

# Psychosocial assessment of Ghanaian adolescent living with HIV using the HEADSSS assessment approach: A mixed methods study

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**BACKGROUND:** Adolescents living with HIV (ALHIV) face the dilemmas of adolescence combined with complex issues regarding living with a chronic and stigmatizing conditions. This study aimed at identifying the psychosocial stressors of ALHIV in Ghana and how these predict their overall quality of life.

**METHODS:** A mixed methods study was conducted among 98 ALHIV (80 and 18 respectively, for the quantitative and qualitative aspects), accessing antiretroviral therapy services at the Cape Coast Teaching Hospital, Ghana. Total sampling was used. Survey and in-depth interviews were used to satisfy the quantitative and qualitative demands, respectively. Both were guided by the HEADSSS psychosocial assessment tool- a structured clinical instrument that touches on the major areas of adolescent psychosocial stress and provides a useful screening profile. Quantitative data were analysed using the Stata version 13 software, while the qualitative data were analysed thematically using NVivo version 11.

**RESULTS:** A total of 52 (53.1%) constituted the younger ALHIV group who were within the ages 10-14 years while 46 (46.9%) were older ALHIV

between 15-19 years old. A majority of 48 (49.0%) had both parents alive while over a fifth (n=22, 22.5%) were total orphans. The study found a high psycho-social burden and a higher risk of mental health problems among ALHIV. Indicators for depression, as observed were mainly; unfavourable home situation, social isolation, body image disturbance and legitimate HIV diagnosis related fears such as stigma, dying young, and not being able to marry or have sexual relationships. Low level of sexual knowledge (29.9%) and the ability to negotiate the use of condom (14.3%), were also observed.

**CONCLUSION:** Our study has generated evidence of a greater psychosocial burden among Ghanaian ALHIV, with an associated threat to their quality of life and survival. This warrants a prioritized need to strengthen their psychosocial care.

**Key Words:** ALHIV; HEADSSS; Psychosocial assessment; Ghana

**List of Abbreviations and Acronyms:** AIDS: Acquired Immune Deficiency Syndrome; ALHIV: Adolescents living with HIV; ARVs: Antiretroviral drugs; ART: Antiretroviral Therapy; HEADSSS: Home, Education/Employment, Activities, Drug use/abuse, Sexuality, Safety, and Suicidality/Signs of depression; HIV: Human Immunodeficiency Virus; NACP: National AIDS/STI Control Programme; OI: Opportunistic Infections; PLHIV: Persons living with HIV; STD: Sexually Transmitted Diseases; UNICEF: The United Nations Children Fund; WHO: World Health Organization

## INTRODUCTION

The World Health Organization (WHO) has defined adolescents as persons between ages 10 and 19 years and adolescence as a transition period between childhood and adulthood marked by significant biologic and psychological changes that can be challenging or tumultuous (1). Adolescents, therefore, are developmentally at a difficult crossroad, negotiating a transition that can be marred with ill-health and the threat of death (2). These changes undermine sustained health focus particularly for those with chronic or life-threatening diseases (3). In particular, ALHIV face numerous unique and complex challenges such as long-term medication usage, fear of premature death and uncertainties surrounding being tagged with living with a highly stigmatizing diagnosis (4-7).

Decades into the HIV pandemic, there has been a significant increase in the number of ALHIV world-wide with the highest burden in Sub-Saharan Africa (SSA). In 2015, an estimated 1.8 million adolescents were living with HIV worldwide, out of which 1.4 million (80 percent) belongs to SSA (8,9). In Ghana, the HIV prevalence among young people aged 15-24 years group in 2016 was 1.1% (10). Effective management of the disease with antiretroviral therapy (ART) has been linked with improvements in survival. However, optimal management remains as a complicated course as many ALHIV experience denial about their status. Many also confront psychosocial issues such as poverty, sexually transmitted disease (STD), co-infection, abuse, mental ill health and substance use. The incidence of

non-compliance to the antiretroviral treatment regimen is increasing due to inadequate capacity to keep pace with the unique needs of this population (4,6,7). To be successful in providing care to ALHIV, such barriers need to be identified and overcome (7,8). Provision of high-quality medical care, with sensitivity to their developmental needs, will enable them to make the transition to healthy adulthood. Optimizing care for ALHIV, therefore, requires an understanding of their growth and developmental needs and factors that contribute to their psychosocial well-being (4,7,8).

Not much is known about the ALHIV situation in Ghana. There is also limited published literature on how the varied socio-cultural contexts of Africa in general, affect the socio-developmental needs of ALHIV4-7. Hence, an urgent need for a better understanding and enough evidence of the lived experiences, challenges and overall quality of life indicators of the Ghanaian ALHIV. This study, therefore, is aimed at identifying the psychosocial challenges of ALHIV and to determine how these predict their health maintenance and overall quality of life. The needed evidence generated from this study will guide policy and practice, particularly in the development of strategies for ALHIV, that will facilitate access to quality healthcare and enhanced quality of life.

## MATERIALS AND METHODS

### Study site and population

A mixed methods study was conducted among ALHIV assessing ART services

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at the Cape Coast Teaching Hospital (CCTH). All HIV positive clients aged 10-19 years seen at the ART clinic who consented or assented were included.

**Study design and data collection procedure**

The quantitative aspect involved the administration of a set of questionnaires to the ALHIV. The qualitative aspect involved in-depth interviews conducted among 18 ALHIV who were aware of their HIV Diagnosis. Both instruments were guided by the domains of the HEADSSS psychosocial assessment tool. The HEADSSS (a mnemonic for Home, Education/Employment, Activities, Drug use and abuse, Sexuality, Safety, and Suicidality/Signs of depression) is a structured clinical instrument that touches on the significant areas of adolescent psychosocial stress and provides a useful screening profile. It reveals the stresses that cause or contribute to physical and mental illness in adolescents (11,12).

Data were collected between June and September 2017 by the researchers and trained research assistants, who were all professional HIV counsellors. Following each in-depth interview, the researchers typed the detailed field notes directly into NVivo for coding at the end of each study day or the next day. Notes were translated into English from local languages where required.

**Data analysis**

The quantitative data was analyzed using Stata version 13 software. Qualitative data were analyzed thematically using NVivo version 11. A descriptive analysis and summary of the socio-demographic and relevant characteristics of the study population was done. P-values were used to compare the parameters among the adolescents based on t-test or chi-square test. Indexed coding was used to analyse data from the in-depth interviews. After transcription and familiarization with the transcripts and associated notes, transcripts were coded line by line. Themes were coded in the data according to the major topics in the interview guide. Data was then charted into a framework matrix using Nvivo software, where data interpretation took place.

**RESULTS**

**Socio-demographic characteristics**

A total of 98 ALHIV were recruited for the study (80 for quantitative group and 18 for the qualitative groups). The majority 52 (53.1) constituted the younger ALHIV group who were within the age range of 10-14 years while 46 (46.9) were older between 15-19 years old. Majority (n=56, 57.1%) were females, 48 (49.0%) live with their biological parent(s), while about a fifth (n=20, 20.4%) live with their older siblings. A majority of 48 (49.0) had both parents alive while over a fifth (n=22, 22.5%) were total orphans (Table 1).

For the in-depth interviews, 18 ALHIV participated, with the majority (n=13, 72.2%) being females and 16 (88.9%) within the age range 15-19-years-old.

**HEADSSS analysis**

**Home and education/employment of ALHIV**

In the quantitative survey, 40 younger ALHIV (83.3%) and 24 (75%) of the older ones felt that their home situation was comfortable or peaceful. A total of 11 (22.9%) vs. 6 (18.8%) of the younger and older ALHIV groups respectively felt that their caregivers were able to meet their needs most of the time (Table 2).

The in-depth interviews revealed a rather grim picture with most interviewees speaking of uncomfortable home situations mostly due to the death of both or a parent which resulted in moving them around among relative, as highlighted by the quotes below:

“I used to live in a family house at Koforidua with my grandma and other family members. Although my grandma treated me well, I was never happy. This is because an older cousin of mine was always shouting at me. One day, she used my HIV status to insult my late mother and me. I felt like dying and cried all night” (P17, female, 16 years).

“I live with only my mum in Takoradi. My dad is dead. My aunt (also in the house) gives us problems at home. She makes my mum cry. She’s always boasting that her children will be important people unlike me” (P16, Female, 16 years).

Concerning education, younger ALHIV in school were 97.9% (n=47) vs. 53.1% (n=17) of the older ones, with statistical evidence of a difference between the ages (p<0.0001). For those who miss school, there was a statistical evidence of a difference between the reasons for missing school (p=0.04) with 20 (42.6%) of the younger ALHIV losing because of illness

**TABLE 1**  
**Socio-demographic characteristics of ALHIV (N=98)**

Parameter	Frequency, N (%)
<b>Age</b>	
Oct-14	52 (53.1)
15-19	46 (46.9)
<b>Gender</b>	
Male	42 (42.9)
Female	56 (57.1)
<b>Educational level</b>	
None	3 (3.0)
Primary	51 (52.0)
Junior high school	24 (24.5)
Senior high school	14 (14.3)
Tertiary	6 (6.1)
<b>Religion</b>	
Christian	84 (85.7)
Moslem	14 (14.3)
<b>Residence</b>	
Rural	14 (14.3)
Peri-urban	69 (70.4)
Urban	15 (15.3)
<b>Who do you live with or provides for you?</b>	
Biological parent(s)	48 (49.0)
Older sibling	20 (20.4)
Other relatives/ extended family members	17 (17.4)
ALHIV him/herself	3 (3.0)
NGOs/Church/religious body	10 (10.2)
<b>Are your parents alive?</b>	
Both parents are alive	48 (49.0)
Only the mother is alive	15 (15.3)
Only the father is alive	13 (13.2)
Both are dead	22 (22.5)
<b>How many siblings do you have?</b>	
Mean (SD)	2.3 (±0.8)
0	6 (6.1)
1	16 (16.3)
2	44 (44.9)
≥ 3	32 (32.7)

while the main reason given by the older ones was the need to attend their routine clinic appointments (70.6%, n=12). Whether in school or not, 8 (16.7%) vs. 8 (25%) of ALHIV within the younger and older age groups respectively, were also engaged in some form of work.

During the interviews, most of the older ALHIV expressed being engaged in some form of “business” and seemed interested in talking about it, as seen below:

“I am in JHS 3. I sometimes sell liquid soap that my mother prepares. I am not paid but she uses the money to take care of me” (P05, Female, 17 years).

“I want to be a lawyer in future. I currently help my mom to sell provisions at the store” (P03, Female, 17 years).

**Activity, drugs, and safety among ALHIV**

Concerning activity, about a third (n=16, 33.3%) and (n=10, 31.3%) of the younger and older ALHIV respectively, said they had no friends. Majority of both the younger (n=23, 47.9%) and older (n=19, 59.4%) ALHIV also preferred watching movies/television or browsing the internet for leisure. The level of activity was not statically different between the younger and older ALHIV groups (Table 3).

Most ALHIV interviewed also did not seem to have an active social life or friends:

“I love to sleep during my leisure time... I use a phone, but it is not a smartphone, so I do not use any of the social media platforms. I have no friends” (P04, Female, 17 years).

I only sleep during my leisure. I have no friends (P11, Female, 20 years). I

**TABLE 2**  
Home situation, educational needs and associated challenges presented by age (N=80)

Parameter	Age (years)		p-value
	10-14 (n, %)	15-19 (n, %)	
<b>Home</b>			
How do you perceive your home situations?	N=48	N=32	
Peaceful/Comfortable	40 (83.3)	24 (75.0)	
Unfavourable/Overcrowded	7 (14.6)	7 (21.9)	0.7
No opinion	1 (2.1)	1 (3.1)	
Is there any situation in your home that makes you unhappy?			
Yes	9 (8.3)	9 (28.1)	
No	39 (81.3)	23 (71.9)	0.33
If yes, what makes your home stressful?	N=9	N=9	
Hostile family members	2 (22.2)	3 (33.3)	
Poverty/Lack of basic amenities	5 (55.6)	4 (44.4)	1
Caregivers are too strict	2 (22.2)	2 (22.2)	
Are your caregivers able to meet your basic needs?	N=48	N=32	
All the time	18 (37.5)	9 (28.1)	
Most of the time	11 (22.9)	6 (18.8)	
Sometimes	17 (35.4)	15 (46.9)	0.68
Not at all	2 (4.2)	2 (6.2)	
<b>Education/Employment</b>			
Do you go to school?	N=48	N=32	
Yes	47 (97.9)	17 (53.1)	
No	1 (2.1)	15 (46.9)	<0.0001
What is the relationship with other students like?			
They like me	30 (63.8)	9 (53.9)	
They don't like me much	10 (21.3)	6 (35.3)	1.00
No opinion	7 (14.9)	2 (11.8)	
Do you skip school?			
Never	10 (21.3)	7 (41.2)	
Most of the times	2 (4.3)	3 (17.6)	
Sometimes/occasionally	23 (48.9)	5 (29.4)	0.07
Rarely	12 (25.5)	2 (11.8)	
If you ever skip school, what is the commonest reason?			
Lack of finances	8 (17.0)	1 (5.9)	
Illness	20 (42.6)	3 (17.6)	0.04
During routine clinic attendance	19 (40.4)	12 (70.6)	
I don't feel happy at school	0 (0.0)	1 (5.9)	
Do you work?	N=48	N=32	
Yes	8 (16.7)	8 (25.0)	
No	40 (83.3)	24 (75.0)	0.36
Why do you work?	N=8	N=8	
To support my caregivers	6 (75.0)	2 (25.0)	
To take care of myself	2 (25.0)	4 (50.0)	0.18
To keep me busy/occupied	0 (0.0)	2 (25.0)	
What is the nature of the work that you do?			
Street hawking	7 (87.0)	2 (25.0)	
Sells at the market	1 (12.5)	5 (62.5)	0.04
Fishing/farming	0 (0.0)	1 (12.5)	

**TABLE 3**  
Activity, drug issues, safety/security among ALHIV

Parameter	Age (years)		p-value
	10-14 (n, %)	15-19 (n, %)	
<b>Activity</b>			
What do you often do with your free time?	N=48	N=32	
Physical games e.g. football	21 (43.7)	9 (28.1)	
Involved in youth clubs	0 (0.0)	1 (3.1)	
Involved in religious activities	0 (0.0)	2 (6.3)	0.12
Watching movies/TV/ Browsing the internet	23 (47.9)	19 (59.4)	
Reading/Listening to music	4 (8.3)	1 (3.1)	
Do you have friends that you hung out with?			
Yes	32 (66.7)	22 (68.7)	
No	16 (33.3)	10 (31.3)	0.84
<b>Drugs</b>			
Have any of your friends ever tried hard drugs, alcohol or smoke cigarette?	N=48	N=32	
Yes	3 (6.3)	12 (37.5)	
No	30 (62.5)	17 (53.1)	0.001
Do not know	15 (31.2)	3 (9.4)	
Have you tried any of these yourself?			
Yes	0 (0.0)	7 (21.9)	
No	48 (100.0)	25 (78.1)	0.001
If yes, what have they tried?	N=0	N=7	
Alcohol	0 (0.0)	6 (85.7)	

Cigarette	0 (0.0)	0 (0.0)	
Both alcohol and cigarette	0 (0.0)	1 (14.3)	
Other substances/hard drug	0 (0.0)	0 (0.0)	
How often do you use such substance(s)?			
Everyday	0 (0.0)	0 (0.0)	
Once a week	0 (0.0)	1 (14.3)	
More than once a week	0 (0.0)	0 (0.0)	
During special occasions/social gathering	0 (0.0)	6 (85.7)	
Why do you use them?			
When I feel lonely or hurt	0 (0.0)	0 (0.0)	
When I have to face a crowd	0 (0.0)	1 (14.3)	
When I have to learn for exams	0 (0.0)	0 (0.0)	
I just tried	0 (0.0)	6 (85.7)	
Where and with whom do you use them?			
At school alone	0 (0.0)	3 (42.9)	
At school with friends	0 (0.0)	2 (28.6)	
At home alone	0 (0.0)	0 (0.0)	
At home with friends	0 (0.0)	2 (28.6)	
At the club/social gatherings with peers	0 (0.0)	0 (0.0)	
	<b>Safety/Security</b>		
Do you usually feel safe at home?	N=48	N=32	
Yes	45 (93.6)	29 (90.6)	
No	3 (6.4)	3 (9.4)	0.68
Do you usually feel safe in the community?			
Yes	46 (95.8)	29 (90.6)	
No	2 (4.2)	3 (9.4)	0.38
Do you usually feel safe at school?	N=47	N=17	
Yes	47 (100.0)	17 (100.0)	
No	0 (0.0)	0 (0.0)	

have a best friend, but she is not aware of my condition (P05, Female, 19 years). I have one close friend, but he does not know of my condition (P07, Male, 17 years).

Concerning recreational drugs (alcohol, cigarette, and others), there was a significant association with age ( $p=0.001$ ), as 3 (6.3%) vs. 12 (37.5%) of younger and older ALHIV respectively, had a friend who has ever used any. Also, age was significantly associated ( $p=0.001$ ), with 7 (21.9%) of older ALHIV having tried any such substances, and none ( $n=0$ , 0.0%) younger ALHIV ever tried any.

Comments on the drug used, during the interviews, involved mainly alcohol use in social settings during the interviews as exemplified by the following quote:

“I used to take alcohol with my friends when we go clubbing or attend the pubs. My favourite is beer “origin.” My counsellor says the alcohol will not make the drug (ARV) effective. Also, the alcohol together with the drug will destroy my liver. It has not been easy for me. Sometimes, I break the rule and take a bottle or two” (P18, Male, 18 years).

All ALHIV of both age groups said they generally felt safe at home, the community and school (those in school).

#### Nutritional status of ALHIV

A total of 72.3% ( $n=34$ ) vs. 28.1% ( $n=9$ ) of younger and older ALHIV respectively, were found to have BMI suggestive of underweight classification ( $p=0.001$ ). A total of 17 (35.4%) vs. 9 (28.1%) of ALHIV in the age categories respectively felt they were too slim. None of the variables under nutritional status was statically different between the two groups (Table 4).

It was common to have comments during the interviews to support the idea that ALHIV felt they needed to gain weight;

“I feel small when I look in the mirror; I wish I were bigger than I look now. People laugh at me, but they do not ask why I look that small. I wish I could take drugs to make me big” (P09, Female, 16 years).

“I wish to gain more weight because I was a bit plump; I have lost so much weight now. If I get drugs to help me gain weight, I’ll gladly take them” (P06, Male, 19 years).

#### Suicidality/signs of depression among ALHIV

Most ALHIV felt they get adequate sleep and did not have any signs and

symptoms of depression. Contrary to this, those interviewed expressed sadness and even mental health problems relating to the effects of HIV diagnosis:

“I am sometimes sad because of how some family members treat me and also for the fact that I have HIV infection. Sometimes I fear that the same thing that happened to my mum will also happen to me. That is dying young of AIDS” (P17, Female orphan, 16 years).

“I get sad a lot, anytime I think about the disease and our poverty. Whenever I fall sick, I always think about suicide to end it all, but my grandmother says I should not think about it” (P12, Female, 20 years).

“I had a mental problem for some time, and I went on admission at the Ankaful Psychiatric hospital. I was told it was as a result of this same condition (HIV)” (P07, Male, 19 years).

There was a statistical difference between the younger and older ALHIV with regards to their specific fears ( $p=0.002$ ). Younger ones who expressed particular fear mainly related to stigma and discrimination, should others learn of their HIV status ( $n=9$ , 18.8%) and for older ones, fear of dying early ( $n=6$ , 18.8%), not being able to marry or have a boy/girlfriend ( $n=8$ , 25.0%).

#### Sexuality

Only 6 (12.5%) of younger ALHIV had ever received information about sex compared with 23 (71.9%) of older ones ( $p<0.0001$ ). A total of 14 (43.8%) older ALHIV have had sex with 3(21.4%) of them admitting that they had ever been pregnant or gotten a girl pregnant before. For those who had never had sex, the main reason among younger ALHIV is the fear of infecting others ( $n=40$ , 83.3%) whereas for older ALHIV not having a boy/girlfriend ( $n=7$ , 38.9%) and fear of infecting others ( $n=6$ , 33.3%) were the main reasons (Table 5).

The interviews revealed some additional details including exposure to sex information, sexual orientation, and views of condom usage and disclosure of status to sexual partners:

“I am sexually active and have many (multiple) sex partners, all men. I feel attracted to males and not females. I first had sex at age ten years with a man who was 18 years... I currently have four sexual partners, all males. We don’t always use condoms. I have not disclosed my HIV status to them, and I do not know of their status” (P18, Male, 18 years).

“I started having sex at age 14 years. I didn’t know about protection. I know about STIs now. Some of these are HIV, gonorrhoea, and syphilis. I have lost

**TABLE 4**  
**Eating pattern (nutritional status) and suicidality/signs of depression among ALHIV**

Parameter	Age (years)		p-value
	Oct-14	15-19	
<b>Eating Pattern/ Nutritional Status</b>			
Do you think you eat well?	N=48	N=32	
Yes	44 (91.7)	28 (87.5)	0.71
No	4 (8.3)	4 (12.5)	
How often do you eat in a day?			
Once a day	1 (2.1)	0 (0.0)	0.49
Twice a day	5 (10.4)	6 (18.8)	
Three times a day	40 (83.3)	26 (81.2)	
More than three times in a day	2 (4.2)	0 (0.0)	
How do you feel about your body?			
Right size	31 (64.6)	23 (71.9)	0.5
Obese/fat	0 (0.0)	0 (0.0)	
Too slim	17 (35.4)	9 (28.1)	
Body Mass Index (kg/m <sup>2</sup> )			
<18.5 (underweight)	34 (72.3)	9 (28.1)	0.001
18.5-24.9 (good)	12 (25.5)	20 (62.5)	
25.0-29.9 (overweight)	1 (2.1)	1 (3.1)	
≥30.0 (obese)	1 (2.1)	2 (6.3)	
<b>Suicidality/Signs of Depression</b>			
Do you think that you get enough sleep at night?			
Yes	40 (83.3)	26 (81.3)	0.81
No	8 (16.7)	6 (18.7)	
Do you feel tired often?			
Yes	13 (27.1)	10 (31.3)	0.69
No	35 (72.9)	22 (68.7)	
Do you skip food or have loss of appetite?			
Never	27 (56.3)	14 (43.7)	0.35
Sometimes	20 (41.7)	18 (56.3)	
Most of the times	1 (2.0)	0 (0.0)	
Have you ever had mental health problems?			
Yes	0 (0.0)	1 (3.1)	0.2
No	43 (89.6)	30 (93.8)	
Don't Know	5 (10.4)	1 (3.1)	
Have you ever had suicidal thoughts? Or sometimes wish you were dead?			
Yes	1 (2.1)	2 (6.3)	0.56
No	47 (97.9)	30 (93.7)	
Have you ever attempted suicide?			
Yes	1 (2.1)	0 (0.0)	1
No	47 (97.9)	32 (100.0)	
Do you feel depressed (deeply sad) sometimes?			
Never	31 (64.6)	16 (50.0)	0.24
Sometimes	16 (33.3)	16 (50.0)	
Most of the times	1 (2.1)	0 (0.0)	
What do you consider your worst personal fear/concern?			
Dying at an early age	3 (6.3)	6 (18.8)	0.002
Not being able to marry or have a boyfriend/girlfriend	2 (4.2)	8 (25.0)	
Stigma and discrimination should others learn of my diagnosis	9 (18.8)	1 (3.1)	
No specific fear	34 (70.8)	17 (53.1)	

contact with the girls I had sex with. I must have picked the HIV from one of them" (P02, Male, 17 years).

## DISCUSSION

The socio-demographic patterns of ALHIV in this study are consistent with that of a previous similar study in Ghana (7) and elsewhere in SSA13. In this study, the majority of participants respectively were females (51.9%), live with both biological parents (50.6%), while as much as about a fifth (24.7%) live with their older siblings. On the other hand, about a fifth (21.6%) were full orphans.

A critical issue observed in this study concerns HIV diagnosis related mental health impact among ALHIV. Already faced with the dilemmas

of adolescence combined with the complex issues regarding living with a chronic and stigmatizing condition, ALHIV are at risk of developing mental ill-health including anxiety disorders and depression, which could be worsened by indicators as observed in this current study. In our study, factors identified with depression included unfavourable home situation, body image concerns, and legitimate HIV diagnosis –related fears such as stigma, dying young, and not marrying or having a sexual relationship, underscoring the significant impact of mental health on ALHIV (13,14).

Regarding their home situation, almost equivocal responses were generated. The younger ALHIV felt their home situation was comfortable and that their caregivers met their needs mostly. Contrastingly, virtually all the older ALHIV in both the quantitative and in-depth interview groups felt otherwise. The death of both or a parent which results in moving them

**TABLE 5**  
**Sexual/reproductive health issues among ALHIV**

Parameter	Age (years)		p-value
	10-14 (n, %)	15-19 (n, %)	
<b>Sexual/Reproductive Health</b>			
Have you ever received information about sex?	N=48	N=32	
Yes	6 (12.5)	23 (71.9)	<0.0001
No	42 (87.5)	9 (28.1)	
What is your main source of information on sex?	N=6	N=23	
School/teacher	3 (50.0)	6 (26.1)	0.74
Internet	1 (16.8)	3 (13.0)	
Parent(s)/caregiver	0 (0.0)	3 (13.0)	
Healthcare provider	2 (33.3)	12 (52.2)	
Have you ever had sex?	N=48	N=32	
Yes	0 (0.0)	14 (43.8)	<0.0001
No	48 (100.0)	18 (56.3)	
If you have not had sex, what is the main reason?	N=48	N=18	
I do not want to get an STI.	0 (0.0)	2 (11.1)	<0.0001
I do not want to get pregnant or get my partner pregnant	1 (2.1)	3 (16.7)	
I do not have a boy/girlfriend.	2 (4.2)	7 (38.9)	
It is against my religion to engage in premature sex.	5 (10.4)	0 (0.0)	
I do not want to infect others	40 (83.3)	6 (33.3)	
How many partners have you had sex with in the last year?	N=0	N=14	
1	0 (0.0)	10 (71.4)	
2	0 (0.0)	2 (14.3)	
≥ 3	0 (0.0)	2 (14.3)	
How often do you or your partner use condoms during sex?			
Never	0 (0.0)	3 (21.4)	
Some of the time	0 (0.0)	5 (35.7)	
Most of the time	0 (0.0)	6 (42.9)	
If your partner refuses to use a condom, would be able to refuse sex.			
Yes	0 (0.0)	2 (14.3)	
No	0 (0.0)	8 (57.1)	
Not sure	0 (0.0)	4 (28.6)	
How confident are you about using condoms correctly?			
Very confident	0 (0.0)	2 (14.3)	
Somehow confident	0 (0.0)	9 (64.3)	
Not confident	0 (0.0)	3 (21.4)	

around among hostile relatives and inability for their needs to be met was the chief factors identified. Quality of life-related studies among the ALHIV has shown that unpleasant or unsupported home experiences greatly accounts for stress and non-compliance among such population and vice versa (15-18). An unfavourable home situation is as stressful as homelessness and in many instances, a precursor of "streetism" and associated vulnerabilities such as substance abuse (1).

Indicators for depression, as observed in this study, are suggestive of a higher likelihood of mental health problems especially among the older ALHIV, that may potentially persist into adulthood. Although most of both age groups reported feeling safe at home, the community and school, with adequate sleep and no signs and symptoms of depression, it was almost universal among interviewees to admit to feelings of sadness, fears and mental health problems. Majority of those who were aware of their HIV status expressed specific fears linked to the HIV diagnosis, which negatively impacted their quality of life. While the younger ALHIV expressed fears related to stigma and discrimination should others inadvertently know of their HIV status, the older ones expressed the fear of dying early, and not marrying or having a boy/girlfriend. These findings highlight the impact of these subjective perceptions on their daily lives and it is consistent with other studies, which also reported feelings such as fear, hopelessness in addition to HIV imposed restrictions on daily activities due to treatment regimens and prejudice (19,20).

Another critical concern observed relates to the dynamics of stigma effects such as social isolation resulting from the possibility of status exposure. Majority of the ALHIV not having social life or friends can be inferred from the above assertion. Those who had friends expressed that those friends did not know about their HIV status. This finding suggests that not only adults

living with HIV are likely to experience social isolation associated with the diagnosis, but ALHIV as well. In a similar study, Galanos and colleagues reported that the fear of stigma related prejudice, rejection, and social isolation justify the behavior of secrecy surrounding patients infected by HIV/AIDS and the silence about the HIV-positive status (20).

Another aspect of note is how ALHIV view themselves. Although they felt they ate well, the BMI for the majority of the ALHIV, notably the younger ones, suggested underweight classifications. The expression of body image disturbances relating to their nutritional status is a key stressor to this population and should not be taken trivially. Concerning their developmental stage, peer approval is key to their psychosocial development, and it is characteristic for most adolescents to present an identity that is considered acceptable by their peers within their specific socio-cultural contexts (19). In their pursuit of peer acceptance, most ALHIV is compelled not to be identified as "different" to avoid judgments and impaired interactions with others (21). When poorly managed, such experiences can lead to psychological distress. Therefore, ALHIV not having friends and not being happy about their current appearance pose a potential threat, which need to be addressed.

This study identified a positive attitude towards schooling among our cohort of ALHIV, which need to be encouraged. Majority loved being in school and expressed desires to further their education. The majority also expressed a good relationship with fellow students. These findings are contrary to that of a previous study, which reported that ALHIV perceived life in school as an embarrassing situation, with some not participating in activities whereas others had relationship problems, all primarily due to discriminatory conceptions (22). Our study also revealed two main reasons for school absenteeism: illness state and when school hours clashed with

routine weekday HIV clinic attendance. These findings suggest that school attendance is threatened by HIV routine weekday clinic appointments and is consistent with that of other studies (18,19).

Regarding their sexual and romantic relationships, the majority of the older ALHIV were sexually active, and a high rate of unprotected sex also noted. These observations are comparable to previous reports (22- 24). This pattern of unsafe sexual behavior among ALHIV has ramifications for national HIV control efforts as on-going transmission in a high-risk population also carries a potential for spread of drug-resistant viral strains (22). A significant proportion, notably, among the younger ALHIV demonstrated considerable gaps in sexual knowledge and safe sex practices. It is therefore not surprising that this study found a low rate of condom usage among the sexually active group. Also, only a few expressed confidences in using condoms correctly and negotiating for its usage during sex with a disagreeable partner. Our findings highlight the need for healthcare Providers (HCPs) to collaborate with teachers in providing adolescents with useful, relevant, and developmentally appropriate information that informs their sexual and reproductive health choices.

In contrast to previous studies, we did not find a high prevalence of substance abuse among either group (24-26). Concerning recreational drugs (alcohol, cigarette, and others); more of the older ALHIV reported having friends who have used any, about a fifth (21.9%) have ever tried any such substance, and none of the younger ALHIV reported Drug usage among those interviewed, was mainly alcohol intake during social events/gatherings. Age was significantly associated ( $p=0.001$ ) with substance use indicating that older ALHIV are more likely to use substances than their younger counterparts. Given the conceivable addictiveness of recreational substances and its effect on adolescent brain development and probable interaction with ARV's, HCPs must intensify preventive education and counselling and pre-empt potential harm.

### CONCLUSION

In conclusion, our study has revealed a greater psychosocial burden among ALHIV, with an associated threat to their survival. Addressing the predictors of psychosocial distress by strengthening the psychosocial care is, therefore, key to this population. The findings highlight the need for the National AIDS/STI Control Programme to strengthen the involvement and training of HCPs in the routine psychosocial assessment of ALHIV as well as provision of developmentally appropriate facilities and programs aimed at enhancing their quality of life.

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### AUTHOR'S CONTRIBUTIONS

- HBA: Conception of the research idea, study design, participant recruitment, data collection and analysis, drafting of the manuscript.
- ADA: Study design, qualitative data collection and analysis, manuscript writing.
- AE and BY: Development of the research concept, data analysis and manuscript writing.
- BI: Participant recruitment and questionnaire administration, data entry and analysis, manuscript writing.
- AAS: Study concept and a critical revision of the manuscript

- OYD: Development of the research concept and design, data collection and analysis, critical revision of the manuscript.

All authors read and approved the final manuscript

### CONFLICT OF INTEREST

The authors declare that they have no conflict of interests.

### REFERENCES

1. United Nations Population Fund (UNFPA). Women's empowerment and reproductive health: Links throughout the life cycle. UNFPA. 2000;pp:10-11.
2. Teaching and Learning. A guide for parents, teachers, and youth service providers. The Center for Adolescent health 2006. 2018.
3. Michaud PA, Suris JC, Viner R. The adolescent with a chronic condition: Epidemiology, developmental issues, and health care provision. World Health Organization: Geneva. 2007.
4. Folayan M, Odetoynbo M, Harrison A, et al. Addressing the socio-development needs of adolescents living with HIV/AIDS in Nigeria: A call for action. *Afr J Reprod Health*. 2014;18(3):93-101.
5. Folayan MO, Cáceres CF, Sam-Agudu NA, et al. Psychological stressors and coping strategies used by adolescents living with and not living with HIV infection in Nigeria. *AIDS & Behavior*. 2016;21(9):1-10.
6. Mutumba M, Bauermeister JA, Musiime V, et al. Psychosocial challenges and strategies for coping with HIV among adolescents in Uganda: A qualitative study. *AIDS Patient Care STDS*. 2015;29(2):86-94.
7. Enimil A, Nugent N, Amoah C, et al. Quality of life among Ghanaian adolescents living with perinatally acquired HIV: A mixed methods study. *AIDS Care*. 2016;28(4):460-4.
8. The United Nations Children's Fund (UNICEF). Turning the tide against AIDS will require a more concentrated focus on adolescents and young people. UNICEF. 2016.
9. World Health Organization (WHO). Strengthening the adolescent component of HIV/AIDS and reproductive health programmes: A training course for public health managers. WHO: Geneva. 2011.
10. National AIDS/STI Control Programme. 2016 HIV sentinel survey report. Ghana Health Services: Accra, Ghana. 2017.
11. Cohen E, Mackenzie RG, Yates GL. HEADSS, a psychosocial risk assessment instrument: implications for designing effective intervention programs for runaway youth. *J Adolesc Health*. 1991;12(7):539-44.
12. Goldenring JM, Rosen DS. Getting into adolescent heads: An essential update. *Contemporary Pediatrics*. 2004;21(1).
13. Bankole KO, Bakare MO, Edet BE, et al. Psychological complications associated with HIV/AIDS infection among children in South-South Nigeria, sub-Saharan Africa. *Cogent Medicine*. 2017;4(1):1372869.
14. Paula CC, Cabral IE, Souza IE. Existential movement experienced by adolescents with Acquired Immunodeficiency Syndrome: A phenomenological study. *Brazilian Journal of Nursing*. 2013;12(1):33-48.
15. Kardas-Nelson M. Adolescents living with HIV face complex psychosocial concerns: Require targeted, comprehensive services. *Child Development issues*. 2017.
16. Martinez J, Chakraborty R. The committee on pediatric AIDS. Psychosocial support for youth living with HIV: A clinical report from the American Academy of Pediatrics. *Pediatrics*. 2014;133(3):558-62.
17. Ferguson KM. Exploring family environment characteristics and multiple abuse experiences among homeless youth. *J Interpers Violence*. 2009;24(11):1875-91.
18. Mburu G, Ram M, Oxenham D, et al. Responding to adolescents living with HIV in Zambia: A social-ecological approach. *Child Youth Serv Rev*. 2014;45:9-17.
19. Menon A, Glazebrook C, Campain N, et al. Mental health and disclosure of HIV status in Zambian adolescents with HIV infection:

- Implications for peers-support programs. *J Acquir Immune Defic Syndr*. 2007;46(3):349-54.
20. Bortolotti LR, Spindola T, Taquette SR, et al. The meaning of living with HIV/aids in adolescence: A descriptive study. *Brazilian Journal of Nursing*. 2014;13(4):537-48.
21. Galano E, Turato ER, Delmas P, et al. Experiences of adolescents seropositive for HIV/AIDS: A qualitative study. *Rev Paul Pediatr Orgao Of Soc Pediatr Sao Paulo*. 2016;34(2):171-7.
22. Ribeiro AC, Padoin SM, Paula CC, et al. The daily living of adolescents with HIV/AIDS: Impersonality and tendency to fear. *Text Context Nursing*. 2013;22(3):680-6.
23. Tassiopoulos K, Moscicki AB, Mellins C, et al. Sexual risk behavior among youth with perinatal HIV infection in the United States: Predictors and implications for intervention development. *Clinical Infectious Diseases*. 2013;56(2):283-90.
24. Mellins CA, Tassiopoulos K, Malee K, et al. Behavioral health risks in perinatally HIV-exposed youth: Co-occurrence of sexual and drug use behavior, mental health problems, and nonadherence to antiretroviral treatment. *AIDS Patient Care STDs*. 2011;25(7):413-22.
25. Kaushik A, Pineda C, Kest H. Sexual behavior and knowledge among adolescents with perinatally acquired human immunodeficiency virus infection compared to HIV-uninfected adolescents at an urban tertiary center in New Jersey. *Int J Reprod Med*. 2016;7098027:1-5.
26. Elkington KS, Bauermeister JA, Santamaria EK, et al. Substance use and the development of sexual risk behaviors in youth perinatally exposed to HIV. *J Pediatr Psychol*. 2015;40(4):442-54.
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