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Annals of HIV/AIDS Research

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Psychosocial Factors Influencing Antiretroviral Adherence for Adolescents Growing Up with Human Immunodeficiency Virus (HIV)

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Received: Mar 27, 2025

Accepted: Apr 17, 2025

Published Online: Apr 24, 2025

Journal: Annals of HIV/AIDS Research

Publisher: MedDocs Publishers LLC

Online edition: http://meddocsonline.org/

Keywords: Psychosocial factors; Adherence; Adolescents; Antiretroviral therapy; HIV.

Abstract

Introduction: Poorer adherence to medication is very prevalent during adolescence and is among one of a range of risk-taking behaviors common during a developmental stage that encompasses enormous cognitive, physical, sexual, social and emotional change. For the youth living with Human Immunodeficiency Virus (HIV), poor adherence to Antiretroviral Therapy (ART) contributes to two significant challenges: first being poor health, and the second being the risk for additional burden attributed to onward transmission to partners. Late adolescence (15–19 years) is the only age group where HIV associated mortality is rising, driven by poor adherence to ART and lack of access to second line therapy, particularly amongst surviving perinatally infected youth. The aim of this study was to determine the psychosocial factors that influence adherence to antiretroviral treatment among adolescents living with HIV in Muhoroni Sub County, Kisumu, Kenya.

Methods: This was a cross-sectional study done a period of December 2021 to March 2022 that focused on the 233 active adolescents who were on HIV care within the sub county. The study was performed at the three hospitals with adolescent center care (Muhoroni sub county hospital, Masogo sub county hospital and Nyangoma sub county hospital) within Muhoroni sub county hospital in Kisumu County of Kenya.

Result: From the 233 adolescents 53.6% were female while 46.4% were male. There was high prevalence of HIV at the age of 18 with 75(32.1%), followed by age 19 with 55(23.6%), age 17 with 39(16.7%), age 16 with 37(15.9%) and lastly age 15 with 27(11.6%). On drug adherence the adolescent had a good drug adherence of 86.3%, higher prevalence of depression among the female than the male under all the PHQ-9 score with 7(3.0%) and 6(2.6%) females having a depression of severe and moderate respectively was observed.

Conclusions: This study provides an in-depth understanding of essential factors that were possibly responsible for managing the adolescents who are care and prolonging their life too.

Cite this article: Awuor SO, Mariita CC, Mariita RM. Psychosocial Factors Influencing Antiretroviral Adherence for Adolescents Growing Up with Human Immunodeficiency Virus (HIV). ANN HIV/AIDS Res. 2025; 4(1): 1004.

Introduction

Into the fourth decade of the Human Immunodeficiency Virus (HIV)/ Acquired Immunodeficiency Syndrome (HIV/AIDS) epidemic, there are over 34 million people living with HIV in the world and about five million of them are aged between 15 and 24 years [1]. Adolescence a mental, physical and emotional stage leading into adulthood [2]. During this developmental stage individuals experience behavioral experimentation, identity formation, risk taking behaviors, challenging romantic relationships, exploring sexuality and experimenting with alcohol and recreational drugs [2-3]. Furthermore, adolescents often have poorly developed life skills, limited life experiences and often lack financial autonomy [4]. Additionally, they have limited access to healthcare facilities and are more likely to experience peer pressure and stigma [4]. Adolescents have become a heightened concern for health care professionals in this field [5], with 42% of new HIV infections occurring in this age group in 2010 [1]. Due to these factors, adolescents have been recognized as a vulnerable group to becoming infected and marginalized from mainstream healthcare services [6].

Additionally, adolescents are vulnerable to HIV in behaviorally-associated transmission of infections during the adolescence growth phase. The development during adolescence is a time for exploring and navigating peer relationships, gender norms, sexuality, and economic responsibility. However, many adolescents don't receive adequate sexual education which can lead to higher rates of sexually transmitted diseases and unplanned pregnancies [16]. Multiple and intersecting forms of discrimination and structural inequality affect the lives of young people and increase their vulnerability to HIV [7].

Survival among perinatally infected adolescents with HIV has been greatly extended since the advent of highly effective antiretroviral therapies, while adherence to HIV medication regimens is suboptimal and decreases as children reach adolescence [8]. Health care professionals are alert on the issue of high prevalence of low adherence to adolescents [17]. Non- adherence involved more than forgetting to take medication, as in also involves a person's conduct such as—taking medication, making lifestyle changes including diet changes per recommendations of a health care provider [18]. Low adherence can lead to increase in morbidity and compound medical complications, leading to poorer quality of life as well as overuse of the health care systems [16].

There are many risk factors that impact adolescents' development and future life success. It is imperative for healthcare professionals to understand these risk factors and implement interventions to aid in supporting clients with HIV, especially those in the high-risk adolescent group. A study by Haberer JE et al., identified five groupings of factors that are associated with determining adherence to ART. The groupings are the individual (e.g. knowledge, resources, mental health); interpersonal/network relationships (e.g. social support, stigma); the community (e.g. socio-cultural norms); health system factors (e.g. service provision) and structural issues (e.g. access to services) [19].

Another study identified similar factors that influence adherence which fall into 4 main groups: (1) patient factors, for instance drug use, alcohol use, age, sex, and ethnicity; (2) medication regimen, which may include dosing complexity, number of pills, or food requirements; (3) the patient-health-care provider relationship; and (4) the system of care [20]. Other factors such as acceptance, disclosure, determination, and family support of the patient, as well as patient relationship with healthcare professionals can influence adherence [18]. These studies show the importance for health providers to understand the influencing factors affecting adherence of ART to appropriately address them and provide adequate support [9]. An adolescent needs social or emotional support from friends or family members especially after disclosing their HIV status to avoid being affected by stigma [10]. There should be adequate attention given to psychosocial health of adolescents regarding HIV adherence, as it is key to adolescents' optimization of ART. Generally, psychosocial refers to the close relationship between the individual and the collective aspects of any social entity.

Adolescent psychosocial health includes the emotional, social, mental, and spiritual aspects the adolescent psychological aspect in this context can be defined as how adolescents think about themselves, how they deal with and express their emotions and how they navigate and manage relationships. Social factors can be defined as the adolescents' relationships and roles, expectations, opportunities, moving towards family formation, family structures, economic security, and citizenship. There are a few aspects of adolescent development related to health behaviors that are important to name, they are autonomy, cognitive processes, and social influences. Autonomy allows adolescents to have the opportunity to engage in independent health decision-making with lifelong consequences. Just as important are the cognitive processes influencing adolescent decision making. However, decision-making and judgment skills are not fully developed in adolescents. Multiple studies argued that adolescents' decision making is influenced by socio-emotional and self-regulatory factors, stating that slow development of impulse control and response inhibition increases the reliance on social factors and emotions to make decisions. [18,21]. It is imperative that health behavior interventions is an important tool in decision-making among the adolescents more so in developing and/or identifying validated objective measures assessing all aspects of health literacy and integrating developmental theory [21]. Ensuring easy access to psychosocial support and care, such as counseling and support groups, together with optimal therapies is critical to reducing AIDS-related deaths among adolescents and help deliver good outcomes [11].

Materials and methods

Study design and study area: This was a cross-sectional study done a period of December 2021 to March 2022 that focused on the 233 active adolescents who were on HIV care within the sub county. The study was performed at the three hospitals with adolescent center care (Muhoroni sub county hospital, Masogo sub county hospital and Nyangoma sub county hospital) within Muhoroni sub county hospital in Kisumu County of Kenya (The sub county is located between latitudes 0° 40' and 00.0' South and longitudes 34° 45' and 00.0' East.). A total of 233 active adolescents who were on HIV care within the sub county were enrolled in the study. Data collection on socio demographics, Pretested and structured questionnaires were used to collect psychosocial factors, socioeconomic and demographic characteristics of the adolescent behaviors and other risk factors by interviewing them. The questionnaire was adapted from previous similar literature.

Psychosocial factors: A pretested questionnaire was used to collect psychosocial factors data. The questionnaire was tested in the same facility where the study was carried out to confirm that it would be efficient. The participants involved in testing

the effectiveness of the questionnaire excluded from the actual study. Every participant was taken through the questionnaire and shown how to fill it in. The participant was then given time to read the questionnaire and answer all the questions. Age, gender, clinical presentation, Environmental and Behavioral Variables were the psychosocial factors variables considered. Any question that was not clear to the participant was elaborated upon inquiry. All the information extracted from the questionnaire was provided upon by the participant. Participants could withdraw anytime. Those who withdrew were excluded from the study.

Data analysis: Statistical analysis was performed using Stata software version 20. Data on Psychosocial factors were summarized by frequencies and percentage values.

Results

Sociodemographic characteristic of adolescent living with HIV

From the 233 active adolescents accessing care from the three facilities within the sub county 53.6% were female while 46.4% were male. There was high prevalence of HIV at the age of 18 with 75(32.1%), followed by age 19 with 55 (23.6%), age 17 with 39(16.7%), age 16 with 37(15.9%) and lastly age 15 with 27(11.6%). Out of the total active adolescent on care 25(10.7%) were married whereas 8(3.4%) were housewives, 17(7.3%) were house made, 10(4.3%) were sugarcane cutters, 8 (3.4%) were home guard, 165(70.8%) were students and lastly 25(10.7%) have no occupation. On education they were high number of 68(29.2%) adolescents not going to school followed by 58(24.9%) at secondary level, 55(23.6%) at primary level and lastly 52(22.3%) at college level with higher percentage of the adolescent 68.7% leaving with parents as shown in table 1.

Table 1: Sociodemographic characteristic of adolescent living with HIV in Muhoroni sub county 2020.

Varibles		Frequency (N=233)	Percentage (%)
Gender	Female	125	53.6
	Male	108	46.4
Age In Years	15	27	11.6
	16	37	15.9
	17	39	16.7
	18	75	32.1
	19	55	23.6
Marrital Status	Married	25	10.7
	Single	208	89.3
Education Level	College	52	22.3
	Secondary	58	24.9
	Primary	55	23.6
	None	68	29.2
Occupation	House Wife	8	3.4
	House Made	17	7.3
	Sugarcane Cutter	10	4.3
	Home Guard	8	3.4
	Student	165	70.8
	None	25	10.7
Live With	Parent	160	68.7
	Guardian	43	18.5
	Husband/Wife	12	5.2
	Alone	18	7.2

Sexual and drug adherence characteristic

On sexual and ART adherence we find that there was high rate of sex at age group >18 years with 99(42.5%), followed by age group 16-18 years with 68(29.2%) and lastly age group 13-15 years with 0(0%). On drug adherence the adolescent had a good drug adherence of 86.3% which reduced the missed doses and missed clinical appointments in the last three months at 13.7% and 12.9% respectively as shown in table 2.

Table 2: Sexual and Drug adherence characteristic of adolescent living with HIV in Muhoroni sub county 2022.

Varibles		Frequency (N=233)	Percentage (%)
Ever Hard Sex	Yes	66	28.3
	No	167	71.7
Age At 1st Sex	13-15	0	0
	16-18	68	29.2
	>18	99	42.5
Art Adherence	Yes	201	86.3
	No	32	13.7
Missed Doses	Yes	32	13.7
	No	201	86.3
Missed Clinic Appointment	Yes	30	12.9
	No	203	87.1

Psychological factors leading to depression

On psychological factors leading to depression among adolescents there was higher prevalence of depression among females than males under all the PHQ-9 scores with 7 (3.0%) and 6 (2.6%) females having a depression of severe and moderate respectively as shown in table 3.

Table 3: Psychological factors leading to depression among the adolescent living with HIV in Muhoroni sub county 2022.

Phq-9 Score	Depression Severity	Gender	Frequency (N=233)	Percentage (%)
0-4	None-Minimal	Female	135	57.9
		Male	20	8.6
5-9	Mild	Female	9	3.7
		Male	1	0.4
10-14	Moderately	Female	39	16.7
		Male	11	4.7
15-19	Moderately Severe	Female	6	2.6
		Male	2	0.9
20-27	Severe	Female	7	3
		Male	3	1.3

Discussion

The study highlights that HIV-infected among adolescents is highly prevalent among females at 56.6% as compared to males at 46.4%, this study concurs with another study done in the USA which shows higher prevalence among females at 60% than males [12]. There was high prevalence of HIV at the age of 18 with 75(32.1%), followed by age 19 with 55(23.6%), age 17 with 39(16.7%), age 16 with 37(15.9%) and lastly age 15 with 27(11.6%). This shows a correlation between the increase in age and the increase in sexual desire, this study concurs with a previous study performed in Kisumu which shows increase prevalence with age increase [13].

The study also found that there was a high prevalence of HIV infection at the age of 18 years with 32.1%, followed by age 19 with 23.6%, age 17 with 16.7%), age 16 with 15.9% and lastly age 15 with 11.6%. This increased as per the age increase was due to exposure of the adolescent and increase personal demand leading them to sex for the exchange to their demands. This finding concurs with a previous study conducted in East Africa (Kenya) which revealed a high percentage of infection at the age group of 16-19 years old [13].

When we looked at education, there was a high prevalence of 68(29.2%) adolescents not going to school which may be due to lack of parent or guardian to offer educational support for them, followed by 58(24.9%) at secondary level, 55(23.6%) at primary level and lastly 52(22.3%) at college level. This finding concurs with a recent study done in east Africa both in Kenya [13] and Uganda [14], where the prevalence of pregnancy among adolescents shows that 60% and 58% adolescent girls were not going to school respectively. The early drop out of the school was found to be the main cause of early marriage among the adolescents in which out of the total number of the enrolled active adolescents in the study 25(10.7%) were married while 8(3.4%) were housewives, 17(7.3%) were house made, 10(4.3%) were sugarcane cutters, 8(3.4%) were home guard, 165(70.8%) were students and lastly 25(10.7%) have no occupation. This hard life style among adolescents often leads them into sexual activity before the right time. The study showed a high rate of sex was found at age group >18 years with 99(42.5%), followed by age group 16-18 years with 68(29.2%) and lastly age group 13-15 years with 0(0%) leading to unplanned pregnancy among the youths as seen on the previous study [13].

In looking at drug adherence, adolescents had a good drug adherence of 86.3% which reduced the missed doses and missed clinical appointments in the last three months to 13.7% and 12.9% respectively. Missed doses and missed clinical appointments may be due to lack of transport to the care center. In regards to the psychological factors, depression among adolescents has a higher prevalence among females than males with the PHQ-9 scores of 7(3.0%) and 6(2.6%) respectively. Females having a depression score of severe and moderate. This depression was higher in females than males potentially due to factors like early pregnancy among them A finding that conforms to a previous study [15] which shows high depression among the girl child youth.

Conclusion

A previous lack of well-powered randomized multimodal behavioral ART adherence interventions specifically targeting adolescents was not being addressed before. From this study, it can be concluded that a lot of counseling should be given to adolescents, more so on the risk of early marriage and unplanned pregnancy. As a lot of energy is emphasized on drug adherence, the same energy should also be put on psychological factors leading to depression in order to reduce the death rate among adolescents living with HIV.

Author declarations

Ethical consideration

As per ethical guidelines, all methods were carried out in accordance with relevant guidelines and regulations, informed consent was obtained from all subjects and/or their legal guardian(s). Confidentiality and privacy were strictly adhered to, and no names of individuals were recorded or made known in the questionnaire or reporting of information.

The ethical approval to conduct the study was sought from the Institutional Research Ethics Committee (IREC) at Moi University/Moi Teaching and Referral Hospital (MTRH) and from the ministry of health at both Kisumu county and Muhoroni sub county, Kenya level.

Availability of data and materials

All the data has been shared in the manuscript.

Competing interests

The authors declare that there are no financial or personal relationships that may have inappropriately influenced them in writing this article.

Funding information

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Authors' contributions

All authors contributed to this work, in which corresponding author SOA did the Conceptualization, data curation, formal analysis, investigation, methodology, resources, project administration, software, validation, visualization and writing original draft. While other authors RMM and CCM contribute to data curation, formal analysis, methodology, validation, visualization, supervision and writing review & editing.

Acknowledgements

The authors would like to thank the three data collectors, supervisor for the data collection and adolescent department members of Muhoroni county hospital, Nyangoma sub county hospital and Masogo sub county hospital for offering us with the data information required.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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