Sexual-Risk Perception and Social Support as Correlates of Adherence to Antiretroviral Medication Among Adolescents Living with HIV/Aids in Benue State, Nigeria: A Cross-Sectional Study

Kater Tyo-aba, Samuel Terzungwe Anhange (PhD), and Anyalewa Alan Ajonye (PhD)
Benue State University

https://doi.org/10.56201/ijhpr.vol.11.no10.2026.pg85.94

Abstract
Adherence to antiretroviral medication is essential for viral suppression, prevention of drug resistance, and long-term health among adolescents living with HIV/AIDS. However, adolescents may face sexual-health concerns, stigma, disclosure challenges, and limited support, which may affect their ability to take medication consistently. Although sexual-risk perception and social support are important psychosocial factors in adolescent HIV care, evidence on their relationship with adherence among adolescents living with HIV/AIDS in Benue State remains limited. A cross-sectional survey was conducted among 284 adolescents aged 10–17 years receiving antiretroviral treatment at General Hospital Makurdi, General Hospital Katsina-Ala, and Federal University of Health Sciences Teaching Hospital, Otukpo. Participants were selected through proportionate stratified sampling from a target population of 1,050 adolescents. Data were collected using a sociodemographic questionnaire, an 18-item Sexual Risk Cognition Questionnaire, a 12-item Multidimensional Scale of Perceived Social Support, and a 10-item Medication Adherence Report Scale. Pearson's product–moment correlations were used to examine the relationships among the study variables. Sexual-risk perception was significantly and negatively associated with adherence to antiretroviral medication, r = -.337, 95% CI [-.436, -.230], p < .001. Social support was significantly and positively associated with adherence, r = .468, 95% CI [.372, .554], p < .001. Sexual-risk perception was significantly and negatively associated with social support, r = -.198, 95% CI [-.307, -.084], p < .001. Higher sexual-risk perception was associated with lower adherence, whereas higher social support was associated with better adherence among adolescents living with HIV/AIDS in Benue State. The findings support the integration of confidential sexual-health counselling, stigma-sensitive support, and adolescent-friendly adherence services into routine HIV care. Because the study was cross-sectional and used self-reported measures, the findings should be interpreted as associations rather than causal effects.

Keywords: *sexual-risk perception; social support; medication adherence; antiretroviral medication; adolescents living with HIV/AIDS; Benue State; Nigeria.*

Introduction

Adherence to antiretroviral medication is fundamental to effective HIV treatment and long-term health outcomes. Consistent medication-taking supports viral suppression, reduces the risk of treatment failure, and improves the quality of life of adolescents living with HIV. However, adolescence is a critical period for treatment management because young people

increasingly assume responsibility for their medication while managing school demands, peer relationships, stigma, disclosure concerns, and emerging sexual-health needs.

Sexual-risk perception refers to an individual's perceived vulnerability to sexual and reproductive health risks, including sexually transmitted infections, unplanned pregnancy, HIV transmission, and other adverse sexual-health outcomes. Among adolescents living with HIV, sexual-risk perception may be shaped by knowledge of HIV transmission, experiences of stigma, relationship concerns, disclosure difficulties, and awareness of the importance of viral suppression. Adolescents who perceive greater sexual-risk vulnerability may experience additional emotional and behavioural burdens. Fear of transmitting HIV, concerns about disclosure to sexual partners, stigma, relationship pressure, and uncertainty about safer-sex practices may compete with attention to medication-taking. These concerns may also reduce engagement with HIV services and affect the consistency with which adolescents take antiretroviral medication. Social support may buffer these challenges. Support from parents, guardians, relatives, friends, health-care workers, and peers may help adolescents remember medication, attend clinic appointments, manage stigma, discuss sexual-health concerns, and cope with treatment-related stress. Supportive relationships may also strengthen adolescents' confidence in managing their health and reduce the emotional burden associated with living with HIV. The relationship between sexual-risk perception and social support is also important. Adolescents who perceive greater sexual-risk vulnerability may require more support, while those with stronger support networks may be better able to manage sexual-health concerns and treatment demands. However, the direction of this relationship cannot be determined in a cross-sectional study. Although sexual-risk perception and social support have received attention in HIV research, adolescent-specific evidence from Benue State remains limited. Few studies have examined whether sexual-risk perception and social support are associated with adherence among adolescents receiving HIV care in the state. This study therefore examined the relationships of sexual-risk perception and social support with adherence to antiretroviral medication among adolescents aged 10–17 years living with HIV/AIDS in selected health facilities in Benue State.

Objectives

1. To examine the relationship between sexual-risk perception and adherence to antiretroviral medication among adolescents living with HIV/AIDS in Benue State.
2. To examine the relationship between social support and adherence to antiretroviral medication among adolescents living with HIV/AIDS in Benue State.
3. To examine the relationship between sexual-risk perception and social support among adolescents living with HIV/AIDS in Benue State.

Hypotheses

1. Sexual-risk perception will significantly correlate with adherence to antiretroviral medication among adolescents living with HIV/AIDS in Benue State.
2. Social support will significantly correlate with adherence to antiretroviral medication among adolescents living with HIV/AIDS in Benue State.
3. Sexual-risk perception will significantly correlate with social support among adolescents living with HIV/AIDS in Benue State.

Medication adherence among adolescents living with HIV: Medication adherence refers to the extent to which individuals take medication as prescribed. Among adolescents living with HIV, adherence may be influenced by developmental changes, stigma, disclosure concerns, peer relationships, mental health, family circumstances, and the practical demands of daily medication-taking.

The transition from caregiver-managed treatment to self-management may be particularly challenging. Adolescents may need to take medication during school hours, while travelling, or in social settings where they wish to conceal their HIV status. These circumstances may increase the risk of missed doses, delayed doses, and treatment interruptions.

Sexual-risk perception: Sexual-risk perception refers to an adolescent's perceived vulnerability to sexual and reproductive health risks. These risks may include sexually transmitted infections, unplanned pregnancy, HIV transmission, and other adverse sexual-health outcomes. Among adolescents living with HIV, sexual-risk perception may be influenced by knowledge of HIV transmission, experiences of stigma, relationship concerns, disclosure difficulties, and awareness of the importance of viral suppression. Adolescents who perceive greater sexual-risk vulnerability may experience anxiety, shame, fear of disclosure, and difficulty discussing sexual-health matters with caregivers or health-care providers. In the present study, sexual-risk perception was expected to be negatively associated with adherence. This expectation was based on the view that greater sexual-health concerns may compete with attention to medication-taking and reduce engagement with HIV services.

Social support and adherence: Social support refers to actual or perceived assistance received from family members, friends, significant others, and health-care providers. Such support may be emotional, informational, instrumental, or practical in nature.
Among adolescents living with HIV, supportive family environments, safe disclosure, peer support, and adolescent-friendly clinical services may promote adherence. Supportive relationships may help adolescents remember medication, attend clinic appointments, manage stigma, and cope with treatment-related stress. In the present study, social support was expected to be positively associated with adherence. This expectation was based on the view that adolescents who perceive greater support may be better able to manage the demands of antiretroviral treatment.

Sexual-risk perception and social support: The relationship between sexual-risk perception and social support is relevant to adolescent HIV care. Adolescents who perceive greater sexual-risk vulnerability may require more support, while those with stronger support networks may be better able to manage sexual-health concerns and treatment demands.
However, the direction of this relationship cannot be established in a cross-sectional study. It is possible that low social support increases sexual-risk concerns, but it is also possible that adolescents experiencing greater sexual-risk concerns perceive less support or have different social circumstances. In the present study, sexual-risk perception was expected to be negatively associated with social support.

Gap in literature
Although prior research has examined HIV treatment adherence among adolescents, few studies have simultaneously examined sexual-risk perception and social support as correlates of adherence among adolescents living with HIV/AIDS in Benue State. Most available studies focus either on general adherence barriers or on adult populations. There is therefore limited context-specific evidence to guide adolescent-friendly HIV services in Benue State.
This study addressed that gap by examining the relationships among sexual-risk perception, social support, and adherence to antiretroviral medication among adolescents receiving HIV care in the state.

Design

The study adopted a cross-sectional survey design to examine the relationships of sexual-risk perception and social support with adherence to antiretroviral medication among adolescents living with HIV/AIDS in Benue State. This design was appropriate because it allowed data to be collected from participants at one point in time and enabled examination of associations among the study variables. The independent variables were sexual-risk perception and social support, while the dependent variable was adherence to antiretroviral medication.

Setting

The study was conducted at General Hospital Makurdi, General Hospital Katsina-Ala, and Federal University of Health Sciences Teaching Hospital, Otukpo, Benue State, Nigeria. These facilities were selected because they are located across the three senatorial zones of Benue State and provide antiretroviral therapy, adherence counselling, viral-load monitoring, and psychosocial support to adolescents living with HIV.

Population

The target population comprised 1,050 adolescents receiving antiretroviral treatment at the three selected health facilities in Benue State: General Hospital Makurdi (n = 328), General Hospital Katsina-Ala (n = 436), and Federal University of Health Sciences Teaching Hospital, Otukpo (n = 286).

Eligibility criteria

Adolescents were eligible for the study if they were aged 10–17 years, had a confirmed HIV diagnosis, were currently receiving antiretroviral therapy at one of the selected facilities, and were able to provide informed assent. Written informed consent was also obtained from a parent or legal guardian for each eligible adolescent.

Adolescents were excluded if they were not receiving antiretroviral therapy, were outside the specified age range, were acutely too unwell to participate, or did not provide assent and parental or guardian consent.

Sample-size determination

The sample size was determined using the Krejcie and Morgan (1970) table for determining sample size for research activities. For a population of 1,050, the appropriate sample size is 285. Therefore, 285 adolescents were targeted for the study.

A total of 284 adolescents provided complete data on the principal study variables. This represented a usable-response rate of 99.6%.

Sampling technique

Proportionate stratified sampling was used to select participants across the three health facilities. The number of participants allocated to each facility was proportional to its population of adolescents receiving antiretroviral treatment.

The allocation was calculated as:

$n_h = \frac{Nh}{N}$ x n

where n_h is the sample allocated to a facility, N_h is the facility population, N is the total population, and n is the planned sample.

The allocation was:

General Hospital Makurdi: $\frac{328}{1{,}050}$ x 285 = 89 participants.

General Hospital Katsina-Ala: $\frac{436}{1{,}050}$ x 285 = 118 participants.

Federal University of Health Sciences Teaching Hospital, Otukpo: $\frac{286}{1,050}$ x 285 = 78 participants.
The total allocated sample was 285 participants.

Participants
The participants were 284 adolescents aged 10–17 years living with HIV/AIDS and receiving antiretroviral medication at General Hospital Makurdi, General Hospital Katsina-Ala, and Federal University of Health Sciences Teaching Hospital, Otukpo.
In terms of age, 74 participants (26.1%) were aged 10–12 years, 123 (43.3%) were aged 13–15 years, and 87 (30.6%) were aged 16–17 years. Among the 279 participants with valid information on sex, 246 (88.2%) were male and 33 (11.8%) were female.
In terms of ethnic group, 142 participants (50.5% of valid responses) were Tiv, 98 (34.9%) were Idoma, and 41 (14.6%) belonged to other ethnic groups. Regarding religion, 152 participants (54.3% of valid responses) were Muslims, 114 (40.7%) were Christians, and 14 (5.0%) practised other religions. Concerning place of residence, 152 participants (53.5%) lived in rural areas, while 132 (46.5%) lived in urban areas. Among the 277 participants with valid information on educational level, 44 (15.9%) had no formal education, 96 (34.7%) had primary education, 82 (29.6%) had secondary education, and 55 (19.8%) had tertiary education. A total of 161 participants (56.7%) were in school, while 123 (43.3%) were out of school. Among the 283 participants with valid information on living arrangement, 138 (48.8%) lived with parents or guardians, 62 (21.9%) lived with relatives, 53 (18.7%) lived with friends or partners, and 30 (10.6%) reported other arrangements.
For employment status, 101 participants (35.6%) were not employed, 72 (25.4%) were employed part-time, 41 (14.4%) were employed full-time, and 70 (24.6%) were apprentices or students. A total of 162 participants (57.0%) had disclosed their HIV status, while 122 (43.0%) had not. Regarding access to health care, 179 participants (63.0%) reported access, while 105 (37.0%) reported no access. Among the 278 participants with valid information on duration on antiretroviral therapy, 68 (24.5%) had received treatment for less than six months, 74 (26.6%) for six months to one year, 92 (33.1%) for one to three years, and 45 (15.8%) for more than three years.

Instruments
Sexual-Risk Perception Scale. Sexual-risk perception was measured using the 18-item Sexual Risk Cognition Questionnaire (SRCQ), adapted from Shah, Thornton, and Burgess (1997). The scale assessed cognitive processes and beliefs associated with sexual risk-taking, including self-justification, impulsive sexual decision-making, and cognitive distortions linked to sexual activity.
Higher scores indicated greater sexual-risk cognition or maladaptive sexual-risk perception. The pilot reliability coefficient obtained in the present study was Cronbach's alpha = .810.

Social Support Scale. Social support was measured using the 12-item Multidimensional Scale of Perceived Social Support (MSPSS), which assesses perceived support from family, friends, and significant others (Zimet et al., 1988). Items were rated on a seven-point scale ranging from 1 (**very strongly disagree**) to 7 (**very strongly agree**). Total scores ranged from 12 to 84, with higher scores indicating greater perceived social support. The pilot reliability coefficient obtained in the present study was Cronbach's alpha = .851.

Adherence to Antiretroviral Medication Scale. Adherence to antiretroviral medication was measured using a 10-item self-report scale adapted for antiretroviral medication. Items assessed regular medication-taking, missed doses, dose alteration, treatment interruption, and taking medication as prescribed. Higher scores indicated better reported adherence. The pilot reliability coefficient obtained in the present study was Cronbach's alpha = .854.

Procedure

The researcher obtained approval from the relevant health authorities and the management of the selected facilities. After approval was obtained, parental or guardian consent and adolescent assent were sought from eligible participants. Those who willingly agreed to participate were assured of the confidentiality of their responses and the protection of their identity. Participants were assured that the study would not cause them harm and that their participation or withdrawal would not affect the health-care services they received. Questionnaires were administered privately, and participants completed them at their own pace.

Data analysis

Descriptive statistics, including means, standard deviations, frequencies, and percentages, were used to describe the participants and study variables. Pearson's product–moment correlations were used to test the three study hypotheses.

Correlation coefficients were interpreted as follows: .10 to .29, weak correlation; .30 to .49, moderate correlation; and .50 and above, strong correlation. Statistical significance was set at $p < .05$. Participants with missing values on sexual-risk perception, social support, or adherence were excluded from the correlation analysis using listwise deletion. The final correlation analysis included 284 participants.

Results

Participant flow

Of the 285 adolescents targeted for the study, 284 provided complete data on sexual-risk perception, social support, and adherence to antiretroviral medication and were included in the final correlation analysis. One participant was excluded because of incomplete data on at least one principal study variable.

Descriptive statistics

The mean sexual-risk-perception score was 47.13 (SD = 9.74). The mean social-support score was 56.82 (SD = 10.25). The mean medication-adherence score was 31.45 (SD = 7.93).

Table 1

Descriptive Statistics for Principal Study Variables

Variable	M	SD
Sexual-risk perception	47.13	9.74
Social support	56.82	10.25
Adherence to antiretroviral medication	31.45	7.93

Note. N = 284.

Correlation analysis

Sexual-risk perception was significantly and negatively associated with adherence to antiretroviral medication, r = -.337, 95% CI [-.436, -.230], $p < .001$. This moderate negative relationship indicated that adolescents who reported greater sexual-risk perception tended to

report lower adherence.

Social support was significantly and positively associated with adherence to antiretroviral medication, r = .468, 95% CI [.372, .554], p < .001. This moderate positive relationship indicated that adolescents who reported higher social support tended to report better adherence.

Sexual-risk perception was significantly and negatively associated with social support, r = -.198, 95% CI [-.307, -.084], p < .001. This weak negative relationship indicated that adolescents who reported greater sexual-risk perception tended to report lower social support.

Table 2

Correlation Matrix Showing the Relationships Among Sexual-Risk Perception, Social Support, and Adherence to Antiretroviral Medication

Variable	1	2	3	M	SD
1. Sexual-risk perception	—			47.13	9.74
2. Social support	-.198*** [-.307, -.084]	—		56.82	10.25
3. Adherence to antiretroviral medication	-.337*** [-.436, -.230]	.468*** [.372, .554]	—	31.45	7.93

Note. N = 284. Values in brackets are 95% confidence intervals.
*** p < .001.

Summary of hypothesis testing

Table 3

Summary of Hypothesis Testing

Hypothesis	Relationship tested	Result	Decision
1	Sexual-risk perception and adherence	r = -.337, 95% CI [-.436, -.230], p < .001	Supported
2	Social support and adherence	r = .468, 95% CI [.372, .554], p < .001	Supported
3	Sexual-risk perception and social support	r = -.198, 95% CI [-.307, -.084], p < .001	Supported

Discussion

Hypothesis one tested whether sexual-risk perception would significantly correlate with adherence to antiretroviral medication among adolescents living with HIV/AIDS in Benue State. The finding showed a significant negative correlation between sexual-risk perception and adherence, r = -.337, 95% CI [-.436, -.230], p < .001. This implies that adolescents who reported greater sexual-risk perception tended to report lower adherence.

This finding suggests that sexual-health concerns may be associated with the broader burden of living with HIV during adolescence. Adolescents who perceive greater vulnerability to sexual and reproductive health risks may experience anxiety, shame, fear of disclosure, relationship pressure, or difficulty discussing sexual-health matters. These concerns may compete with attention to medication-taking and reduce engagement with HIV services.

However, the cross-sectional design prevents conclusions about directionality. It is possible that sexual-risk perception contributes to lower adherence, but it is also possible that adolescents with poorer adherence experience greater sexual-health concerns or perceive themselves as more vulnerable. Hypothesis two tested whether social support would significantly correlate with adherence to antiretroviral medication. The result showed a significant positive correlation between social support and adherence, r = .468, 95% CI [.372, .554], p < .001. This implies that adolescents who perceived greater social support tended to report better adherence.

This finding suggests that supportive relationships may help adolescents manage the demands of HIV treatment. Family members, friends, significant others, and health-care workers may provide reminders, encouragement, transport assistance, and emotional reassurance. Social support may also reduce the psychological burden of stigma and disclosure concerns.

Hypothesis three tested whether sexual-risk perception would significantly correlate with social support. The result showed a significant negative correlation between sexual-risk perception and social support, $r = -.198$, 95% CI [-.307, -.084], $p < .001$. This implies that adolescents who reported greater sexual-risk perception tended to report lower social support. However, the cross-sectional design prevents conclusions about directionality. It is possible that low social support increases sexual-risk concerns, but it is also possible that adolescents experiencing greater sexual-risk concerns perceive less support or have different social circumstances. The study did not conduct a multiple regression analysis with sexual-risk perception and social support entered simultaneously. Therefore, the study cannot determine the independent contribution of each variable to adherence after controlling for the other predictor. The study also did not test whether social support moderated the relationship between sexual-risk perception and adherence. Future studies should conduct a multiple regression analysis with sexual-risk perception and social support entered as simultaneous predictors of adherence. Such an analysis would show the unique contribution of each variable after accounting for the other. A moderation analysis could also examine whether social support changes the strength of the relationship between sexual-risk perception and adherence. The findings have practical implications for adolescent HIV care. Health-care providers should assess both sexual-health concerns and social-support needs during routine adolescent antiretroviral-therapy appointments. Confidential sexual-health counselling, stigma-sensitive support, caregiver involvement where acceptable, and peer-support opportunities may help adolescents manage each treatment demands and sexual-risk concerns.

Recommendations

Based on the findings of this study, the following recommendations were made:

1.Health-care providers should routinely assess sexual-risk perception and social-support needs among adolescents receiving antiretroviral therapy.

2.Adolescent HIV services should provide confidential sexual-health counselling that addresses safer sex, HIV transmission, contraception, disclosure, and relationship concerns.

3.Counselling should be non-judgemental, adolescent-friendly, and responsive to the developmental needs of adolescents.

4.Adolescents should be encouraged to identify trusted supporters who can provide treatment reminders and emotional support.

5.Caregivers should provide non-judgemental reminders, practical assistance, and emotional support to adolescents receiving antiretroviral treatment.

6.Health facilities should provide peer-support opportunities and referral pathways for adolescents experiencing stigma, disclosure difficulties, or psychosocial distress.

7.Future studies should use multiple regression and moderation analysis to determine the independent and interactive effects of sexual-risk perception and social support on adherence.

Contributions to Knowledge

This study contributes to knowledge in the following ways:

1.It provides adolescent-specific evidence from Benue State on the relationship between sexual-risk perception and adherence to antiretroviral medication.

2.It demonstrates that social support is positively associated with adherence among adolescents living with HIV/AIDS in the selected health facilities.

3.It shows that sexual-risk perception is negatively associated with social support, suggesting that sexual-health concerns and social-support needs may co-occur among adolescents.
4.It highlights the need for adolescent HIV services to integrate sexual-health counselling with adherence support.
5.It provides a foundation for future studies using multiple regression, longitudinal designs, and moderation analysis.

Limitations

The study had some limitations. First, the cross-sectional design did not establish temporal or causal relationships among the study variables. Second, adherence, sexual-risk perception, and social support were self-reported and may have been affected by recall and social-desirability bias. Third, the sexual-risk-perception measure was an adapted instrument and requires further validation across additional adolescent HIV-care settings. Fourth, the study was conducted in selected health facilities, which limits generalisation to adolescents receiving care elsewhere or those disengaged from treatment. Fifth, the study used bivariate correlations and did not adjust for other potential determinants of adherence, including stigma, disclosure, mental health, socioeconomic conditions, medication availability, and viral suppression. Finally, because no multiple regression output was available, the study could not determine the independent contribution of each predictor after controlling for the other variable.

References

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607–610. https://doi.org/10.1177/001316447003000308

Shah, D., Thornton, S., & Burgess, A. P. (1997). Sexual risk cognitions questionnaire: A reliability and validity study. AIDS Care, 9(4), 471–480. https://doi.org/10.1080/00222937500770361

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 52*(1), 30–41. https://doi.org/10.1207/s15327752jpa5201_2