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Efficacy of prison-based cognitive behavioral rehabilitation intervention on violent sexual behaviors among sex offenders in Nigerian prisons

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Abstract

Background/Objective: Evidence showed that reoffending habits are increasing among offenders with violent sexual behaviors. Given the recidivism rates, a psychotherapeutic intervention becomes imperative. This study examined the efficacy of prison-based cognitive behavioral rehabilitation intervention (PCBRI) on violent sexual behaviors among sex offenders in Nigerian prisons.

Method: A total of 45 participants were the sample size. Compulsive Sexual Behavior Inventory and Hypersexual Behavior Inventory were employed in assessing the participants at 3 points. Using a simple random allocation sequence, 23 participants were exposed to PCBRI programme and 22 participants allocated to control condition. The data obtained were analyzed using repeated measures 2-way analysis of variance.

Results: Results indicated a significant effect of the treatment on violent sexual behaviors among sex offenders in Nigerian prisons exposed to the PCBRI programme when compared to the no-intervention group. Result also showed a significant interaction effect of time and group on sex offenders with violent sexual behaviors. Follow-up tests showed significant decrease in violent sexual behaviors after 6 months for the PCBRI group in comparison to the control group.

Conclusion: This study concluded that PCBRI approach is a type of psychotherapy that reduces violent sexual behaviors among sex offenders in Southeast Nigeria.

Abbreviations: % = percentage, χ^2 = Chi-square, ΔR^2 = adjusted R^2, CBT = cognitive behavioral therapy, CI = confidence intervals, CSBI-22 = Compulsive Sexual Behavior Inventory, HBI = hypersexual behavior inventory, P = probability value, partial η^2 = partial eta squared, PCBRI = Prison-based Cognitive Behavioural Rehabilitation Intervention, SD = Standard Deviation, t = t test statistic.

Keywords: CBT, cognitive behavioral therapy, Nigerian prisons, PCBRI, prison-based cognitive behavioral rehabilitation intervention, sex offenders, violent sexual behaviors

1. Introduction

Despite several efforts by researchers, community-based organizations, government, and the international community in conducting public enlightenment about the legal, social, and health implications of sexual violence, people still engage in it.[1] Sexual violence is an act of forcing someone either opposite or same sex to intercourse that causes physical and psychological harms.[2] Sexual violence behaviors include rape, abuse, violent dating,[3] coerced vaginal, or anal penetration,[4] sexual assault.[5] Currently, sexual violence is one of the major public health problems in both developed nations[6] and developing nations[2] affecting adolescents and adults' general wellbeing.[7] Evidence in Nigeria showed that >54% of Nigerians receive sexual coercion, rape, and assault annually, with high exposure to risky sexual behaviours and infectious diseases.[8] Over 73% of Nigerians who got involved in sex without their consents being sought for are infected with HIV/AIDS.[5] In spite of the increasing evidence, Nigerian researchers have not seriously paid attention to this major public health problem upon its harmful impacts on the well-being of people.[5]

Given the increasing population of sex offenders and attendant negative consequences, a treatment strategy that is suitable in decreasing maladaptive thoughts and behavioral responses related to sexual compulsivity becomes very important.[9] With these in mind, the researchers believed that using a prison-based cognitive behavioral rehabilitation intervention (PCBRI) could distort and reduce the criminogenic beliefs as well as sex offenders' risk level. In PCBRI, the researchers adopted principles of cognitive behavioral therapy (CBT), as it changes the erroneous thoughts or risk sexual factors that are linked to reoffending behaviors to develop self-control mechanism (cognitive/behavioural skills).[10]

CBT developed by Beck[11] theorized that human cognitive, behavioral, and emotional reactions largely depend on how the person interprets and processes events. If the interpretation of the event reflects reality accurately, the beliefs, responses, and feelings of the person will be adaptive but if the individual processes the event inaccurately, such person is likely to develop dysfunctional thoughts. Meanwhile, the development of dysfunctional thoughts brings about maladaptive and unrealistic behaviors.[12] CBT changes the unrealistic and dysfunctional behaviors and feelings to a functional ways by enhancing adaptive prosocial skills.[13] Considerable literature confirmed that CBT approaches are useful in reducing recidivism in both juvenile and adult violent offenders by enhancing moral and social skills.[14–16] Evidence showed that CBT is a preferable psychotherapy in treating both psychological and social disorders.[17] Presently, CBT was shown to be the most reliable intervention for reduction of recidivism, criminality, and psychological violence.[18] Given the usefulness of CBT, this study aimed at investigating the efficacy of PCBRI on violent sexual behaviors among sex offenders in Nigerian prisons. Meanwhile, to the best of our knowledge, there has never been this kind of innovative approach (PCBRI) of CBT for violent sexual offenders. This study is the first to examine whether and how PCBRI could help reduce violent sexual behaviors among sex offenders.

2. Methods and materials

2.1. Ethical consideration

On May 2017, the Faculty of Education committee on research ethics, University of Nigeria granted this study. During the time, the researchers also obtained a permission letter and received written informed consent form returned and completed by the potential participants in southeast Nigeria. This trial was registered on February 8, 2019, after completion at UMIN Clinical Trials Registry (UMIN-CTR) (Trial No.: UMIN000035822).

2.2. Participants

Participants were considered for inclusion following the classification criteria of the Diagnostic Statistical Mental Manual-V (DSM-V) of compulsive sexual disorder.[19] In addition, for a violent sex offender to participate in this study, the following factors were critically considered namely sex offenders that are convicted/awaiting trial, staying in a correctional setting, readiness to receive treatment and high-risk level as described in DSM-V.[20] Those that did not qualify for the criteria were excluded. 88 participants in Southeast Nigeria were

screened by the researchers for eligibility. However, 45 participants were finally admitted into the study, and the adequacy of the sample size was determined using *GPower* software [21]

2.3. Measures

Data collection was through the Compulsive Sexual Behavior Inventory (CSBI) by Miner, Coleman, Center, Ross, and Rosser.[22] The specific aim of this 22-item scale was to assess violence (9 items) and control (13 items) associated with sexual behaviors. The CSBI, written in English language, is a self-report scale with a total of 5 response options ranging from very often (1) to never (5). The CSBI is scored ranging from 22 to 110, with lower scores showing severe levels of sexual compulsivity. Statistical evidence reported that CSBI has psychometric properties of validity and reliability[23] with an internal consistency of 0.87 [22] using the Cronbach Alpha coefficient. This present study also conducted a reliability analysis of the scale and found internal consistency of 0.83α using Cronbach alpha coefficient.

Hypersexual Behaviour Inventory (HBI) developed by Reid et al[24] is a 19-item,with 3 subscales (control: 8 = items, coping: 7 = items, and consequence: 4 = items) that measures hypersexuality in terms of emotional distress inability to control sexual urge and the associated consequences.[24] Participants indicated their responses using a 5-point Likert scale 1 (never) to 5 (very often). The statistical reliability value of $\alpha = 0.95$ was established using Cronbach alpha coefficient. Our study also conducted a reliability analysis of the scale and found the internal consistency of 0.87α using Cronbach alpha coefficient.

2.4. Procedure

The researchers distributed CSBI and HBI to admitted participants for completion. This was to obtain the baseline information about the severity of violent sexual behaviours among the sex offenders in southeast Nigeria. Given the 45 eligible participants, a simple random allocation sequence[25] was employed to assign participants into an intervention group (n = 23) and no-intervention group (n = 22) by the researchers (Fig. 1). After the allocation, the participants in the treatment group received a 16-session intervention programme titled "Prison-based Cognitive Behavioural Rehabilitation intervention (PCBRI)" delivered by cognitive behavioral therapists between August 2017 and October 2017. However, as the no-intervention group received nothing, they were exposed to the treatment after the completion of the study. Furthermore, 6 months after the intervention, the treatment group participants were exposed to a 1-month follow-up meeting held in the prison yard. Although some of the participants had been discharged from the prison custody, they were contacted via phone numbers and encouraged to take part in this follow-up assessment which lasted from April 13 toMay 11, 2018.

2.5. Intervention

PCBRI manual is a 16-session treatment manual developed by the researchers which aimed to identify and teach sex offenders skills for change and to reduce the distorted cognition, emotions, and behaviors leading to violent sexual behaviors among offenders by enhancing rational prosocial skills. PCBRI manual lasted for 16 weeks, 1 session per week that lasted for 90 minutes. The
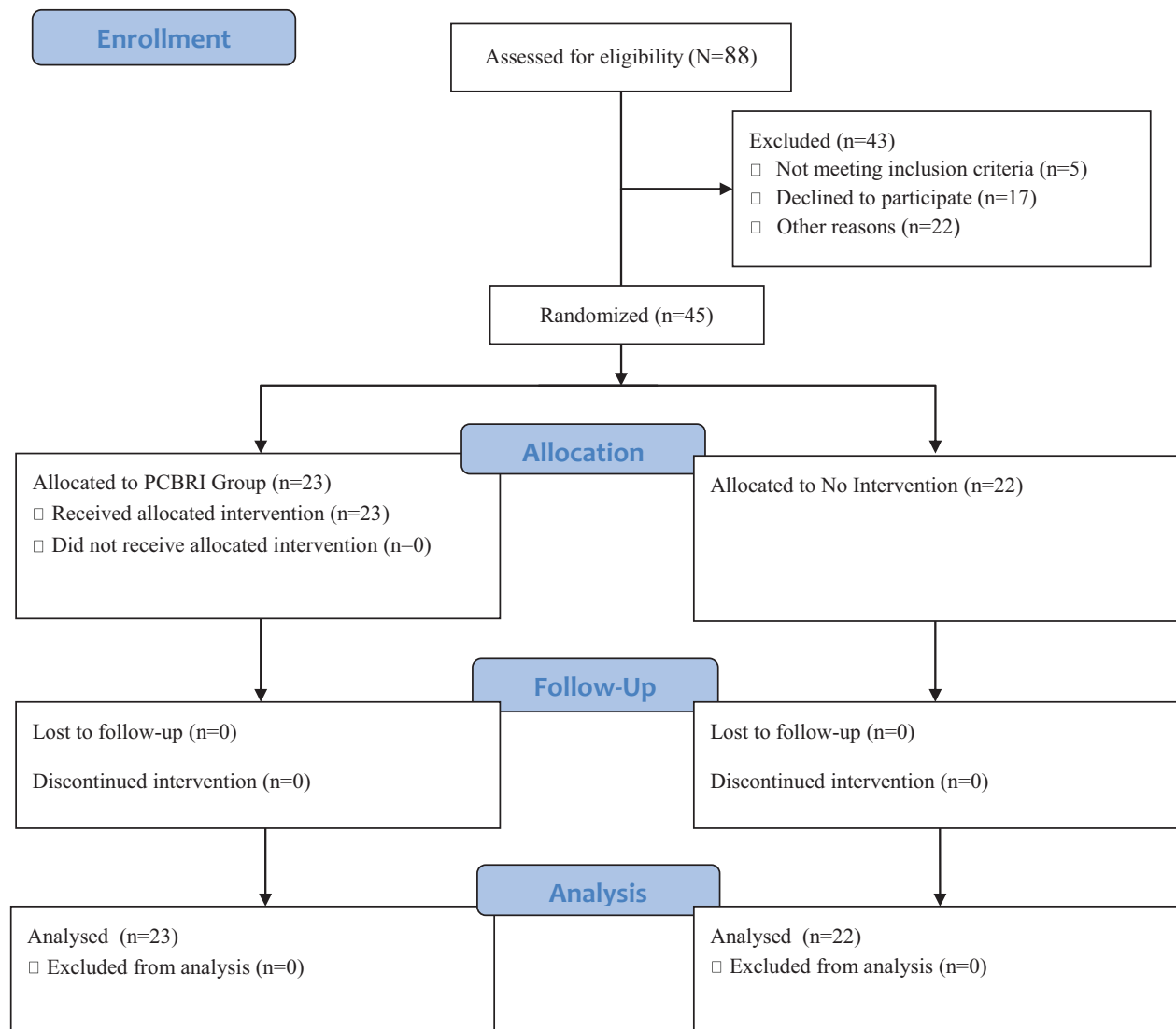
Figure 1. Participants' eligibility criteria using CONSORT flow diagram.

PCBRI manual was designed using the basic principles of Beck.[11] During the first to fourth sessions, introduction, establishment of rules and regulations, objectives of the study, meaning of violent sexual behaviors, and consequences were discussed. Sessions 5 to 10 focused on cognitive deficits, goal-setting, decision-making, prosocial skills, self-efficacy, and morality training. For sessions 11 to 13, participants were taught how to enhance self-control, how to think before acting, look at the consequence of action, how to choose alternative behaviors. At the last 3 sessions (14–16), we focused on review of the previous sessions, home exercises, coping with high-risk of cognitive and emotional situations, and termination. Several techniques were applied during sessions. Among those are relapse technique, cognitive restructuring, mood monitoring, problem-solving, self-management, and cognitive disputation.

2.6. Data design and analysis

This study is a pretest–post-test control group design. It is a single-blind study in that the data assessors were not opportune

to preview the identity of the participants and post-treatment assessment was also blinded by the researchers. Furthermore, the effect of PCBRI on violent sexual behaviors among sex offenders in Nigerian prisons was established statistically using repeated measures 2-way analysis of variance. Partial Eta squared, and adjusted R^2 values were used to report the effect size of the intervention on violent sexual behaviors among sex offenders in Nigerian prisons. 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, implying that the assumption was not violated and that the variances of the differences between all combinations of the related measures are equal. The analysis was done using Statistical Package for Social Sciences, version 22 (IBM Corp, Armonk, NY).

3. Results

All the participants were males and mean age of participants was 38.00 ± 17.00. States of origin: Abia = 8.89%, Cross-river =

Table 1

Demographic characteristics of the participants.

Demographics	Treatment %	Control %	χ^2	P
Sexual preference				
Heterosexual	43.48	36.36		
Homosexual	30.43	40.91	6.00	306
Bisexual	26.09	22.73		
State of origin				
Abia	8.70	9.09		
Cross-river, Ebonyi	13.04	13.64	10.00	.350
Enugu	26.09	22.73		
Edo	34.78	36.36		
Benue	17.39	18.18		
Marital status				
Married	13.04	13.64		
Single	43.48	40.91	8.00	.333
Divorced	17.39	18.18		
Separated	26.09	27.27		
Qualification				
WAEC/NECO	52.17	50.00		
NCE	13.04	13.64	7.00	.456
Bachelor's degree	21.74	22.73		
Master's degree	13.04	13.64		
Mean age of participants	39.00±15.66	37.43±19.76		

% = Percentage; χ^2 = Chi-square; p = probability value.

13.33%, Enugu = 24.44%, Edo = 33.33%, and Benue = 20%. Sexual preference of the participants includes heterosexual = 13.33%, homosexual = 26.67%, and bisexual = 60.00%. Marital status includes married = 15.56%, single = 46.67%, divorced = 17.78%, and separated = 20.00%. Participants' qualifications were WAEC/NECO = 64.44%, NCE = 8.89%, bachelor's degree = 15.56%, and master's degree = 11.11% (Table 1). Table 1 shows that there is no significant difference in the sexual preference, state of origin, marital status, and qualification of the intervention group and the nonintervention group, $\chi^2 = 6.00$, $P = .306$; $\chi^2 = 10.00$, $P = .350$; $\chi^2 = 8.00$, $P = .333$; $\chi^2 = 7.00$, $P = .456$.

Table 2 reveals that there was no significant difference between the treatment and control groups in initial violent sexual

behaviors among sex offenders in Nigerian prisons as measured by HBI, $F(1,53) = 1.604$, $P = .211$, $\eta^2 = 0.076$, $\Delta R^2 = 0.092$ and Compulsive Sexual Behavior Inventory (CSBI), $F(1,53) = 0.012$, $P = .863$, $\eta^2 = 0.013$, $\Delta R^2 = 0.104$. At the post-treatment and follow-up measures, the effect of PCBRI was significant on violent sexual behaviors among sex offenders in Nigerian prisons as measured by HBI and CSBI, $F(1,53) = 51.294$, $P = .000$, $\eta^2 = 0.815$, $\Delta R^2 = .903$; $F(1,53) = 33.214$, $P = .000$, $\eta^2 = 0.670$, $\Delta R^2 = .751$; and $F(1,53) = 39.043$, $P = .000$, $\eta^2 = 0.701$, $\Delta R^2 = .805$; $F(1,53) = 22.510$, $P = .000$, $\eta^2 = 0.476$, $\Delta R^2 = 0.511$. The results also showed that there was a significant interaction effect of time and group on violent sexual behaviors among sex offenders in Nigerian prisons as measured using HBI, $F(2,38) = 4.247$, $P = .022$, $\eta^2 = 0.327$, $\Delta R^2 = 0.564$. The results also showed that there was a significant interaction effect of time and group on violent sexual behaviors among sex offenders in Nigerian prisons as measured using CSBI, $F(2,38) = 28.449$, $P = .000$, $\eta^2 = 0.587$, $\Delta R^2 = .673$. Figure 2 shows the graph of the interaction effect of time and group.

The results also showed that there was a significant interaction effect of time and group on violent sexual behaviors among sex offenders in Nigerian prisons as measured using CBI, $F(2,38) = 28.449$, $P = .000$, $\eta^2 = 0.587$, $\Delta R^2 = 0.673$. Figure 3 shows the graph of the interaction effect of time and group.

4. Discussion

This study showed that the effect of PCBRI was significant on violent sexual behaviors among sex offenders in Nigerian prisons as measured by CSBI and HBI. This present study also found that there was a significant interaction effect of time and group on violent sexual behaviors among sex offenders in Nigerian prisons as measured using CSBI and HBI. The finding validated a work by Lipsey et al,[26] which demonstrated that CBT has beneficial rehabilitative management for offenders' population. Similarly, a meta-analytic study conducted by Pearson et al[27] showed that among other treatment approaches, CBT was found to be more impactful in providing healthful belief about anti-social behaviors. Thus, receiving CBT-oriented intervention programme minimizes high-risk and rates of recidivism and reoffending thoughts.[28] Several studies emphasized that CBT interventions

Table 2

Repeated measures analysis of variance showing the efficacy of Prison-based Cognitive Behavioral Rehabilitation Intervention on violent sexual behaviors among sex offenders in Nigerian prisons.

Time	Measures	Group	Mean (SD)	F	P	η^2	ΔR^2	95% CI
1 Pretreatment	HBI	Treatment	67.91 (11.14)	1.604	.211	0.076	0.092	−10.06, .94
		Control	68.12 (9.16)					
	CSBI	Treatment	26.47 (3.20)	0.012	.863	0.013	0.104	−1.85, 1.68
		Control	26.47 (3.20)					
2 Post-treatment	HBI	Treatment	29.95 (1.55)	51.294	.000	0.815	0.903	−39.59, −31.98
		Control	65.75 (8.89)					
	CSBI	Treatment	75.52 (14.15)	33.214	.000	0.670	0.751	44.14, 54.51
		Control	26.18 (3.27)					
3 Follow-up	HBI	Treatment	29.95 (1.55)	39.043	.000	0.701	0.805	−38.53, −3130
		Control	64.87 (8.51)					
	CSBI	Treatment	76.91 (9.54)	22.510	.000	0.476	0.511	47.20, 54.36
		Control	26.12 (2.85)					

ΔR^2 = Adjusted R^2, η^2 = effect size, CI = confidence interval, CSBI = Compulsive Sexual Behavior Inventory, HBI = Hypersexual Behavior Inventory, SD = standard deviation, P = probability value.
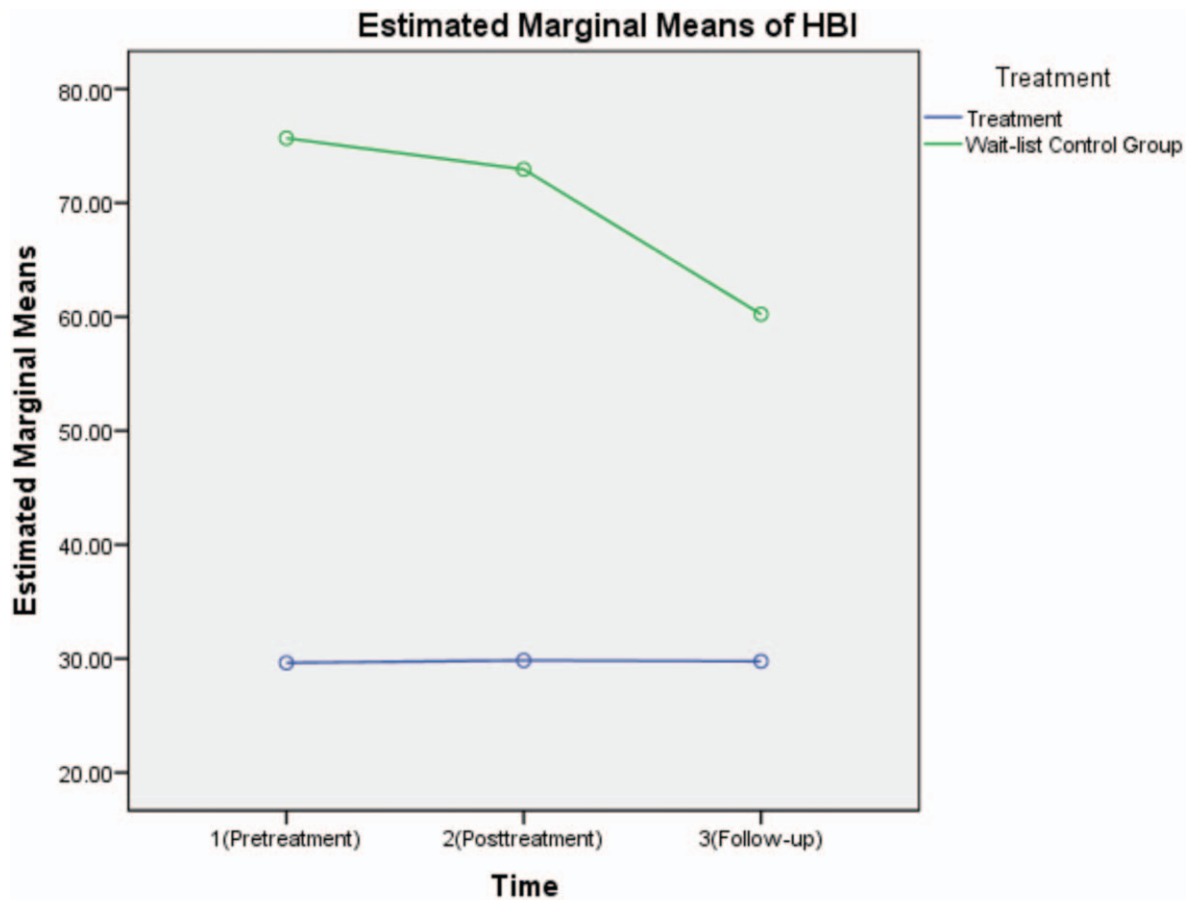
Figure 2. Graph of time × group interaction Effect using HBI. HBI = hypersexual behavior inventory.

are the most powerful treatment for sex offenders with long-term therapeutic benefit.[20,29] It is therefore interesting to discover that CBT approaches addresses the health needs of individuals with sexual compulsivity.[30] Exposing sex offenders to PCBRI may educate them on the healthful need to avoid unprotected intercourse and sexually transmitted diseases. Consequently, sex offenders will not be highly vulnerable to acquired immune deficiency syndrome,[30] gonorrhea, syphilis, candidacies, and chancroid and possibly build prosocial skills and reflect reality accurately.

4.1. Clinical practice implication

Although this present study validated previous studies that CBT approaches make clinically significant positive changes and reduce biased thoughts, emotions, and actions of violent sex offenders, it is still needful for other experienced CBT practitioners[31] to deliver the CBT programme intervention for successful treatment. There is also a need for CBT practitioners to extend their professional practice to other settings (eg, schools, churches, mosques, organizations) that have populations with violent sexual behaviors. Furthermore, mental health counselors, psychologists, social workers, and other helping professional serving prisons are enjoined to adopt CBT approach while helping their clients.

4.2. Limitations

We noted that role conflict between therapists and prison counselors was not controlled. As the prison counselors did not deliver the intervention, it is possible to pose a limitation to this study. Subsequent studies should ensure that prison Counselors or psychotherapists deliver the intervention. The comparison group did not receive treatment. Based on this, we counted it as a limitation. Another weakness of the study is that the control group was provided nothing. We suggested that future studies should take note of this and try as much as possible to engage the control group in a meaningful task or alternative intervention.

5. Conclusions

In spite of the limitations noted, this study provided a new approach to deliver CBT to sex offenders. Using PCBRI, the rate of violent sexual behaviors among sex offenders was significantly decreased. We can conclude that this study has suggested an innovative cognitive behavioral approach in reducing violent sexual behavior among sex offender. Specifically, PCBRI approach is an effective psychotherapy that reduces violent sexual behaviors among sex offenders in prisons in Southeast Nigeria. As this has provided a new CBT approach, future studies can explore the efficacy of this PCBRI approach on larger population.
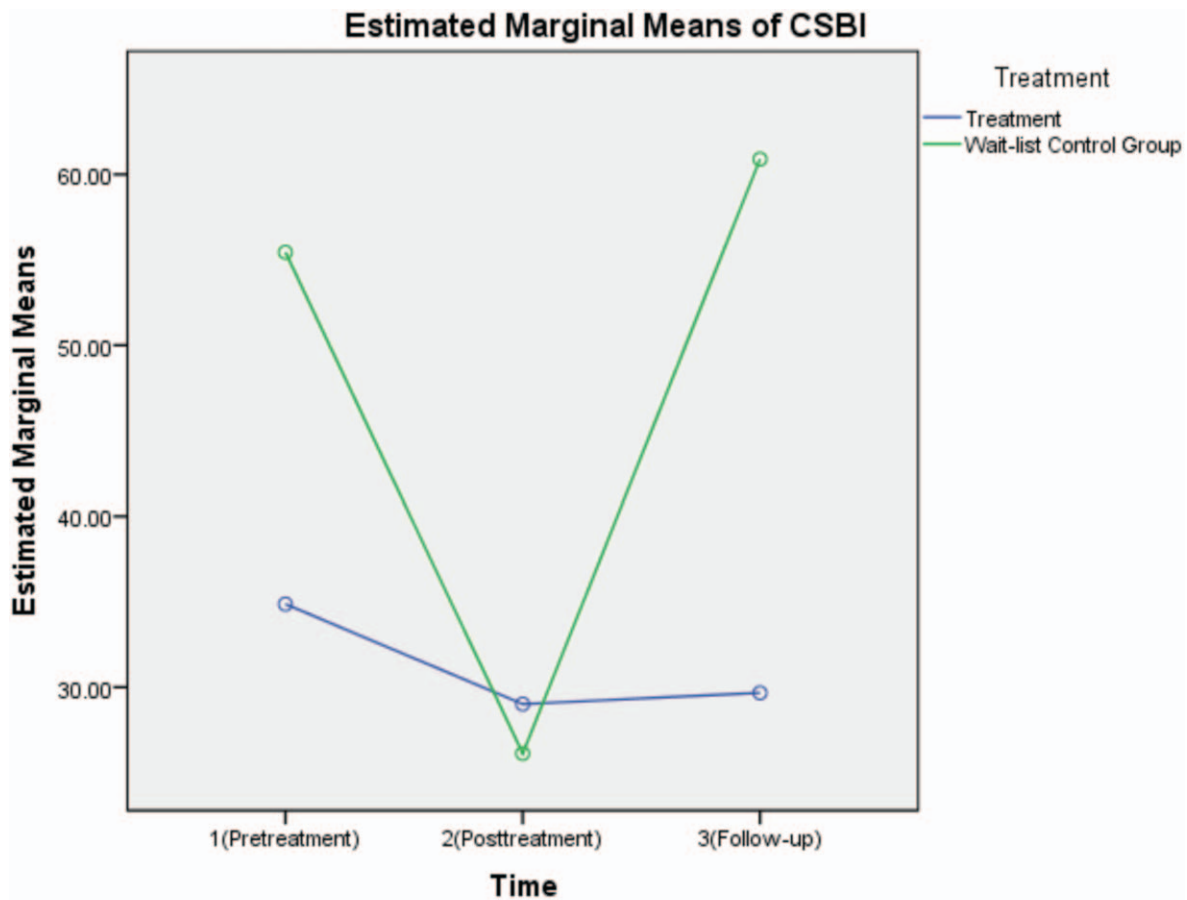
Figure 3. Graph of time × group interaction Effect using CSBI. CSBI = Compulsive Sexual Behavior Inventory.

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