Self-Esteem Assessment among Adolescents Living with HIV and Seeking Healthcare at Komfo Anokye Teaching Hospital-Kumasi, Ghana

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Abstract

Background: This study assessed the predictors of self-esteem among Adolescents Living with HIV (ALHIV) in Ghana seeking healthcare at Komfo Anokye Teaching Hospital. **Methods:** A cross-sectional study was employed in sampling 139 adolescents using a purposive sampling technique. Rosenberg's rating scale was used in assessing the self-esteem of the participants. **Results:** A total of 139 adolescents made up of 78 (56.12%) females and 61 (43.88%) males were recruited. Low self-esteem was reported among 66 (47.00%) of the adolescents. Adolescents aged 17-19 years (aOR = 2.97, 95%CI = 1.34-6.56, p = 0.007) were significantly associated with low self-esteem. **Conclusion:** The occurrence of low self-esteem among ALHIV was high and more pronounced among those in age cohorts of 17 to 19 years. Social support interventions designed which includes psychosocial support, life skills training, and avenue for discussing sexual and reproductive health matters could improve self-esteem.

Keywords

self-esteem, HIV and AIDS, adolescents, stigma, depression

Background

HIV/AIDS remains one of the world's most substantial public health challenges.[1] It is the leading cause of death among adolescents (10-19 years) in sub-Saharan Africa.[2,3] In Ghana the HIV prevalence is estimated at 1.7%.[4] The prevalence of adolescents aged 15-19 years is estimated at 0.7% in Ghana.[5] In the recent Ghana HIV reports by the Ghana Aids Commission (GAC), new HIV infections among 15-24 years accounted for 28.0% against 15.0% among children aged 0-14 years.[6] An increase in population of Adolescent Living with HIV (ALHIV) is likely to lead to a rise in the proportion of young people living with HIV[7] due to the risky sexual behaviour that occurs among adolescents.[8] A patient's well-being is influenced by several factors including psychosocial and environmental factors, current health status and response to treatment.[9] Adolescents whose HIV statuses are disclosed to them have difficulty accepting or coming to terms with their situation.[10]

Though some studies have established that youth living with HIV in sub-Sahara Africa struggle with depression, low self-esteem, stigma and social pressure, research focusing on mental and psychosocial wellbeing of ALHIV have been minimal.[11,12] There is the added challenge of HIV medication

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What Do We Already Know about This Topic?

The possible factors (age, social support, orphan-hood status and depression) which influence self-esteem are common among PLHIV in Ghana.

How Does Your Research Contribute to the Field?

Although previous studies on self-esteem have focused on adults, our study explored self-esteem among ALHIV and its associated factors.

What Are Your Research's Implications toward Theory, Practice, or Policy?

The findings from our study add to the evidence on the psychosocial effect of HIV on adolescents. This will serve as a basis for implementing Social intervention targeting ALHIV. Such interventions may serve as a source of peer and psychosocial support, life skills training and potential avenues for discussing sexual and reproductive health issues that will help improve self-esteem and promote health among ALHIV.

adherence among depressed adolescents. Studies by Thapar and colleagues found 90.7% of HIV-orphaned children to have history of both parents being HIV positive with about two-thirds of the children being double orphaned.[13,14] These context bound situations present challenging psychosocial health issues for adolescents, the principal among them being depressive symptoms.[15,16] In Ghana, an estimated 10,100 children acquired HIV perinatally in 2019.[17] There is high health burden on adolescents living with HIV (ALHIVs) and this affects their quality of life.[18] A study by Slogrove and Sohn (2018) attributed the rise of ALHIV to the fact that more peri/postnatally infected ALHIVs survive into older ages.[19]

The situation gets more worrying when in most cases no alternative living arrangements are made for these children regardless of knowledge of their diseased status.[20] Adolescents who find themselves in this situation face challenge with limited resource, stigma and discrimination, and uncertain future.[21,22] Despite these constrains, few studies conducted in Africa reporting on adolescents' wellbeing have paid attention to mental health in general and psychosocial distress of adolescents. The additional burden of facing a high risk sexual behaviour presents the situation as needing critical attention both in policy and practice circles.[23,24] This is more daunting for countries with generalized epidemics such as those in Southern Africa where HIV situation has had significant global attention.[25]

Depression and low self-esteem are psychiatric disorders which severely affect the health outcomes of adolescents. The outcome of depression of adolescents remains varied though few studies have been conducted in Ghana to examine its

incidence and predictors.[26-29] Previous studies have established the association of low self-esteem with depression. This could lead to worsening health outcomes though these studies have been conducted in regions with different contextual factors and trends.[30] Low self-esteem can reduce adolescents' quality of life resulting from mental health anxiety and depression.[31] Studies attempting to examine self-esteem and depression have focused on generalized population with little attention to assessing self-esteem levels of ALHIVs particularlly in Ghana. Understanding the self-esteem and depression context of ALHIVs offer an opportunity to policy makers towards designing and implementing psychosocial health improvement interventions. This study assesses the levels of self-esteem and possible associated factors among ALHIVs who seek healthcare at Komfo Anokye Teaching Hospital (KATH).

Methods

Study Setting

The study was conducted in KATH which is located in the Kumasi metropolis, the Regional Capital of Ashanti Region with a total projected population of 4,780,380.[32] KATH is a 1200 bed capacity hospital that serves as the main referral centre for the middle and the northern zones of Ghana. The adolescent HIV clinic operates under the confines of the Child Health Directorate. It was carved from paediatric HIV clinic in March 2011. The clinic runs on Mondays.

Study Design, Sampling and Participants

The study employed a purposive analytical cross-sectional study design conducted in a period of 5 months (October 2016 to February 2017). A purposive sampling technique was employed to recruit 139 ALHIVs. The study involved adolescent's (13-19 years) who have access to healthcare at the KATH adolescent clinic and have been informed of their HIV status for more than 6 months before the start of the study and consented and/or assented to participate.

Data Quality and Collection

Data for the study was collected using a pilot tested electronic questionnaire (Open Data Kit). The questionnaire was pilot tested at the Suntreso Government Hospital. The data was collected by trained research assistants with previous experience in data collection. For data completeness and eliminating discrepancies, a data manager routinely reviewed the data. To prevent bias of response or data, the research assistants interpreted every question in the local language (Asante Twi) to the adolescents. The study instrument (questionnaire) included information such as age, gender, educational level, sexual relationship, enrolled on health insurance, current health status, orphan-hood status, age at disclosure, persons involved in disclosure, condition being a hindrance to future aspiration, ARV medication adherence, social support system, depression status, physical appearance status and self-esteem (Rosenberg

self-esteem scale).[33] The interviews were conducted in a designated place in the health facility where the adolescent felt comfortable to express themselves.

Measurement and Data Analysis

Dependent/Outcome Variable

The outcome variable, "self-esteem" was assessed with the use of the Rosenberg self-esteem rating scale.[33] The scale has 10 questions with 4 Likert-type scale (0 = strongly agree, 1 = agree, 2 = disagree, 3 = strongly disagree).The first half of the questions evaluated positive feelings and the other half evaluated negative feelings. The score ranged from 0 to 30. Scores between 15 and 25 is categorized as normal self-esteem; scores within 26 and 30 is categorized as high self-esteem and a scores below 15, low self-esteem.

Predictor/Independent Variables

The predictor variables such as the socio-demographic characteristics, ARV medication adherence, depression status, social support systems, and physical appearance status of the adolescent were compared with the outcome variable, self-esteem (Normal or low self-esteem).

Socio-demographic characteristics consisted of age, gender, residential status, educational level, sexual relationship, and being enrolled on health insurance. Age was grouped and categorized into 2 ranges: 13-16 years and 17-19 years. Residential status was categorized into rural and urban; where an urban area was defined as towns or communities with 5,000 and above residents.[34] Educational level was categorized as primary, Junior High School (JHS) forms 1 through 3, which is equivalent to American grades; grade 7 through 9, Senior High School (SHS) forms 1 through 3, which is equivalent to the American grades 10 through 12 and tertiary comprising all post-secondary education including universities and colleges.[35] Sexual relationship was categorized as ever been in a sexual relationship or not. Sexual relationship was defined as adolescents who had ever had intimate relationship. Health insurance was categorized as being enrolled on National Health Insurance Scheme (NHIS) or not. The NHIS is a governmental health insurance that provide a broad range of health care services to Ghanaians.[36] ARV medication adherence was assessed using 8-item Morisky medication adherence scale (MMAS-8). Negative response for each item was coded as 1, except for the question asking if the patient took their medications yesterday (where a positive response was coded as 1). The total MMAS-8 score was calculated by summing the values from all the 8 question items. Adherent was defined as having a MMAS-8 score of more than 6 out of a total of 8. Depression status was assessed using 9 item Patient Health Questionnaire (PHQ-9).[37] The scores ranged from 0-27, scores <5, 5-9, 10-14, 15-19 and ≥20 were categorized as no depression, mildly depressed, moderately depressed, moderately severe depressed and severe depressed respectively. Any form of depression (mildly depressed, moderately depressed, moderately severe depressed and severe depressed) was grouped as depression.

Social support system was categorized as having social support, having social support at times and having social support all the times. Social support system was defined as institutions within the cultural setting that offer assistance in cash and/or in kind to persons in need. Current health status was categorized as sick, somewhat healthy and very healthy. Due to the subjective nature of current health status, in our study, we provided 2 options; being healthy (not having reported ill to the hospital for the past 6 months and not being healthy (having reported ill to the hospital at least once in the past 6 months). Physical appearance status was categorized as not at all satisfied, somewhat satisfied and very satisfied with way of looking in public.

The data was expressed in an excel format and imported into Stata/MP 12.0 for analysis. Descriptive statistical analysis such as mean standard deviation and frequencies were used to describe the study population. Inferential statistic was done in two stages. First, Chi-square and fishers exact test was done to find possible associated factors with self-esteem. A bivariate and multivariate logistic regression was done to measure the strength of association between the possible associated factors at 95% confidence interval. P value <0.05 was considered statistically significant. Also, to control for the effects of socio-demographic characteristics of the adolescent, in the multivariate logistic regression model, educational level, residential status and sexual relationship status were adjusted.[38-40]

Ethics Approval and Consent to Participate

Approval for the conduct of this study was obtained from the Committee on Human Research, Publications, and Ethics (CHRPE) of the Kwame Nkrumah University of Science and Technology (Reference number: CHRPE/AP/467/16) and the Research and Development Unit of Komfo Anokye Teaching Hospital. Written consent and assent were obtained for the adolescents after explaining the purpose of the study. Consents was obtained from adolescents within the ages of 18 and 19 years and both assent and consent were obtained from adolescents under 18 years and caregivers/parents respectively. No identifiers such as names and other personal information were collected.

Results

Socio-demographic Characteristics of the Adolescents

A total of 139 study participants were selected with more than half 71 (51.08%) being in their late adolescence as the majority 78 (56.12%) of the adolescents, lived in urban settlement. Among the adolescents studied, 67 (48.20%) had enrolled up to SHS level, 54 (38.85%) in the JHS level, 12 (8.63%) in the primary level and 6 (4.32%) enrolled in the tertiary level. A little over 1 out of every 10 adolescent 15 (10.79%) studied indicated being in sexual relationship. Subscription to the NHIS was reported among 134 (96.40%) of the adolescents with eight out of every ten 133 (81.29%) adolescents affirming

Table 1. Socio-Demographic Characteristics of the Adolescents.

Variables	Frequency (n = 139)	Percentage (%)
Age (years)		
13-16	68	48.92
17-19	71	51.08
Mean (SD)	16.55 (± 1.77)	
Gender		
Male	61	43.88
Female	78	56.12
Residential status		
Rural	13	9.35
Urban	126	90.65
Educational level		
Primary	12	8.63
Junior High School (JHS)	54	38.85
Senior High School (SHS)	67	48.20
Tertiary	6	4.32
Sexual relationship		
In sexual relationship	15	10.79
Not in sexual relationship	124	89.21
Health insurance		
Enrolled	134	96.40
Not enrolled	5	3.60
Current health status		
Very healthy	113	81.29
Somehow healthy	19	13.67
Sick	7	5.04
Parental (orphan-hood) status		
Both parents alive	53	38.13
Father dead	36	25.90
Mother dead	16	11.21
Both parents dead	34	24.46
Age status was disclosed		
8-10	28	20.14
11-13	72	50.80
14-17	39	28.06
Mean (SD)	12.48 (± 1.92)	
Person who disclosed child status		
Health providers	108	77.69
Parents	24	17.27
Other family members	6	4.32
Found out by self	1	0.72
Illness/condition hinders future aspiration		
Yes	21	15.11
No	118	84.89
ARV medication adherence		
Non-adherent	101	72.66
Adherent	38	27.34
Social support system		
Have social support	7	5.03
Have social support at times	90	64.75
Have social support all times	42	30.22
Depression status		
Depressed	37	26.62
Not depressed	102	73.78
Physical appearance status		
Not at all satisfied with way of looking in public	4	2.88

(continued)

Table 1. (continued)

Variables	Frequency (n = 139)	Percentage (%)
Somewhat satisfied with way of looking in public	13	9.35
Very satisfied with way of look in public always	122	87.77
Self-esteem		
Low self-esteem	66	47.00
Normal self-esteem	73	53.00

being very healthy. Six out of every ten adolescents studied 86 (61.87%) were orphans; 36 (25.90%) had lost their fathers only, 16 (11.51%) had lost their mothers with 34 (24.46%) having lost both parents. The mean age at which the adolescents were disclosed of their HIV status was 12.48 (± 1.92) years. A hundred and eight representing 77.69% of the adolescents had their status disclosed by healthcare providers whereas 24 (17.27%) had their status disclosed by their parents. ARV medication was adhered to by 101 (72.66%). More than a quarter 37 (26.62%) of the adolescents reported being depressed. (Table 1).

Self-Esteem of the Adolescents

Using Rosenberg Likert-type Self-esteem scale in assessing the self-esteem of the adolescents more than half 73 (53.00%) of the adolescents had normal self-esteem whereas 66 (47.00%) had low self-esteem and none of the adolescents had high self-esteem. (Table 1).

Predictors of Self-Esteem Among ALHIV

Self-esteem significantly differed with adolescents age (p = 0.001), sexual relationship (p = 0.008), parental status (orphan-hood) (p = 0.009), HIV infection being hindrance to their future aspiration (p = 0.02), and adolescents depression (p = 0.01). (Table 2).

Bivariate and Multivariate Analysis of Associated Factors with Low Self-Esteem

In the bivariate logistic regression, age (OR = 3.41, CI = 1.69-6.85, p = 0.001), sexual relationship status (OR = 5.19, CI = 1.39-19.29, p = 0.010) and parental status (Orphan-hood) (OR = 2.9, CI = 1.16-7.24, p = 0.020) had significant associations with low self-esteem. In addition, HIV infection being hindrance to future aspiration (OR = 0.30, CI = 0.11-0.84, p = 0.020) and depression (OR = 2.64, CI = 1.21-5.76, p = 0.020) were statistically associated with low self-esteem. (Table 3).

In the multivariate logistic regression, age and parental status (Orphan-hood) were statistically associated with low self-esteem. Adolescents within the ages of 17 to 19 years were 2.97 times more likely to experience low self-esteem compared to their counterparts (aOR = 2.97, CI = 1.34-6.56, p = 0.007).

Table 2. Association Between Self-Esteem and Potential Risk Factors.

Variables	Normal n (%)	Low n (%)	χ^2	P-value
Age (years)			12.22	<0.001*
13-16	46 (63.01)	22 (33.33)		
17-19	27 (36.99)	44 (66.67)		
Gender			1.03	0.31
Male	35 (47.95)	26 (39.39)		
Female	38 (52.05)	40 (60.61)		
Residential status			0.01	0.92
Rural	7 (9.59)	6 (9.09)		
Urban	66 (90.41)	60 (90.91)		
Educational status				0.47¥
Primary	7 (9.59)	5 (7.58)		
Junior High School	32 (43.84)	22 (33.33)		
Senior High school	32 (43.84)	22 (33.33)		
Tertiary	2 (2.74)	4 (6.06)		
Sexual relationship status			7.13	0.008*
In sexual relationship	3 (4.11)	12 (18.18)		
Not in sexual relationship	70 (95.89)	54 (81.82)		
Health Insurance status				0.67¥
Enrolled	2 (2.74)	3 (4.55)		
Not enrolled	71 (97.26)	63 (95.45)		
Current health status				0.59¥
Very healthy	59 (80.82)	2 (3.03)		
Somehow healthy	9 (12.33)	10 (15.15)		
Sick	5 (6.85)	2 (3.03)		
Parental (Orphan-hood) Status			11.61	0.009*
Both parents Alive	29 (39.73)	24 (36.36)		
Father dead	25 (34.25)	11 (16.67)		
Mother dead	9 (12.33)	7 (10.61)		
Both parents dead	10 (13.70)	24 (36.36)		
Age at disclosure			5.45	0.07
8-10	20 (27.40)	8 (12.12)		
11-13	36 (49.32)	36 (54.55)		
14-17	17 (23.29)	22 (22.33)		
Person who disclosed child status				0.61¥
Healthcare provider	58 (79.45)	50 (75.76)		
Parents	13 (17.81)	11 (16.67)		
Other family members	2 (2.74)	4 (6.06)		
Found out by self	–	1 (1.52)		
Illness/condition hinders future aspiration			5.69	0.02*
Yes	6 (8.22)	15 (22.73)		
No	67 (91.78)	51 (77.27)		
ARV medication adherence			0.56	0.46
Adherent	55 (75.34)	46 (69.70)		
Non-adherent	18 (24.66)	20 (30.30)		
Social support system				0.06¥
Have no social support	1 (1.37)	6 (9.09)		
Have social support at times	52 (71.23)	38 (57.58)		
Have social support all the times	20 (27.40)	22 (33.33)		

(continued)

Table 2. (continued)

Variables	Normal n (%)	Low n (%)	χ^2	P-value
Depression status			6.11	0.01*
Depressed	13 (17.81)	24 (36.36)		
Not Depressed	60 (82.19)	42 (63.64)		
Physical appearance status				0.16¥
Not at all satisfied with way of looking in public	1 (1.37)	3 (4.55)		
Somewhat satisfied with way of looking in public	4 (5.48)	9 (13.64)		
Very satisfied with way of look in public always	68 (93.15)	54 (81.82)		

*p-value significant at <0.05 ¥Fisher's exact

Also, adolescents whose fathers had not died had an increased odds of experiencing low self-esteem (aOR = 0.33, CI = 0.12-0.91, p = 0.030) compared to their counterparts. (Table 3).

Discussion

This study examined the depression and associated factors that influence self-esteem of ALHIVs. Half of the adolescents studied demonstrated low self-esteem levels. One out of every four adolescent studied considered himself or herself to be depressed. Though the study was conducted in a facility located in an urban location, with comparatively higher provision of psychosocial HIV adolescent care and specialized adolescent HIV care, higher depression symptoms were reported among adolescents. This is against the background that health services in Ghana are geographical skewed towards urban locations relative to skilled professionals for pediatric and adolescent HIV care.

Our present study illustrated the relationship between depression and HIV in adolescent. The presence of chronic disease is a significant disturbance in the mental, physical and psychosocial development of adolescents.[41] Low social support, dissatisfaction with physical appearance and lower height for age have been identified as factors leading to depression in adolescents. This finding is consistent with the study of Maria H Kim et. al where depression levels of adolescents were relatively lower (18.9%) as compared to our findings.[42]

The observation that female adolescents have lower self-esteem compared to males in this study is consistent with the generally gendered dimension self-esteem in the population. The feminine nature of HIV infection and its effects on the psychosocial development across the sub-Saharan Africa region has been documented.[43] This finding establish the correlation between gender and self-esteem. In general, males show a higher level of self-esteem relative to their female counterparts. It was therefore not surprising that 60.61% of females included in the study were found to have low

Table 3. Bivariate and Multivariate Analysis of Associated Factor on Self-Esteem.

Variable	OR (95%CI)	p-value	aOR (95%CI)	p-value
Age (years)				
13-16	1.00		1.00	
17-19	3.41 (1.69-6.85)	<0.001*	2.97 (1.34-6.56)	0.007*
Sexual Relationship status				
Not in sexual relationship	1.00		1.00	
In sexual relationship	5.19 (1.39-19.29)	<0.010*	3.63 (0.81 16.25)	0.090
Parental (Orphan-hood) Status				
Both parents alive	1.00		1.00	
Both parents dead	2.90 (1.16-7.24)	0.020*	1.66 (0.61-4.55)	0.320
Father dead	0.53 (0.22 -1.30)	0.170	0.33 (0.12-0.91)	0.030*
Mother dead	0.94 (0.30-2.90)	0.910	0.72 (0.21-2.45)	0.600
Condition being hindrance to future aspiration				
Yes	1.00		1.00	
No	0.30 (0.11-0.84)	0.020*	0.37 (0.11 -1.25)	0.110
Depression				
Not Depressed	1.00		1.00	
Depressed	2.64 (1.21-5.76)	0.020*	1.75 (0.68-4.54)	0.250

*p-value significant at <0.05 OR = odds ratio aOR = Adjusted odds ratio

self-esteem. This observation is consistent with findings from population based studies and other studies conducted in Nigeria, Kenya and other sub-Saharan African countries[44-46]

There was an observation that about 47% of the adolescents had low self-esteem. This is worrying, since in a study by Obare et al, in Kenya, 84% of ALHIV had fair to good self-esteem and about a tenth had very good self-esteem.[47] Their study found only 5% of these adolescents being of poor self-esteem. The observed difference could be as a result of multiple factors including the relatively low socioeconomic background, physical appearance orphan status and low access to social support survives in the study population. The reduced self-esteem therefore calls for a review of the social programs for ALHIV. These programs need to be tailored to the adolescent and the youth as this may increase their self-esteem. Obare et al, (2010) indicated that the support group programs which serve as a source of peer and psychosocial support, life skills training, and potential avenues for discussing Sexual and Reproductive Health information has helped improved the youth self-esteem and therefore called for an advancement of such interventions.[47]

There was an observation that parental death had significant association with low self-esteem in the multivariate analysis. The findings showed that adolescents who have lost their father had 67.00% reduced odds of having low self-esteem. This compares with the results of Erango and Abiso (2015) which found that losing a father had decreased odds of 67.90% of having low self-esteem. The findings further showed that adolescents who have both parents dead had increased likelihood of having low self-esteem.[48] This did not show significant association in the model but should be a matter of great concern since the effect on these adolescents could double. A similar observation was made in a study in Lesotho and Malawi which revealed that children living with HIV with their biological

parents dead were being maltreated by their foster parents.[49] These children living with HIV explained that they were abused to the extent that, they were served different meals (low quality), vehemently beaten, had little to no clothes and ultimately stopped from attending school. Lawan et al, (2015) also outlined a high rate of discrimination towards HIV infected adolescents who have lost parents to HIV.[50] The study revealed that a tenth of HIV discriminated adolescents responded to have been deprived from sharing common utensils with their siblings who were HIV negative. Ill-treatment towards this vulnerable sect extended to their respective school and further to their basic needs for survival. Loss of both parents further engage the older children in additional responsibility such as working to take care of the younger siblings.[22]

The next available option for these adolescents should have been their teachers. This other option also appears not to be working. Taukeni, in a review paper made an interesting observation. According to him, these orphaned adolescents lack the opportunities to experience a one-on-one emotional support from either a class teacher or a life skills teacher or a school counselor.[51]

This study also found that adolescents between the ages of 17 to 19 had significant association with low self-esteem. Adolescents in this age group are mostly in senior high schools where they spend most of their time with their peers and discuss number of issues concerning their health and future. Having to adhere to ARV medication with the fear of being noticed by their peers as having a condition like HIV could be a possible reason. This observation also can be compared to the finding of Vranda & Mothi, (2013) which suggested that children in their late adolescence become much concerned about their emerging sexuality and their wish of having their own families.[52] Again these individuals become much affected by the stigma of the disease by means of the unpleasant treatment

and isolation given them by their peers as well as their extended family members.[26]

Limitation of the Study

The authors did not assess sources of infection (that is whether sexually transmitted or perinatally infected) and how these factors affect the self-esteem of ALHIV. Although this was not considered in this present paper, future studies is expected to be designed to unearth this association. Regardless of this limitation, the paper serves as useful evidence in efforts to address HIV among ALHIV in resource limited setting like Ghana.

Conclusion

The occurrence of low self-esteem among ALHIV was high and more pronounced among those in age cohorts of 17 to 19 years. The increased proportion of HIV infected adolescents with depressive and low self-esteem symptoms demonstrates their dual vulnerability. The observed depression and low self-esteem has implication for the need to rethink Ghana's mental health policy implementation particularly for ALHIVs. Social support intervention targeting PLHIV within the middle and late adolescent stages (15-19 years) should be implemented. A combined social support intervention is anticipated to include psychosocial support, life skills training, and avenue for discussing sexual and reproductive health matters to improve self-esteem.

Abbreviations

AIDS: Acquired Immunodeficiency Syndrome; ART: Antiretroviral Therapy; HIV: Human Immunodeficiency Virus; UNAIDS: Joint United Nations Programme on HIV/AIDS; UNICEF: United Nations Children Emergency Fund; WHO: World Health Organization; KATH: Komfo Anokye Teaching Hospital; JHS: Junior High School; SHS: Senior High School; NHIS: National Health Insurance Scheme.

Authors' Note

EOA, JMD, FAO and SCYA conceptualized and designed the study. NKM and SFO designed and managed the tools for data collection. NKM and SFO analyzed and interpreted the data. FAO, SCYA, MOA and CMD drafted the initial manuscript and was subsequently reviewed by all authors. All authors approved the final manuscript and agreed to be accountable for all aspects of the work before it was finally submitted. Data supporting these findings of this study are available from the corresponding author.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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References

1. UNICEF. *HIV Statistics - Global and Regional Trends - UNICEF DATA*. 2020. https://data.unicef.org/topic/hivaids/global-regional-trends/. Accessed April 27, 2020.
2. World Health Organization. *WHO at AIDS 2018*. 2018.
3. UNICEF. Children, HIV and AIDS 2019 - UNICEF DATA. 2019. https://data.unicef.org/resources/children-hiv-and-aids-global-and-regional-snapshots-2019/. Accessed April 27, 2020.
4. Tading Economics. *Ghana - Prevalence Of HIV, Total (% Of Population Ages 15-49) - 1990-2019 Data | 2020 Forecast*. https://tradingeconomics.com/ghana/prevalence-of-hiv-total-per cent-of-population-ages-15-49-wb-data.html. Accessed November 21, 2020.
5. National AIDS/STI Control Programme, Ghana Health Service. HIV sentinel survey report 2015. *ASHA Lead*. 2016; 21(5):20.
6. Ghana AIDS Commisssion. *GHANA'S HIV FACT SHEET Sub-National Estimates*. 2019.
7. AVERT. *Young people, HIV and AIDS | Avert*. 2020. https://www.avert.org/professionals/hiv-social-issues/key-affected-populations/young-people. Accessed November 21, 2020.
8. Mhalu A, Leyna GH, Mmbaga EJ. Risky behaviours among young people living with HIV attending care and treatment clinics in Dar Es Salaam, Tanzania: implications for prevention with a positive approach. *J Int AIDS Soc*. 2013;16. Epub ahead of print 11 October 2013. DOI: 10.7448/IAS.16.1.17342
9. Fosu PK. Assessment of the Quality of Life of People Living with HIV/AIDS Receiving Anti-retroviral Therapy in the New Juaben Municipality. *UgspaceUgEduGh*, 2016. doi:197.255.68.203/handle/123456789/21610
10. The World Health Organization. *HIV and Adolescents From Guidance to Action*. 2014.
11. Mavhu W, Berwick J, Chirawu P, et al. Enhancing psychosocial support for HIV positive adolescents in Harare, Zimbabwe. *PLoS One*. 2013;8(7):1–9.
12. Nöstlinger C, Bakeera-kitaka S, Buyze J, Loos J, Buvé A. Factors influencing social self-disclosure among adolescents living with HIV in Eastern Africa. *AIDS Care*. 2015;27(1):36–46.
13. Thapar R, Singha M, Kumar N, et al. Clinico-Epidemiological Profile of Children Orphaned due to AIDS Residing in Care Giving Institutions in Coastal South India. *AIDS Res Treat*. 2019. Epub ahead of print 2019. doi:10.1155/2019/4712908

14. Guoping Ji, Li Li, Chunqing Lin, Sun S. The impact of HIV/AIDS on families and children -a study in China. *NIH Public Access* 2010; 21: 1–10.

15. Tomaszewski EP. *Human Rights Update HIV / AIDS AND HOMELESSNESS.* 2009

16. Wolitski RJ, Kidder DP, Pals SL, et al. Randomized trial of the effects of housing assistance on the health and risk behaviors of homeless and unstably housed people living with HIV. *AIDS Behav* 2010; 14: 493–503.

17. UNICEF. *Adolescent HIV prevention.* 2020. https://data.unicef.org/topic/hivaids/adolescents-young-people/. Accessed August 11, 2020.

18. 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 – Psychol Socio-Medical Asp AIDS/HIV* 2016; 28: 460–464.

19. Slogrove AL, Sohn AH. The global epidemiology of adolescents living with HIV: Time for more granular data to improve adolescent health outcomes. *Curr Opin HIV AIDS* 2018; 13: 170–178

20. Ayieko M. From Single Parents to Child-headed Households: The Case of Children Orphaned by AIDS in Kisumu and Siaya Districts. 2003; 1–30.

21. Petersen I, Bhana A, Myeza N, et al. Psychosocial challenges and protective influences for socio-emotional coping of HIV+ adolescents in South Africa: a qualitative investigation. In: *AIDS Care—Psychological and Socio-Medical Aspects of AIDS/HIV.* Taylor & Francis Group; 2010:970–978.

22. Nabunya P, Ssewamala FM. The effects of parental loss on the psychosocial wellbeing of AIDS-orphaned children living in AIDS-impacted communities: does gender matter? *Child Youth Serv Rev.* 2015;43:131–137.

23. Lowenthal ED, Bakeera-kitaka S, Marukutira T, Chapman J, Goldrath K, Ferrand RA. Perinatally acquired HIV infection in adolescents from sub-Saharan Africa. *Lancet Infect Dis.* 2014; 14(7):627–639.

24. United Nations Children's Fund. *Towards an AIDS-Free Generation: Children and AIDS Sixth Stocktaking Report.* 2013.

25. Idele P, Gillespie A, Porth T, et al. Epidemiology of HIV and AIDS among adolescents: current status, inequities, and data gaps. *Acquir Immune Defic Syndr.* 2014;66:S144–S153.

26. Asikhia OA, Mohangi K. A case study of school support and the psychological, emotional and behavioural consequences of HIV and AIDS on adolescents. *SAHARA J.* 2015;12(1):123–133.

27. Terrence Higgins Trust. *Self-confidence.* 2012. https://www.tht.org.uk/hiv-and-sexual-health/living-well-hiv/mental-health/self-confidence. Accessed November 21, 2020.

28. Castrighini CD, Reis RK, Neves LA, Brunini S, Canini SR, Gir E. Evaluation of self-esteem in people living with HIV/AIDS in the city of Ribeirão Preto, State of São Paulo, Brazil Autoestima em pessoas vivendo Com HIV/AIDS No Município De Ribeirão Preto, Estado De São Paulo, Brasil. *Texto Contexto-Enfermagem.* 2013;22(4):1049–1055.

29. Townsend MC. *Psychiatric Mental Health Nursing: Concepts of Care in Evidence-Based Practice.* 6th ed. 2009:1–924.

30. Orth U, Robins RW, Conger RD. Is low self-esteem a risk factor for depression? Findings from a longitudinal study of Mexican-origin youth. *Dev Psychol.* 2014;50(2):622–633.

31. Venzin E. *How Does Low Self-Esteem Negatively Affect You World of Psychology.* Psych Central; 2014.

32. Ghana Statistical Service. *2010 Population and Housing Census.* Var Issues; 2012;1117.

33. Rosenberg M. *Rosenberg Self-esteem Scale.* 1965.

34. Berry LB. *Ghana - Population - Urban-Rural Disparities*, http://countrystudies.us/ghana/35.htm. Accessed September 4, 2020.

35. Adu-Gyamfi S, Donkoh WJ, Addo AA. Educational reforms in Ghana: past and present. 2016;5(3):2334–2978.

36. Ghana G. *National Health Insurance Act (Act 650).* Government of Ghana Accra; 2003.

37. Oncology Nursing Society. *Instructions for Patient Health Questionnaire (PHQ) and GAD-7 Measures.* 2010.

38. Oncology Nursing Society. *Instructions for Patient Health Questionnaire (PHQ) and GAD-7 Measures.* 2010.

39. Betancourt TS, Meyers-Ohki SE, Charrow A, et al. Annual research review: Mental health and resilience in HIV/AIDS-affected children - A review of the literature and recommendations for future research. *J Child Psychol Psychiatry Allied Discip* 2013; 54: 423–444.

40. Rueda S, Mitra S, Chen S, et al. Examining the associations between HIV-related stigma and health outcomes in people living with HIV/AIDS: a series of meta-analyses. *BMJ Open.* 2016;6: e011453

41. Gómez-Rico I, Pérez-Marín M, Montoya-Castilla I. Diabetes mellitus tipo 1: breve revisión de los principales factores psicológicos asociados. *An Pediatr.* 2014;82(1):e143–e146.

42. Kim MH, Mazenga AC, Yu X, et al. Factors associated with depression among adolescents living with HIV in Malawi. *BMC Psychiatry.* 2015;15(1):264.

43. United Nations Programme on HIV/AIDS. *How AIDS changed everything—MDG6: 15 years, 15 lessons of hope from the AIDS response.* UNAIDS; 2015.

44. Bleidorn W, Arslan RC, Denissen JJA, et al. Age and gender differences in self-esteem–A cross-cultural window. *J Pers Soc Psychol* 2016; 111: 396–410.

45. Helwig NE, Ruprecht MR. Age, gender, and self-esteem: a sociocultural look through a nonparametric lens. *Arch Sci Psychol.* 2017;5(1):19–31.

46. Vreeman RC, Scanlon ML, Mwangi A, et al. A cross-sectional study of disclosure of HIV status to children and adolescents in Western Kenya. Tang JW, ed. *PLoS One.* 2014;9(1):e86616.

47. Obare F, Kwaak VD, Adieri B, et al. HIV-positive adolescents in Kenya. Access to sexual and reproductive health services. *Bull Dev Pol Pract.* 2010;(393):31–54.

48. Erango MA, Ayka ZA. Psychosocial support and parents' social life determine the self-esteem of orphan children. *Risk Manag Healthc Policy.* 2015;13(8):169–173.

49. Ansell N, Young L. Enabling households to support successful migration of AIDS orphans in southern Africa. *AIDS Care.* 2004; 16(1):3–10.

50. Lawan UM, Amole G, Gambojahun M, Eneabute J. Psychosocial challenges and adherence to antiretroviral therapy among HIV-positive adolescents attending an ART center in Kano, northwestern Nigeria. *Int J Med Sci Public Heal Online*. 2015; 4(10):1439–1445.

51. Taukeni SG. Orphan adolescents' lifeworlds on school-based psychosocial support. *Heal Psychol Behav Med*. 2015;3(1): 12–24.

52. Vranda MN, Mothi SN. Psychosocial issues of children infected with HIV/AIDS. *Indian J Psychol Med*. 2013;35(1):19–22.