

Effects of group cognitive-behavioral therapy on psychological distress of awaiting-trial prison inmates

Chijioke Virgilus Amoke, MEd^a, Moses Onyemaechi Ede, PhD^a, Bonaventure N. Nwokeoma, PhD^b, Sebastian O. Onah, PhD^{b,*}, Amaka B. Ikechukwu-Illomuanya, PhD^a, Florence C. Albi-Oparaocha, PhD^c, Maduka L. Nweke, PhD^d, Chijioke V. Amoke, MEd^a, Kingsley C. Amadi, MSc^b, Henry E. Aloh, PhD^e, Emenike N. Anyaegbunam, PhD^f, Chinyere A. Nwajiuba, PhD^c, Onyeyilichukwu P. Onwuama, MSc^b, Kelechi R. Ede, BEd^g, Agnes I. Ononaiwu, PhD^a, Tina Nweze, PhD^h

Abstract

Background/Objectives: The level of psychological distress among awaiting-trial inmates is rapidly increasing in Nigeria. Studies have recommended increasing attention and additional psychological intervention that could improve the psychological wellbeing of prisoners. This study evaluates the effect of cognitive behavioral therapy on psychological distress among awaiting-trial prison inmates in Nigeria.

Methods: A total of 34 awaiting-trial prison inmates in Enugu state Nigeria were used as the study participants. Two measures (perceived emotional distress inventory and general health Questionnaire) were used for data collection. Repeated measures with analysis of variance (ANOVA) were used to examine the effects of the intervention. Effect sizes were also reported with partial Eta Squared (η_p^2).

Results: The result showed that there was no significant difference in psychological distress between the treatment and no-intervention groups. The results showed that CBT had a significant effect on psychological distress of awaiting-trial prison inmates when compared to their counterparts in the no-intervention group at Time 2. Additionally, the efficacy of CBT on the psychological distress of awaiting-trial prison inmates was significantly sustained at the follow-up measurements (Time 3).

Conclusion: This study suggests that cognitive behavioral therapy is an effective intervention for decreasing psychological distress among awaiting-trial prison inmates. Additionally, the impactful benefit of the intervention can persist in overtime. Therefore, cognitive behavioral therapists can further explore the efficacy of CBT using various cultures.

Abbreviations: η_p^2 = effect size, ΔR^2 = adjusted R^2 , ANOVA = analysis of variance, CBT = cognitive behavioral therapy, CI = confidence interval, GHQ-12 = general health questionnaire-12, Mean (SD) = mean (standard deviation), MOE = Moses O. Ede, P = probability value, PEDI = perceived emotional distress inventory, UMIN-CTR = UMIN clinical trials registry.

Keywords: cognitive behavioral therapy, Nigerian prison inmates, psychological distress

1. Introduction

One of the intriguing concerns of many counseling psychologists, prison counselors, and other psychotherapists is distress feelings of clients. Adjustment difficulty and unhealthy responses to external stimuli constitute emotional distress of prison inmates.

Inability to cope in prison is the most hostile experience that usually happens to inmates especially new prisoners who believes that the prison environment is difficult, unfriendly, and stressful.^[1,2] Considering the poor dietary condition, poor sanitation and crowded nature of Nigeria prison environment, many prison

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^a Department of Educational Foundations, Faculty of Education, ^b Department of Sociology and Anthropology, Faculty of Social Sciences, University of Nigeria, Nsukka, ^c Department of Educational Foundations, Faculty of Education, Alex Ekwueme Federal University, Ndufu-Alike Ebonyi State, ^d Department of Physiology, Faculty of Basic Medical Sciences, College of Medicine, University of Nigeria, Ituku Ozalla Enugu Campus, ^e Health Economics and Research Unit, Department of Health Services, Alex Ekwueme Federal University, Ndufu-Alike Ebonyi State, ^f Department of Psychology, Faculty of Management, Alex Ekwueme Federal University, Ndufu-Alike Ebonyi State, ^g Department of Agricultural Science Education, University of Nigeria, Nsukka, ^h Department of Educational Foundations, Ebonyi State University, Abakaliki Nigeria.

* Correspondence: Sebastian O. Onah, Department of Sociology and Anthropology, Faculty of Social Sciences, University of Nigeria, Nsukka. (e-mail: onahsab@hotmail.com or sebastian.onah@unn.edu.ng).

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inmates often feel distressed.^[3] For the first time of entering the harsh prison yard, the prisoner may feel deeply sad, rejected, deteriorated, weak, and awful.^[3] They also feel loss of physical hygiene, social identity as they are in incarcerated place. The transitional period which is from the free world or personal homes of the inmates to a home of deprivation, confinement, and subjection requires adjustment. To survive the restrictions posed to the inmates, there is a need to modify the behavioral patterns, interpersonal relations, emotions and personality structure of the prisoners. Because the prison inmates are made to wear cloth against their wishes, with strict rules on when to eat, sleep and use the telephone.^[4] Prisoners do not exercise their human right/freedom rather they are being controlled by strict and stiff rules, limitations, and boundaries.^[4] The prison experiences linger even when the inmates leave the prison yard and are no longer under the custody of correctional officers. These experiences could cause psychological distress.

1.1. Psychological distress

Psychological distress refers to a state of nervousness, anxiety, anger, grief, disgust, and emotional pain.^[5] It occurs when there is an absence of psychological wellbeing and paves way for the occurrence of emotional dissatisfactions.^[6] It brings about poor conduct, mental morbidity, suicidal attempt, self-inflicting injuries, frustration, pathological consumption of alcoholic drinks, burnout, and Down syndrome.^[6] Psychological distress has harmful effects on psychological wellbeing in that it raises blood pressure, causes heart attack and other health problems.^[7] Evidence showed that severe psychological distress is linked to sudden death.^[5] Previous studies revealed that globally, a larger proportion of people experience moderate to severe psychological distress^[8] and it is still increasing geometrically in recent times.^[9] Of all the diseases, mental illness accounts for above 11% of illness affecting people.^[10] Currently, it is projected that by 2020, about 20% of the global population could be affected as they live.^[5] Other empirical-based literature documented that above 458 million individuals in both developed and developing nations experience psychological distress.^[11]

1.2. Psychological distress in prison inmates

Experiences in prison tend to be painful and inmates often suffer long-term consequences from having been subjected to pain, extreme deprivation^[12] and inadequate medical services.^[13,14] Studies revealed that the mental health of prisoners is tampered with.^[15] Psychological distress is more prevalent among prison inmates' population.^[16] Statistics showed that prison inmates suffering from psychological distress among countries vary but they are relatively high.^[16] For example, 70% of Ghanaian prison inmates suffer mental morbidity,^[17] 63% in England and Wales,^[18] 63% of prison inmates in Zambia,^[19] Nigeria prison inmates with psychological distress is 57%.^[20] Nigeria prisoners experience severe psychological distress compared to other populations as they have dissented from activities in the society.^[21,22] Previous studies revealed that psychological distress is common among prisoners who are awaiting trials than other prison inmates' population.^[23,16]

Considering the numerous prison inmates with mental distress in Nigeria prisons, a good number of new prisoners under the custody of prison officers exhibit clinical and non-clinical symptoms like loneliness,^[24] suicide,^[25] major depression,^[26] and psychotic illnesses.^[27] Psychological distress is commonly

associated with medical illnesses related to further enhanced suicide risk.^[28] In particular, medical disorders, in general, have been identified as a significant risk factor for both suicidal behavior and suicidal ideation.^[29] Specifically, the existence of a previous mood disorder, prior and current history of medical disorders, and cognitive impairment were reported to be the most important risk factors for suicide.^[30] These psychological conditions seem to have changed their perceptions and thinking regarding their future. This situation has gradually led prison inmates to dysfunctional behaviors and emotional distress.

The dysfunctionality among the prison inmates has been reported to have a destructive effect.^[12] Because the prison inmates have erroneous perceptions of the whole prison scenario,^[31] it becomes difficult for them to relinquish their freedom and autonomy in terms of making their own choices and decisions leading to painful adjustment and psychological distress. Based on the empirical survey on the statistics and prevalence of psychological distress, it is imperative for psychotherapeutic interventions that will combat the harmful impact of psychological distress on health.^[6] To that end, the researchers think that chronic experiences and psychosocial pains due to confinement in the prison environment among prison inmates could be resisted or reduced using cognitive behavioral therapy (CBT).

1.3. Cognitive behavioral therapy (CBT)

Cognitive behavioral therapy (CBT) designed by Beck^[32] is a psychological approach used to counter existing dysfunctional thoughts and erroneous feelings that lead to negative psychological outcomes. The major goal of CBT is to change automatic thinking and self-criticism and to teach the clients how to use CBT techniques to build sound personality.^[33] The underlying assumption is that negative thinking leads to abnormality.^[33] Beck believed that the belief system influences emotional and behavioral reactions.^[33] If a belief system of an individual is erroneously conceived (automatic thoughts), the person could be maladaptive. The automatic beliefs include awfulizing, demandingness, overgeneralization, selective abstraction, mind-reading, negative prediction, catastrophizing, labeling and mislabeling, magnification or minimization, and personalization.^[34] Beck^[33] attributed psychological problems to how people feel and perceive life events. Once the perception is positive and accurate, there will be an accurate reflection of realities; otherwise, hopelessness, depression, anxiety, anger, and psychological distress will set in.^[32,35] Beck believed that unrealistic thoughts could be replaced with realistic thoughts using CBT techniques.

The effectiveness of cognitive behavioral therapy in decreasing psychological distress among different populations has been documented in several empirical works of literature.^[28,36–37] Previous studies also found that emotional distress can be reduced through exposure to a cognitive behavioral treatment program.^[38] Across nations, studies have demonstrated long-term efficacy of CBT in improving the management of psychological symptoms such as stress,^[39] anxiety and depression,^[40] and psychological distress.^[41] Additionally, a non-randomized control study by Grégoire et al^[42] showed that emotional distress of breast cancer patients was decreased after receiving a 9-month treatment session of CBT.

CBT has been applied to the reduced psychological distress of other client populations like employees in Japan,^[6] nurses in Belgium^[42] and married couples in Nigeria.^[28] Only one study to our knowledge has investigated the effect of CBT in reducing

psychological distress of new prison inmates.^[43] Therefore, further psychological treatments are needed to establish the cross-cultural suitability of CBT as well as its clinical utility for prisoners.^[44] Studies have stated that there is a dearth of empirical studies that investigated the impacts of psychotherapies in managing emotional distress^[42] and psychological distress,^[6] especially among prison inmates population.^[45] Therefore, this study aimed to evaluate the effects of CBT on psychological distress of awaiting-trial prison inmates in Enugu state Nigeria. We hypothesized that CBT will reduce the psychological distress of awaiting-trial prison inmates in Enugu state Nigeria, and the reduction will be maintained at 6 months of follow-up evaluations.

2. Methods and materials

2.1. Ethical consideration

The researchers obtained approval from the Department of Educational Foundations, University of Nigeria, Nsukka via the Departmental Research Ethics Committee to conduct the research. We also got approval to conduct this research from Nigeria Prison Services. Before the participant selection, an informed consent letter was completed by the prison inmates. The

identity of the participants was not documented in this study for the sake of confidentiality. This trial was registered with UMIN-Clinical Trials Registry after completion. The unique ID number is UMIN000036362.

2.2. Participants

We selected 38 prison inmates as participants for the study. To determine the power of the sample size, the researchers conducted a power analysis of the sampling size using *GPower* 3.1.1. The selected participants satisfied some inclusion criteria as follows: any prison inmate who had spent 7 months and above in prison yard without trial, with moderate to severe psychological distress, absence of major clinical disease in their medical history, volition to participate in the study, completion of written informed consent and general health questionnaire and perceived emotional distress inventory. The exclusion criteria included having a protracted illness, demonstrating psychotic problems, being convicted after trial, and noncompletion of our written informed consent, unable to fill the general health questionnaire and perceived emotional distress inventory. Details of the participants like psychological characteristics and demographics are shown in Table 1.

Table 1
Psychological and demographic characteristics of the participants.

Variable	CBI Group 20(52.64) Mean(SD)	No Intervention Group 18(47.37) Mean(SD)	χ^2 2.31 df	<i>P</i> <i>t</i>	.064 <i>P</i>
Psychological Characteristics					
PEDI					
Depression	15.72 (2.38)	15.53 (3.10)	36	0.98	.760
Anxiety	14.89 (3.42)	15.12 (2.54)	36	1.05	.090
Anger	15.09 (2.45)	15.13 (3.72)	36	0.76	.970
Hopelessness	14.87 (4.67)	15.87 (4.15)	36	1.98	.086
GHQ					
Psychological Distress	14.04 (5.67)	15.01 (4.67)	36	1.01	.090
Social and emotional dysfunction	15.24 (4.81)	14.88 (3.67)	36	1.15	.089
Cognitive Disorder	15.54 (4.53)	15.05 (5.43)	36	0.69	.910
Demographics Characteristics					
Demographics Characteristics	CBI Group	No Intervention Group	N (%)	χ^2	<i>P</i>
Age					
≤20	3	3	6 (15.79)	12.87	.000
20 to 30	12	10	22 (57.89)		
≥30	5	5	10 (26.32)		
Education				8.59	.002
Primary	5	4	9 (23.68)		
Secondary	4	5	9 (23.68)		
Others	10	7	17 (44.74)		
None	1	2	3 (7.89)		
Tribes				22.75	.000
Igbo	17	16	33 (86.84)		
Others	3	2	5 (13.16)		
Religion				15.08	.000
Christian	15	8	23 (60.53)		
Moslem	5	10	15 (39.47)		
Marital Status				6.84	.004
Single	11	9	20 (52.63)		
Married	7	8	15 (39.47)		
Divorced	2	1	3 (7.89)		
Length of Residence in Enugu State Nigeria				17.52	.000
≤2 year	2	3	5 (13.16)		
2 to 5 years	5	4	9 (23.68)		
≥6 years	13	11	24 (63.16)		
Length of time in Prison				7.14	.003
≤1 year	8	7	15 (39.47)		
1 to 2 years	7	5	13 (34.21)		
≥2 years	5	5	10 (26.32)		

t = *t* test, *M* ± *SD* = mean and standard deviation.

2.3. Measures

Perceived emotional distress inventory (PEDI)^[46] is a 15-item scale that measures the presence and severity of anxiety, anger, depression, and hopelessness in individuals. The PEDI has a 4-point scale of 0 to 3: not at all (0); sometimes (1); Often (2); very much so (3). The scoring pattern of PEDI items was calculated by summing the responder ratings of the items using the global severity index raw scores (GSI).^[47] Severity of psychological distress was determined when the higher scores match the higher levels of perceived emotional distress. Previous study has confirmed the validity and reliability (0.86) of the scale using Cronbach Alpha.^[28] Additionally, in this study, the researchers established internal consistency of the scale using Cronbach Alpha method (PEDI=0.88).

General health questionnaire GHQ-12^[48] is a self-report questionnaire that measures general psychological distress of people with clinical and nonclinical problems. GHQ consists of 12 items categorized into psychological distress, depression, emotional, and social dysfunctions as well as a cognitive disorder. The 0-0-1-1 scoring pattern was used to ascertain the scale score (0–12). A higher score indicates higher levels of psychological distress. The validity and reliability psychometric qualities of GHQ has been tested and ascertained in various nations like Chinese: 0.92,^[49] Span: 0.76,^[50] Malaysia: 0.70.^[51] The Cronbach alpha in this study was 0.82. The rationale underlying the choice of measuring psychological distress using 2 measures (perceived emotional distress inventory and general health questionnaire GHQ-12) was to supplement the validity, reliability, and interpretation of the data collected.^[52] Therefore, the mixed approach of gathering data enhances the stability and reliability of the observed change in the course of the study.

2.4. Intervention

Cognitive behavioral intervention program developed based on CBT basic philosophy of Beck^[32] by one of the Principal researchers (Moses O. Ede). The intervention is a group-based program aimed to reduce the level of psychological distress and replace it with improved psychological wellbeing of the awaiting-trial prison inmates using CBT assumptions. The intervention program was conducted and implemented by experienced Cognitive behavioral therapists who have worked with prison inmates for years. The program manual lasted for 12 weekly sessions (3 months) with 2 hours in each meeting (session). Each meeting held once per week. Sessions 1 and 2 focused on the establishment of therapists-clients rapport, understanding dos and don'ts, familiarization and understanding the aims of the study. Sessions 3 to 5 identify the emotional/psychological symptoms of distress, core beliefs that emanate from prison environment and personal problems, and replacement of dysfunctional thoughts with functional thinking. Sessions 6 to 9 covered how to change a distorted belief about self and conditions in prison through the practice of cognitive, behavioral and emotional techniques like relaxation (sleep management and breathing skills), mood monitoring, and thoughts stopping, problem-solving techniques, relapse and among others. In sessions 10 and 11, the review of previous discussions, personal observations, participants' peer assessment of psychological wellbeing/outcome, and as well as merits of the group encounter. Finally, session 12 was the termination stage.

2.5. Procedure

This study started in 2014 when one of the research team leaders (MOE) visited Nsukka prison yard located at Enugu State Nigeria to obtain permission for research. Of which, the management granted the application. The researchers screened 51 awaiting-trial prison inmates. The screening exercise was between July 2014 and September 2014 by the researchers. The researchers administered general health questionnaire and perceived emotional distress to the potential participants at pretest. The purpose of the distribution and completion of the scales was to measure the psychological conditions of the participants as baseline information. Then, a total of 34 awaiting-trial prison inmates were found to be eligible to be selected for the study. The 38 participants had moderate to severe psychological distress.

Noteworthy, the eligible participants were allocated to the cognitive behavioral intervention group and no intervention group respectively using a simple random allocation Software as in Saghaei.^[53] The simple random allocation sequence was used to assign 20 participants to cognitive behavioral intervention group and 18 to no intervention group. A consort flow diagram also showed the distribution and randomization of the participants across groups (see Fig. 1).

The participants in the intervention group received cognitive behavioral intervention program led by the psychotherapists (research assistants). The research assistants delivered the intervention using English and Igbo languages. All the participants adhered to the rules and regulation stipulated to guide the study and none dropped out before the end of the intervention. The participants' adherence and compliance were facilitated by gift items, snacks, and drinks provided to the participants. Participants maintained active participation for every 120 minutes of each session weekly. The therapists gave the practice exercises at the end of each session. Thereafter, the participants in both groups were assessed (Time 2). Then, follow-up was conducted. The meeting lasted for one month after 6 months of the intervention. During the follow-up meetings, we did not record any dropout of the participants. We took account of data concealment by hiding randomization process and data information from research assistants, data analysts, and participants. This process eliminated potential selection bias.

2.6. Research design and data analysis

This is a randomized controlled trial design. Data collected for the study were analyzed using repeated measures 2-way analysis of variance (ANOVA) to establish the effect of CBT on psychological distress of awaiting-trial prison inmates in Enugu state Nigeria. Partial Eta squared and adjusted R² were used to report the effect size of the intervention on the dependent measure (psychological distress). Confidence intervals for the intervention at various times were reported accordingly. The assumption of the sphericity of the test statistic was tested using Mauchly test of sphericity which was not significant (Mauchly $W=0.801$, $P=.506$), implying that the assumption was not violated. This implies that the variances of the differences between all combinations of the related measures are equal. The researchers also ensured that there were no significant outliers in the related groups. The analysis was done using Statistical Package for Social Sciences, version 22 (IBM Corp., Armonk, NY).

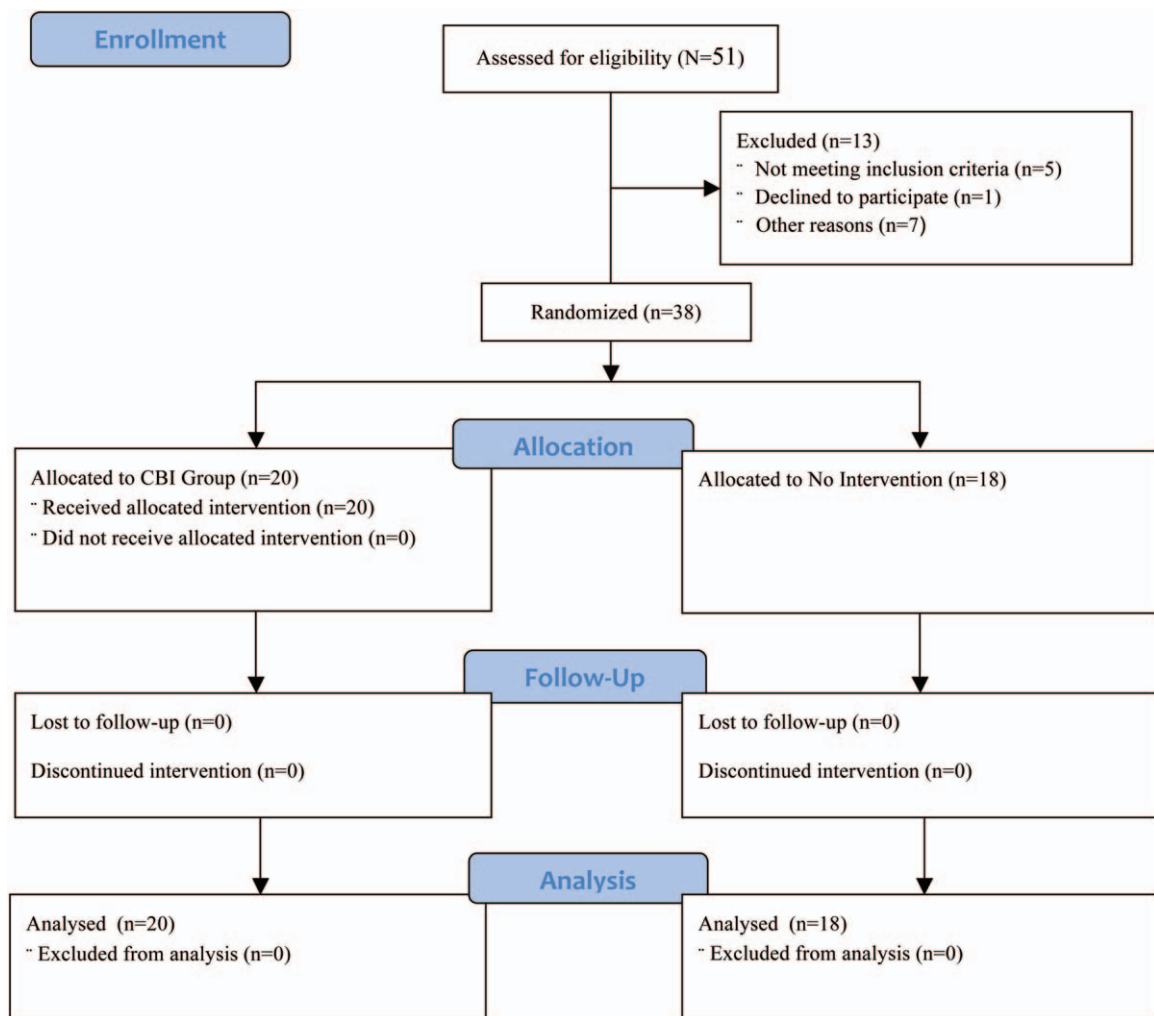


Figure 1. CONSORT flow diagram of participants.

3. Results

Table 2 reveals the results of a 3-time repeated measurement of psychological distress of awaiting-trial prison inmates in Enugu state Nigeria. At time 1, no significant difference in psychological distress between the treatment and control groups was obtained

with regards to anxiety, depression, hopelessness and anger as measured by Perceived Emotional Distress Inventory (PEDI), $F(1,37) = .67, P > .001, \eta_p^2 = .013, \Delta R^2 = .033$; $F(1,37) = 1.09, P > .001, \eta_p^2 = .042, \Delta R^2 = .051$; $F(1,37) = .69, P > .001, \eta_p^2 = .023, \Delta R^2 = .031$; and $F(1,37) = 1.10, P > .001, \eta_p^2 = .031$,

Table 2 Repeated measures analysis of variance showing the effect of CBT on psychological distress of awaiting-trial prison inmates in Enugu state Nigeria as measured by PEDI.

Time	Measure	Dimensions	Treatment	Control	F	P	η_p^2	ΔR^2
Time 1	PEDI	Anxiety	15.72 (2.38)	15.53 (3.10)	0.67	>.001	.013	.033
		Depression	14.89 (3.42)	15.12 (2.54)	1.09	>.001	.042	.051
		Hopelessness	15.09 (2.45)	15.13 (3.72)	0.69	>.001	.023	.031
		Anger	14.87 (4.67)	15.87 (4.15)	1.10	>.001	.031	.035
Time 2	PEDI	Anxiety	6.10 (0.32)	14.78 (5.78)	37.87	<.001	.754	.798
		Depression	5.78 (0.41)	13.65 (5.96)	24.45	<.001	.702	.732
		Hopelessness	5.98 (0.64)	12.96 (4.89)	23.90	<.001	.693	.710
		Anger	6.00 (0.54)	13.89 (4.90)	20.78	<.001	.631	.689
Time 3	PEDI	Anxiety	5.76 (0.70)	14.14 (4.89)	36.02	<.001	.721	.778
		Depression	5.45 (0.65)	14.12 (5.43)	22.51	<.001	.692	.721
		Hopelessness	5.13 (0.87)	13.71 (6.75)	24.08	<.001	.703	.745
		Anger	5.89 (0.56)	14.69 (5.06)	33.90	<.001	.761	.790

PEDI=perceived emotional distress inventory, Mean (SD)=mean (standard deviation), P=probability value, η_p^2 =effect size, ΔR^2 =adjusted R².

Table 3
Repeated measures analysis of variance showing the effect of CBT on psychological distress of awaiting-trial prison inmates in Enugu state Nigeria as measured by GHQ.

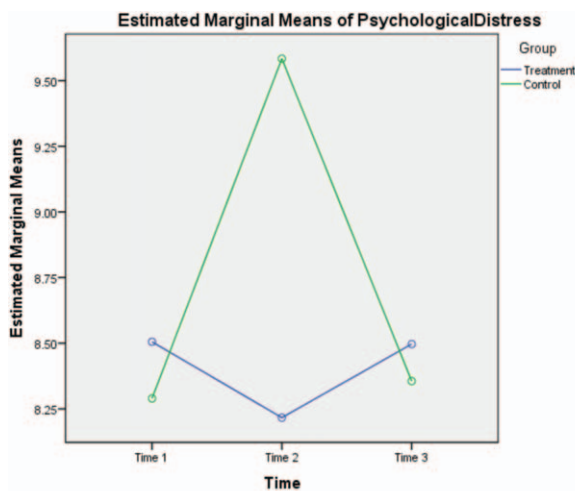
Time	Measure	Dimensions	Treatment	Control	F	P	η_p^2	ΔR^2
Time 1	GHQ	Psychological Distress	14.04 (5.67)	15.01 (4.67)	1.10	>.001	.051	.055
		Social and emotional dysfunction	15.24 (4.81)	14.88 (3.67)	1.22	>.001	.062	.070
		Cognitive Disorder	15.54 (4.53)	15.05 (5.43)	0.90	>.001	.041	.049
Time 2	GHQ	Psychological Distress	4.34 (0.28)	12.67 (5.20)	87.90	<.001	.902	.924
		Social and emotional dysfunction	6.56 (0.87)	13.90 (4.30)	65.21	<.001	.763	.885
		Cognitive Disorder	5.90 (0.11)	13.41 (3.01)	79.53	<.001	.803	.850
Time 3	GHQ	Psychological Distress	4.04 (0.90)	13.52 (4.97)	80.74	<.001	.870	.893
		Social and emotional dysfunction	5.78 (0.78)	14.21 (5.43)	62.11	<.001	.691	.702
		Cognitive Disorder	5.38 (0.32)	14.43 (6.07)	54.79	<.001	.615	.687

GHQ=general health questionnaire, Mean (SD)=mean (standard deviation), P=probability value, η_p^2 =effect size, ΔR^2 =adjusted R².

$\Delta R^2=.035$. At time 2, CBT had significant effect on psychological distress of awaiting-trial prison inmates in Enugu state Nigeria when compared to their counterparts in the control group using the four subscales of PEDI, $F(1,37)=37.87, P<.001, \eta_p^2=.754, \Delta R^2=.798$; $F(1,37)=24.45, P<.001, \eta_p^2=.702, \Delta R^2=.732$; $F(1,37)=23.90, P<.001, \eta_p^2=.693, \Delta R^2=.710$; and $F(1,37)=20.78, P<.001, \eta_p^2=.631, \Delta R^2=.689$. Besides, the effect of CBT on psychological distress of awaiting-trial prison inmates was significantly sustained at the follow-up measurement (Time 3), $F(1,37)=36.02, P<.001, \eta_p^2=.721, \Delta R^2=.778$; $F(1,37)=22.51, P<.001, \eta_p^2=.692, \Delta R^2=.721$; $F(1,37)=24.08, P<.001, \eta_p^2=.703, \Delta R^2=.745$; and $F(1,37)=33.90, P<.001, \eta_p^2=.761, \Delta R^2=.790$. The results also showed that there was a significant interaction effect of time and group on the psychological distress of awaiting-trial prison inmates measured using PEDI, $F(2,33)=35.65, P<.001, \eta_p^2=.703, \Delta R^2=.756$. Figure 2 shows the graph of the interaction effect of time and group.

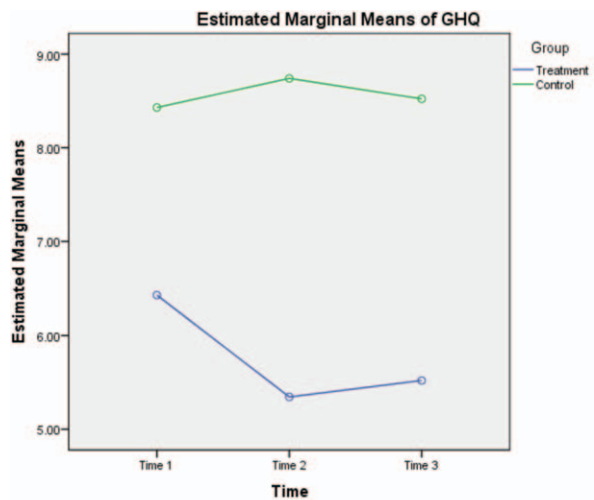
Table 3 shows that at Time 1, the awaiting-trial prison inmates in Enugu state Nigeria did not differ in their psychological distress as measured by the three subscales of GHQ, psychological distress: $F(1,37)=1.10, P>.001, \eta_p^2=.051, \Delta R^2=.055$; social

and cognitive dysfunction: $F(1,37)=1.22, P>.001, \eta_p^2=.062, \Delta R^2=.070$; and cognitive disorder: $F(1,37)=.90, P>.001, \eta_p^2=.041, \Delta R^2=.049$. At time 2, CBT had significant effect on psychological distress of awaiting-trial prison inmates in Enugu state Nigeria when compared to their counterparts in the control group using the 4 subscales of GHQ, psychological distress: $F(1,37)=87.90, P<.001, \eta_p^2=.902, \Delta R^2=.924$; social and cognitive dysfunction: $F(1,37)=65.21, P<.001, \eta_p^2=.763, \Delta R^2=.885$; and cognitive disorder: $F(1,37)=79.53, P<.001, \eta_p^2=.803, \Delta R^2=.850$. Besides, the effect of CBT on psychological distress of awaiting-trial prison inmates was significantly sustained at the follow-up measurement (Time 3), psychological distress: $F(1,37)=80.74, P<.001, \eta_p^2=.870, \Delta R^2=.893$; social and cognitive dysfunction: $F(1,37)=62.11, P<.001, \eta_p^2=.691, \Delta R^2=.702$; and cognitive disorder: $F(1,37)=54.79, P<.001, \eta_p^2=.615, \Delta R^2=.687$. The results also showed that there was a significant interaction effect of time and group on the psychological distress of awaiting-trial prison inmates measured using PEDI, $F(2,33)=35.65, P<.000, \eta_p^2=.703, \Delta R^2=.756$ and GHQ, $F(2,33)=10.89, P<.000, \eta_p^2=.564, \Delta R^2=.632$. Figures 2 and 3 show the graph of the interaction effect of time and group.



Covariates appearing in the model are evaluated at the following values: Depression = 7.9395

Figure 2. Graph of Time × Group interaction effect using PEDI. PEDI = perceived emotional distress inventory.



Covariates appearing in the model are evaluated at the following values: Pretest = 7.9395

Figure 3. Graph of Time × Group interaction effect using GHQ. GHQ = general health questionnaire.

4. Discussion

At Time 1, no significant difference in psychological distress between the treatment and control groups was obtained as measured by PEDI and GHQ. The results showed that CBT had a significant effect on psychological distress of awaiting-trial prison inmates when compared to their counterparts in the control group using the four subscales of PEDI and GHQ at Time 2. Additionally, the efficacy of CBT on psychological distress of awaiting-trial prison inmates was significantly sustained at the follow-up measurements (Time 3). The results also showed that there was a significant interaction effect of time and group on the psychological distress of awaiting-trial prison inmates measured using PEDI and GHQ. In this study, the dysfunctional beliefs causing psychological distress were identified and altered using cognitive behavioral therapy. Unlike the findings of earlier studies^[54,55] that showed that people had difficulties in identification of automatic thoughts primarily leading to psychological distress. But in this study, the psychological distress leading to depression, anxiety, hopelessness, anger, cognitive and social disorders associated with distorted cognitions and emotional reactions were significantly reduced at three-time points by challenging the irrational thoughts and replacing with realistic beliefs. During the treatment, we observed that CBT offers the participants the opportunities of making an alternative decision against their absolute decision about the condition in prison. The findings of our study confirmed the study outcome by Yoon and Slade^[43] who revealed that cognitive behavioral-based treatments lead to depression and anxiety reduction among prison inmates. Like our result, previous study found that CBT improves the psychological wellbeing of careers of individuals with Parkinson's disease.^[44] Additionally, it was reported that group cognitive behavioral intervention is a powerful management strategy in decreasing anxiety level of prison inmates.^[56] Literature added that CBT is not only effective but it has gained rich recognition and wide acceptance as solution psychotherapeutic intervention for the treatment of psychological symptoms.^[57] Interestingly, the reduction in anxiety among our participants after receiving treatment as found in this study is in line with previous studies which showed that CBT approaches alter erroneous beliefs associated with anxiety^[58] and emotional distress.^[28] The positive and useful impacts of cognitive behavioral therapies for psychological distress of people have been documented in studies conducted in various countries like Iran,^[59] Japan,^[6] China,^[60] among other nations. The findings are astonishing as the present study validated the previous findings conducted in different cultures.

Meta-analysis studies reviewed by the researchers showed that CBT alters automatic cognitions, changes irrational emotional responses and enhances sociable behaviors among prison inmates.^[61,54,62-64] These powerful effects demonstrated in earlier studies are possible because it can be argued that both people with clinical and non-clinical problems recognize cognitive behavioral principles as life-changing approach and techniques. Considering laudable beneficial impacts CBT has created among different populations. This argument supported Robinson^[65] who found that prison inmates reported lower recidivism level due to the cognitive skills and balanced psychological state they possessed during cognitive behavioral treatment sessions. Similarly, prison inmates in the cognitive behavioral therapy intervention group reported improvement in their psychological wellbeing after receiving the treatment sessions.^[66,67]

Despite the positive impacts and significant benefits of cognitive behavioral approaches in enhancing the general wellbeing of people as in previous empirical-supported studies, some studies disagreed with our results. In the studies, the effectiveness of cognitive-behavioral approaches on prison inmates in UK showed that treatment group participants reported an insignificant reduction in the rate of prison re-entry compared to control group.^[68] Also, Pullen^[69] showed that the cognitive and behavioral technique do not play significant roles in enhancing the cognitive skills and psychological state of young people. The differences in the findings could be attributed to factors. We argue that the inability of those studies that reported an insignificant reduction in psychological symptoms after exposing cognitive behavioral treatment sessions may be due to incompetence of the psychotherapists that delivered the intervention.^[68] Considering the poor skills possessed by some therapists, it is possible that during the sessions in those previous studies, there is inconsistency in the application of cognitive behavioral and emotional techniques and principles. Unlike previous studies,^[68,69] the positive benefits of CBT in the reduction of psychological distress are likely related the skillful therapists that delivered the intervention in this study.

Our study demonstrated that cognitive behavioral therapy is an effective technique in reducing awaiting-trial prison inmates replacing negative thoughts at the point of entering the prison and irrational beliefs about prison conditions. The researchers suggest that prison mental health counselors, social welfare officers, and psychologists should adopt a group approach in applying cognitive behavioral therapy. By applying CBT principles in the course of professional practice, the dysfunctional cognitive and emotional responses leading psychological imbalances shall continue to reduce among prison inmates. We enjoined practitioners to use specific cognitive, behavioral and emotional techniques that are group-oriented in assisting people with psychological distress as in the previous study.^[60] We strongly recommend that the Nigerian Prison Service deploy mental health counselors to various prisons in Nigeria.

The strength of this study is that we are the first to find the long-term effect of group cognitive behavioral therapy for the reduction of psychological distress among awaiting-trial prison inmate in Nigeria. Also, we used randomized controlled trial in this study which is one of the most sophisticated and robust designs as far as scientific study are concern.^[70]

Despite the strength, this study faces some limitations. The use of waitlisted group is a limitation to this study. Therefore, we recommend that future studies should have a control group to compare the efficacy of cognitive behavioral therapy. An additional limitation is that the participants were all male prisoners, thus, we do not know the effect the intervention would have on the female sample or a mixed sample of prisoners. We encourage future trials to work with mixed samples to improve the generalization of CBT interventions. Also, we only selected awaiting-trial inmates and could not include those also sentenced due to the prevailing prison policies in the study area. Future studies are urged to design more policy-oriented interventions to allow the inclusion of all categories of prisoners. Also, the lack of an active control group to compare the efficacy of cognitive behavioral therapy, and the inability to test the effect of the intervention on female subjects are further stressed as major shortcomings of the present study.

5. Conclusion

This study established that group cognitive behavioral therapy is significantly effective for the reduction of psychological distress among awaiting-trial prison inmates and the efficacy persisted at follow-up evaluation. As one of the few studies to report the effect of group cognitive behavioral therapy on psychological distress, we have validated previous studies by establishing the effectiveness of group cognitive behavioral therapy on psychological distress among awaiting-trial prison inmates population in Nigeria. To that end, we implore future researchers to further investigate the effect of the group cognitive behavioral therapy using other populations with different cultural backgrounds.

Author contributions

Conceptualization: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Sebastian O. Onah, Amaka B. B. Ikechukwu-Illomuanya, Maduka L. Nweke, Chijioke V. Amoke, Henry E. Aloh, Kelechi R. Ede, Agnes I. Ononaiwu.

Data curation: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Sebastian O. Onah, Amaka B. B. Ikechukwu-Illomuanya, Florence C. C. Albi-Oparaocha, Maduka L. Nweke, Chijioke V. Amoke, Henry E. Aloh, Emenike N. Anyaegbunam, Chinyere A. Nwajiuba, Kelechi R. Ede, Agnes I. Ononaiwu.

Formal analysis: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Sebastian O. Onah, Amaka B. B. Ikechukwu-Illomuanya, Florence C. C. Albi-Oparaocha, Maduka L. Nweke, Chijioke V. Amoke, Henry E. Aloh, Chinyere A. Nwajiuba, Kelechi R. Ede, Agnes I. Ononaiwu.

Funding acquisition: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Sebastian O. Onah, Amaka B. B. Ikechukwu-Illomuanya, Florence C. C. Albi-Oparaocha, Maduka L. Nweke, Chijioke V. Amoke, Kingsley C. Amadi, Henry E. Aloh, Emenike N. Anyaegbunam, Chinyere A. Nwajiuba, Onyeyilichukwu P. Onwuama, Kelechi R. Ede, Agnes I. Ononaiwu, Tina Nweze.

Investigation: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Sebastian O. Onah, Amaka B. B. Ikechukwu-Illomuanya, Florence C. C. Albi-Oparaocha, Maduka L. Nweke, Chijioke V. Amoke, Kingsley C. Amadi, Henry E. Aloh, Onyeyilichukwu P. Onwuama, Kelechi R. Ede, Agnes I. Ononaiwu, Tina Nweze.

Methodology: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Sebastian O. Onah, Amaka B. B. Ikechukwu-Illomuanya, Florence C. C. Albi-Oparaocha, Maduka L. Nweke, Chijioke V. Amoke, Kingsley C. Amadi, Henry E. Aloh, Emenike N. Anyaegbunam, Chinyere A. Nwajiuba, Onyeyilichukwu P. Onwuama, Kelechi R. Ede, Agnes I. Ononaiwu, Tina Nweze.

Project administration: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Florence C. C. Albi-Oparaocha, Maduka L. Nweke, Chijioke V. Amoke, Kingsley C. Amadi, Henry E. Aloh, Emenike N. Anyaegbunam, Chinyere A. Nwajiuba, Onyeyilichukwu P. Onwuama, Kelechi R. Ede, Agnes I. Ononaiwu, Tina Nweze.

Resources: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Florence C. C. Albi-Oparaocha, Chijioke V. Amoke, Kingsley C. Amadi, Henry E. Aloh, Emenike N. Anyaegbunam, Chinyere A. Nwajiuba, Onyeyilichukwu P. Onwuama, Kelechi R. Ede, Tina Nweze.

Software: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Chijioke V. Amoke, Kingsley C. Amadi, Henry E. Aloh, Emenike N. Anyaegbunam, Chinyere A. Nwajiuba, Onyeyilichukwu P. Onwuama, Kelechi R. Ede, Tina Nweze.

Supervision: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Florence C. C. Albi-Oparaocha, Chijioke V. Amoke, Kingsley C. Amadi, Henry E. Aloh, Onyeyilichukwu P. Onwuama, Kelechi R. Ede, Tina Nweze.

Validation: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Sebastian O. Onah, Chijioke V. Amoke, Kingsley C. Amadi, Henry E. Aloh, Emenike N. Anyaegbunam, Onyeyilichukwu P. Onwuama, Kelechi R. Ede, Tina Nweze.

Visualization: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Sebastian O. Onah, Amaka B. B. Ikechukwu-Illomuanya, Chijioke V. Amoke, Kingsley C. Amadi, Emenike N. Anyaegbunam, Onyeyilichukwu P. Onwuama, Kelechi R. Ede, Tina Nweze.

Writing – original draft: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Sebastian O. Onah, Amaka B. B. Ikechukwu-Illomuanya, Florence C. C. Albi-Oparaocha, Maduka L. Nweke, Chijioke V. Amoke, Kingsley C. Amadi, Henry E. Aloh, Chinyere A. Nwajiuba, Onyeyilichukwu P. Onwuama, Kelechi R. Ede, Agnes I. Ononaiwu, Tina Nweze.

Writing – review & editing: Moses Onyemaechi Ede, Bonaventure N. Nwokeoma, Sebastian O. Onah, Amaka B. B. Ikechukwu-Illomuanya, Florence C. C. Albi-Oparaocha, Maduka L. Nweke, Chijioke V. Amoke, Kingsley C. Amadi, Chinyere A. Nwajiuba, Onyeyilichukwu P. Onwuama, Kelechi R. Ede, Agnes I. Ononaiwu, Tina Nweze.

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