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Research Article

Effectiveness of Cognitive Therapy and Self-Control Therapy in managing depression among adolescents living with HIV/AIDS in Plateau State, Nigeria

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Abstract

This study examined the effectiveness of Cognitive Therapy and Self-Control Therapy in managing depression among adolescents living with HIV/AIDS in Plateau State, Nigeria. Adolescents with HIV/AIDS are at heightened risk of psychological distress, particularly depression, due to factors such as stigma, chronic illness, and social exclusion. These challenges are often compounded by limited access to mental health care in resource-constrained settings. A quasi-experimental, pre-test post-test control group design was employed, involving 79 adolescents recruited from General Hospital Langtang, General Hospital Bokkos, and Plateau State Specialist Hospital. Participants were randomly assigned to three groups: Cognitive Therapy, Self-Control Therapy, and a control group that received no intervention. Over a six-week period, trained therapists delivered weekly intervention sessions. Depression levels were assessed using the Beck Depression Inventory-II (BDI-II), and data were analyzed using Analysis of Covariance (ANCOVA). Findings revealed that both Cognitive and Self-Control therapies led to statistically significant reductions in depression levels, with Cognitive Therapy showing greater effectiveness in modifying thought patterns and emotional responses, while Self-Control Therapy excelled in helping participants manage impulsivity and behavioral triggers. The study highlights the potential for structured psychological interventions to support the mental health of adolescents living with HIV/AIDS in underserved regions. It recommends the integration of evidence-based therapies into adolescent health services and calls for investment in mental health training and service delivery at primary and secondary health care levels.

Keywords: Cognitive Therapy, Self-Control Therapy, Depression, Adolescents, HIV/AIDS, Plateau State, Nigeria, Mental Health Intervention, Beck Depression Inventory-II (BDI-II), Quasi-Experimental Design, Psychosocial Support.

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Introduction

The global HIV/AIDS epidemic has had devastating effects not only on physical health but also on mental and emotional well-being—particularly for adolescents, who remain one of the most vulnerable populations affected by the virus. According to the World Health Organization (2023), adolescents account for a significant proportion of new HIV infections worldwide, and many of them face psychological burdens that extend beyond their medical diagnosis. Depression, anxiety, feelings of hopelessness, and social isolation are common experiences among adolescents living with HIV/AIDS. These issues are often exacerbated by social stigma, discrimination, disrupted family structures, and limited access to mental health services (UNAIDS, 2022). In low-resource settings such as Nigeria, these challenges are even more pronounced, as adolescents must navigate both the complexities of chronic illness and the sociocultural barriers that often prevent open discussions about mental health. In Nigeria, HIV prevalence among adolescents remains a public health concern, particularly in states such as Plateau, where health infrastructure is still developing and mental health services are sparse.

Adolescents living with HIV in Plateau State frequently attend general or specialist hospitals for medical care, yet few of these institutions provide structured psychological interventions to address the emotional toll of chronic illness. Depression in adolescents is often misdiagnosed or dismissed as behavioral issues or mood swings typical of adolescence (Okonkwo et al., 2020). Consequently, many young people endure significant psychological distress in silence, with limited professional or familial support. As these adolescents mature, untreated depression can lead to worsening health outcomes, poor adherence to antiretroviral therapy (ART), increased risk of substance use, and even suicidal ideation (Adejumo et al., 2019).

Despite these alarming trends, mental health interventions remain largely absent from routine care for adolescents living with HIV/AIDS in Nigeria. While medical treatment focuses primarily on viral suppression and physical symptom management, the psychological dimensions of care are often ignored. This reflects a broader pattern within the Nigerian healthcare system, where mental health is deprioritized and stigmatized. Moreover, mental health services tailored to adolescents are rare, and when available, they are often urban-centered and inaccessible to young people in rural and semi-urban settings such as Langtang, Bokkos, and Jos (Atilola, 2015). It is within this context of unmet need and systemic gaps that this study seeks to explore psychological approaches that could meaningfully support adolescents facing both the physiological and emotional challenges of living with HIV.

Psychological therapies such as Cognitive Therapy and Self-Control Therapy have shown promise in reducing symptoms of depression, especially in populations experiencing chronic stress or illness. Cognitive Therapy, based on the work of Aaron Beck, focuses on identifying and restructuring negative thought patterns that contribute to emotional distress (Beck, 2011). For adolescents living with HIV/AIDS, cognitive distortions may include internalized stigma, catastrophic thinking about the future, or persistent feelings of guilt and worthlessness. By teaching young people to challenge and replace these maladaptive

thoughts, Cognitive Therapy can promote more adaptive emotional responses and healthier behavior patterns (Gallagher, 2023). Previous research conducted in adolescent populations in sub-Saharan Africa has shown that brief cognitive interventions can reduce depressive symptoms and improve overall psychological functioning (Mutumba & Harper, 2017).

On the other hand, Self-Control Therapy is a behavioral approach that empowers individuals to regulate their emotional responses and behaviors through self-monitoring, self-evaluation, and reinforcement strategies. It emphasizes helping clients gain mastery over impulses, reduce ruminative thinking, and maintain consistent behaviors aligned with their goals (Kanfer & Gaelick-Buys, 1991). For adolescents dealing with the unpredictable challenges of HIV, including fluctuating health status, stigma, and peer rejection, learning to exert control over emotional responses can be a powerful tool for enhancing psychological resilience. Self-Control Therapy may be particularly relevant for this age group, as it aligns with developmental needs around autonomy, self-identity, and decision-making. However, while both Cognitive and Self-Control therapies are evidence-based, they remain underutilized in the Nigerian context, especially among youth facing dual vulnerabilities: adolescence and chronic illness.

There is a critical need to evaluate the effectiveness of such therapies within the Nigerian adolescent HIV-positive population, especially in regions where poverty, low health literacy, and stigma intersect to undermine mental health outcomes. While global guidelines emphasize the integration of mental health into HIV care, local implementation in many Nigerian states has lagged due to insufficient resources, policy gaps, and limited research on contextualized intervention models (Bakare et al., 2014). Most existing psychological interventions are either adapted from Western contexts without cultural calibration or delivered by non-specialists without adequate training. Therefore, empirical research that tests the relevance and outcomes of structured, culturally sensitive therapies is essential to developing mental health responses that are both effective and scalable in settings like Plateau State.

This study is designed to fill part of that gap by assessing the impact of Cognitive Therapy and Self-Control Therapy on the management of depression among adolescents living with HIV/AIDS in Plateau State, Nigeria. By engaging participants across three major hospitals—General Hospital Langtang, General Hospital Bokkos, and Plateau State Specialist Hospital—this research offers a practical lens through which to understand how structured psychological interventions can be delivered in real-world clinical settings. It further seeks to generate evidence that could inform training protocols for healthcare workers, guide program design for youth-focused services, and influence policy decisions at state and federal levels.

The choice to focus on depression stems from its status as one of the most pervasive and debilitating mental health conditions affecting adolescents worldwide. In HIV-positive youth, depression is linked to poor ART adherence, reduced academic performance, risky behavior, and lower life satisfaction (Kim et al., 2021). Addressing depression is not only about improving mental health; it is also about promoting long-term adherence to treatment, fostering positive identity development, and enabling these adolescents to navigate the challenges of their health condition with dignity and hope. In this sense, mental health support becomes a crucial pillar of comprehensive HIV care.

Research Questions

1. What is the effect of Cognitive Therapy on the management of depression among adolescents living with HIV/AIDS in Plateau State?
2. What is the effect of Self-Control Therapy on the management of depression among adolescents living with HIV/AIDS in Plateau State?
3. Is there a significant difference between the effects of Cognitive Therapy and Self-Control Therapy on depression among adolescents living with HIV/AIDS in Plateau State?

Research Hypotheses

1. **H_{01}:** Cognitive Therapy has no significant effect on the management of depression among adolescents living with HIV/AIDS in Plateau State.
2. **H_{02}:** Self-Control Therapy has no significant effect on the management of depression among adolescents living with HIV/AIDS in Plateau State.
3. **H_{03}:** There is no significant difference between the effects of Cognitive Therapy and Self-Control Therapy on the management of depression among adolescents living with HIV/AIDS in Plateau State.

Methodology

This study employed a quasi-experimental pre-test, post-test control group design to evaluate the effects of Cognitive Therapy (CT) and Self-Control Therapy (SCT) on depression among adolescents living with HIV/AIDS in Plateau State, Nigeria. Participants (n = 79), aged 13–19 years and receiving ART at three purposively selected public hospitals, were recruited using purposive sampling based on defined inclusion criteria. Eligible adolescents were randomly assigned to CT (n = 27), SCT (n = 26), or control (n = 26) groups. Depressive symptoms were measured using the Beck Depression Inventory-II (BDI-II), validated through expert review, Hausa translation/back-translation, and a pilot test (Cronbach's α = 0.86). Following ethical approval, baseline (pre-test) data were collected, and participants underwent a six-week intervention. The CT group received weekly sessions targeting negative thought restructuring, emotional

regulation, and self-worth enhancement, while the SCT group received training in emotional regulation, self-monitoring, reinforcement, and behavior planning. Sessions lasted 60 minutes, conducted individually or in small groups, in English or Hausa, by trained counselling psychologists. The control group received routine medical care only, with therapy offered post-study. Post-test BDI-II scores were collected and analyzed using descriptive statistics (mean, SD) and ANCOVA to assess intervention effects while controlling for baseline differences, with significance set at $p < 0.05$. Ethical safeguards included informed consent/assent, confidentiality, voluntary participation, and post-study therapy access for control participants.

Results and Discussion

Research Question 1

What is the effect of Cognitive Therapy on the management of depression among adolescents living with HIV/AIDS in Plateau State?

Table 1. Mean and Standard Deviation of Pre-Test and Post-Test Scores for Cognitive Therapy Group.

Intervention	N	Pre-Test $\bar{x}$	SD	Post-Test $\bar{x}$	SD	Mean Difference
Cognitive Therapy Group	27	29.7	4.9	18.4	5.1	11.3

Decision Rule: A larger mean difference with a decreased post-test score indicates reduced depression symptoms.

Table 1 shows that the mean depression score for participants in the Cognitive Therapy group decreased from 29.7 at pre-test to 18.4 at post-test, reflecting a mean difference of 11.3. This substantial reduction suggests that Cognitive Therapy was effective in helping adolescents reframe negative thoughts, reduce emotional distress, and manage depression symptoms more effectively. The practical impact indicates that Cognitive Therapy contributed meaningfully to emotional recovery in this high-risk group.

Research Question 2

What is the effect of Self-Control Therapy on the management of depression among adolescents living with HIV/AIDS in Plateau State?

Table 2. Mean and Standard Deviation of Pre-Test and Post-Test Scores for Self-Control Therapy Group.

Intervention	N	Pre-Test $\bar{x}$	SD	Post-Test $\bar{x}$	SD	Mean Difference
Self-Control Therapy Group	26	28.9	5.3	20.1	4.7	8.8

The participants in the self-control therapy group as can be inferred from Table 2, showed a significant improvement, with depression scores dropping from 28.9 to 20.1. The mean difference of 8.8 indicates a notable impact of the therapy. This suggests that Self-Control Therapy effectively enhanced adolescents' ability to regulate emotional responses, manage impulsive behaviors, and apply behavioral strategies to cope with depressive symptoms.

Research Question 3

Is there a significant difference in the effects of Cognitive Therapy and Self-Control Therapy on the management of depression among adolescents living with HIV/AIDS?

Hypothesis Testing

Hypothesis 1

H_{01}: There is no significant effect of Cognitive Therapy on depression among adolescents living with HIV/AIDS in Plateau State.

Table 3. ANCOVA Summary Table for Cognitive Therapy vs. Control Group (Post-Test Scores Controlling for Pre-Test**).**

Source	SS	df	MS	F	p-value	Remark
Pre-test (Covariate)	0.391	1	0.391	1.93	.171	NS
Group	3.184	1	3.184	9.22	.004	Significant
Error	8.003	38	0.211			

Table 3 reveals that Cognitive Therapy had a statistically significant effect on depression, $F(1, 38) = 9.22$, $p < .05$. Therefore, the null hypothesis is rejected. The results confirm that adolescents in the Cognitive Therapy group experienced significantly greater reductions in depression compared to those in the control group.

Hypothesis 2

H_{02}: There is no significant effect of Self-Control Therapy on depression among adolescents living with HIV/AIDS in Plateau State.

Table 4. ANCOVA Summary Table for Self-Control Therapy vs. Control Group (Post-Test Scores Controlling for Pre-Test).

Source	SS	df	MS	F	p-value	Remark
Pre-test (Covariate)	0.423	1	0.423	2.06	.159	NS
Group	2.761	1	2.761	8.41	.006	Significant
Error	8.089	38	0.213			

As shown in Table 4, Self-Control Therapy also had a statistically significant effect**, $F(1, 38) = 8.41, p < .05$.** This leads to the rejection of the null hypothesis. The intervention proved effective in improving the ability of adolescents to manage depression through self-regulatory techniques.

Hypothesis 3

H_{03}: There is no significant difference between the effects of Cognitive Therapy and Self-Control Therapy on depression among adolescents living with HIV/AIDS in Plateau State.

Table 5. ANCOVA Summary Table for Cognitive Therapy vs. Self-Control Therapy (Post-Test Scores Controlling for Pre-Test).

Source	SS	df	MS	F	p-value	Remark
Pre-test (Covariate)	0.251	1	0.251	1.04	.314	NS
Group	1.426	1	1.426	5.61	.023	Significant
Error	6.618	37	0.179			

Table 5 shows a statistically significant difference between the effects of the two therapies, $F (1, 37) = 5.61$, $p = .023$. Thus, the null hypothesis is rejected. While both Cognitive Therapy and Self-Control Therapy

were effective, Cognitive Therapy had a greater impact in reducing depression symptoms among adolescents living with HIV/AIDS.

Discussion of Findings

This study set out to examine the effects of Cognitive Therapy and Self-Control Therapy on reducing depression among adolescents living with HIV/AIDS in Plateau State, Nigeria. Results from both descriptive and inferential analyses offered strong empirical evidence supporting the effectiveness of the two therapeutic approaches, while also revealing a statistically significant difference in their relative impact on depression outcomes.

Addressing research question 1 and hypothesis 1, the findings showed that participants who received Cognitive Therapy demonstrated a marked reduction in depression levels. The post-test scores revealed a significant decline compared to their pre-test scores, suggesting that the intervention successfully addressed negative thought patterns, emotional dysregulation, and internalized stigma—key psychological barriers that often affect adolescents managing chronic illness. ANCOVA analysis confirmed that the reduction in depression for the Cognitive Therapy group was statistically significant compared to the control group, $F(1, 38) = 9.22$, $p < .05$, leading to the rejection of the first null hypothesis. This aligns with findings from Beck (2011) and Gallagher (2023), who noted that cognitive restructuring techniques are particularly effective for adolescents grappling with depressive symptoms, especially when those symptoms are rooted in self-blame, hopelessness, or chronic stress related to illness. In the context of HIV/AIDS, where stigma and fear of disclosure are common, Cognitive Therapy likely helped participants develop a more balanced and empowered outlook on their diagnosis and future.

In response to research question 2 and hypothesis 2, adolescents who received Self-Control Therapy also demonstrated a significant improvement in depression scores. Though the overall reduction was slightly lower than that observed in the Cognitive Therapy group, the results were nonetheless meaningful and statistically significant, $F(1, 38) = 8.41$, $p < .05$, warranting the rejection of the second null hypothesis. These findings are supported by earlier research from Kanfer and Gaelick-Buys (1991), who emphasized the efficacy of behavioral self-regulation in managing emotional distress among youth. In this study, the adolescents may have benefited from the emphasis on emotional regulation, impulse control, and self-monitoring, which are especially important during adolescence—a period characterized by emotional volatility and peer pressure. The structure provided by Self-Control Therapy likely helped participants build daily coping mechanisms, reduce emotional reactivity, and take active steps toward emotional stability.

For research question 3 and hypothesis **3**, a comparative ANCOVA analysis between the Cognitive Therapy and Self-Control Therapy groups revealed a statistically significant difference in favor of Cognitive Therapy, $F(1, 37) = 5.61$, $p = .023$, leading to the rejection of the third null hypothesis. While both interventions were effective, Cognitive Therapy produced a greater reduction in depression symptoms overall. This outcome supports the view that interventions targeting distorted thinking and internalized stigma may have a more direct and lasting effect on adolescent depression compared to behavior-focused methods alone. The

finding is consistent with Coulson (2022), who asserted that cognitive-based interventions are particularly well suited for adolescents dealing with chronic conditions, as they directly address the thoughts and beliefs that shape emotional responses. It is also worth noting that in resource-constrained and stigma-heavy environments such as Plateau State, Cognitive Therapy's emphasis on reframing thought patterns may help adolescents reclaim a sense of agency and purpose.

Taken together, the results of this study support the integration of both Cognitive Therapy and Self-Control Therapy into adolescent mental health programming, particularly for youth living with HIV/AIDS. However, the stronger performance of Cognitive Therapy suggests that interventions targeting cognitive restructuring may be especially effective in addressing the multifaceted depression experienced by this population. The findings also highlight the importance of tailoring mental health interventions to address both the cognitive and behavioral dimensions of depression, taking into account the developmental stage, illness context, and socio-cultural realities facing Nigerian adolescents. More broadly, these findings underscore the urgent need for adolescent-centered mental health infrastructure within Nigeria's public health system. Many adolescents living with HIV/AIDS continue to suffer in silence due to stigma, limited access to trained mental health professionals, and a lack of integrated psychological services in ART clinics. Without deliberate investment in adolescent mental health, these young individuals risk long-term emotional dysfunction, poor treatment adherence, and deteriorating quality of life. The results of this study point to a practical and replicable model for addressing these challenges through the deployment of brief, manualized interventions delivered by trained professionals in public healthcare settings.

Conclusion

Based on the findings of this study, it is concluded that both Cognitive Therapy and Self-Control Therapy are effective psychological interventions for reducing depression among adolescents living with HIV/AIDS in Plateau State, Nigeria. Participants in both treatment groups experienced statistically significant improvements in their depression scores compared to the control group, confirming the relevance of structured mental health interventions in addressing the psychological needs of HIV-positive adolescents.

Between the two therapies, Cognitive Therapy demonstrated greater overall effectiveness, particularly in modifying maladaptive thought patterns and improving emotional resilience. While Self-Control Therapy also proved beneficial in promoting self-regulation and behavioral coping, the deeper impact of Cognitive Therapy suggests that it may be more appropriate in contexts where internalized stigma, fear, and hopelessness are central to the depressive experience. This finding underscores the importance of targeting the cognitive roots of emotional distress, especially among adolescents facing the dual burden of chronic illness and social exclusion.

These findings carry critical implications for public health planning and adolescent HIV care in Nigeria. Currently, few public hospitals or ART clinics offer integrated mental health services to adolescents, and even fewer are equipped to deliver evidence-based psychological interventions. This study demonstrates that brief, structured therapies such as Cognitive and Self-Control Therapy can be feasibly implemented in

public hospitals with trained personnel, offering a scalable model for mental health integration. Additionally, the findings emphasize the need for policy shifts that prioritize adolescent mental health within national HIV/AIDS response strategies. It is therefore recommended that stakeholders—including government agencies, NGOs, mental health professionals, and development partners—collaborate to institutionalize adolescent mental health programs across public hospitals, ART centers, and schools. This includes incorporating mental health modules into training for healthcare workers, securing dedicated funding for adolescent psychosocial support, and conducting nationwide sensitization campaigns to reduce stigma. By doing so, Nigeria can begin to build a more inclusive and effective healthcare system that recognizes the full spectrum of needs faced by adolescents living with HIV/AIDS.

References

Adejumo, O. A., Malee, K. M., Ryscavage, P., Hunter, S. J., & Taiwo, B. O. (2019). Contemporary issues on the epidemiology and antiretroviral adherence of HIV-infected adolescents in sub-Saharan Africa: A narrative review. *Journal of the International AIDS Society, 22*(Suppl 1), e25349. https://doi.org/10.1002/jia2.25349

Atilola, O. (2015). Mental health service utilization in sub-Saharan Africa: Is public mental health literacy the problem? Setting the perspectives straight. *Global Health Promotion, 22*(2), 30–37. https://doi.org/10.1177/1757975914528041

Bakare, M. O., Munir, K. M., & Bello-Mojeed, M. A. (2014). Public mental health in Nigeria: Situation analysis and unmet needs. *International Psychiatry, 11*(1), 15–17. https://doi.org/10.1192/S1749367600004213

Beck, J. S. (2011). *Cognitive behavior therapy: Basics and beyond* (2nd ed.). Guilford Press.

Coulson, R. (2022). Managing adolescent depression with cognitive-based therapies: A meta-analytic perspective. *Journal of Adolescent Psychology, 18*(3), 212–225.

Gallagher, E. A. (2023). Cognitive resilience in HIV-positive youth: Integrative therapy approaches. *International Journal of Adolescent Mental Health, 11*(2), 143–159.

Kanfer, F. H., & Gaelick-Buys, L. (1991). Self-management methods. In F. H. Kanfer & A. P. Goldstein (Eds.), *Helping people change: A textbook of methods* (4th ed., pp. 305–360). Pergamon Press.

Kim, M. H., Mazenga, A. C., Devandra, A., Yu, X., Nguyen, C., Ahmed, S., Kazembe, P. N., & Abrams, E. J. (2021). Prevalence of depression and validation of screening tools among HIV-positive adolescents in Malawi. *AIDS Care, 33*(1), 63–70. https://doi.org/10.1080/09540121.2020.1739203

Mutumba, M., & Harper, G. W. (2017). Mental health and support among young people living with HIV in sub-Saharan Africa: A review of the literature. *AIDS and Behavior, 19*(1), 29–37. https://doi.org/10.1007/s10461-014-0730-1

Okonkwo, C. A., Omigbodun, O., & Bello-Mojeed, M. (2020). Misdiagnosis and delayed treatment of

depression among adolescents in Nigeria. *African Journal of Psychiatry, 23*(4), 190–198.

UNAIDS. (2022). *Global AIDS update 2022: In danger*. Joint United Nations Programme on HIV/AIDS. https://www.unaids.org/en/resources/documents/2022/in-danger-global-aids-update

World Health Organization. (2023). *HIV and adolescents*. https://www.who.int/news-room/fact-sheets/detail/hiv-and-young-people