion of participants improved from mild depression to no depression at 3 months. This may be because many of the participants had scores only just above the threshold for depression at baseline and a slight reduction of score after CBT took them over the threshold into recovery.

There exist peculiarities in mental health issues in various settings which can significantly impact the effectiveness of CBT in managing depression. These include stigma and denial, cost, spiritual or supernatural beliefs, family and community involvement. Others include communication styles and cultural differences in emotional expression. When these peculiarities are not taken into consideration before or during CBT, they impact negatively the outcome of CBT. However, the outcome of the index study was similar to those done among similar populations in varied settings where CBT was found effective in reducing depressive symptoms among PLWH.[16,17,18] This similarity in outcome could be because the participants were educated and could read and write in English. They also all lived within the urban area.

Safren and colleagues who gave CBT in group format also had comparable findings after nine sessions of CBT18 The index work had three sessions. The similarity in outcomes could be due to the use of similar method of CBT in both studies.

This work shows that group CBT can significantly improve the PHQ-9 depression scores. This means that the large population of PLWHIV and depression can be treated using group CBT. This is more so because in Nigeria, a country of approximately 216 million people with less than 250 Psychiatrists.[21] However, this situation can be managed with task-shifting or task sharing where non-specialist healthcare workers are trained to administer CBT.[22] Evidence has shown that task sharing can be successfully used in improving and scaling up mental health services in low-resource settings including Nigeria. It has also been shown to be cost-effective[22]

Furthermore, CBT could be integrated with existing HIV treatment programmes. This integration could include regular screening for depression using the PHQ-9 at each visit. This would be followed by CBT for those diagnosed to have depression. Health education could also be integrated

V. Limitations

The participants were only those who can read and write in English. This may have affected the true prevalence of depression and prevented the illiterate patients from benefitting from the study. This limitation may also have prevented the effect of culture and the myths of mental health from adversely affecting the outcome of the CBT.

The study was hospital-based. This therefore calls for caution in the inference and interpretation since it cannot be generalized to the larger population. Therefore, more community-based studies with more sessions are suggested.

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