

REVIEW ARTICLE

Risk perception of human immunodeficiency virus, acquired immune deficiency syndrome, and reproductive health education among among junior and senior high school students: A scoping review

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Chloe N. Alderson^{1*}, Ransford Aduah² and Traci L. Wells³

University of California, Los Angeles, USA¹; Royal Place Hospital, Kumasi, Ghana, Department of Obstetrics and Gynecology²; David Geffen School of Medicine, University of California, Los Angeles, USA³

*For Correspondence: Email: calderson27@g.ucla.edu; Phone: +843-271-7883

Abstract

This scoping review aims to identify studies that examine the existence and impact of HIV/AIDS education among high school-aged individuals in Ghana, underscoring the association of factors such as stigma and HIV/AIDS education. A robust literature review was conducted, where 23 studies were analyzed. From existing literature, it was clearly found that significant gaps in knowledge do exist, making younger populations more vulnerable to contracting HIV/AIDS. Additionally, it was found that there was a reluctance for healthcare workers to teach HIV/AIDS education in schools due to parents' fears of encouraging sexual intercourse. This reduces the opportunity for students to be taught accurate sexual education in school, increasing their vulnerability. To counteract this vulnerability, there must be a greater focus on sexual education in Ghana potentially stemming from more government funding as well as nonprofit interventions. It is clear that more research is needed to understand what specific curricula are being implemented in schools and to analyze their effectiveness in Ghana. (*Afr J Reprod Health* 2025; 29 [6]: 150-166).

Keywords: Reproductive health; education; HIV/AIDS; Ghana; young people

Résumé

Cette revue de la littérature vise à identifier les études examinant l'existence et l'impact de l'éducation au VIH/SIDA auprès des élèves du secondaire au Ghana, soulignant le lien entre des facteurs tels que la stigmatisation et l'éducation au VIH/SIDA. Une analyse documentaire rigoureuse a été réalisée, 23 études ayant été analysées. La littérature existante a clairement révélé d'importantes lacunes dans les connaissances, rendant les populations plus jeunes plus vulnérables au VIH/SIDA. De plus, il a été constaté une réticence des professionnels de santé à dispenser une éducation au VIH/SIDA à l'école, par crainte des parents d'encourager les rapports sexuels. Cela réduit les chances des élèves de bénéficier d'une éducation sexuelle adéquate à l'école, augmentant ainsi leur vulnérabilité. Pour contrer cette vulnérabilité, il est nécessaire de mettre davantage l'accent sur l'éducation sexuelle au Ghana, potentiellement grâce à un financement public accru et à des interventions à but non lucratif. Il est clair que des recherches supplémentaires sont nécessaires pour comprendre les programmes scolaires spécifiques mis en œuvre dans les écoles et analyser leur efficacité au Ghana. (*Afr J Reprod Health* 2025; 29 [6]: 150-166).

Mots-clés: Santé reproductive; éducation; VIH/SIDA; Ghana; jeunes

Introduction

Human Immunodeficiency Virus (HIV) Acquired Immunodeficiency Syndrome (AIDS) remains a public health concern with a significant global impact, most prominently in Sub-Saharan Africa. Although strides have been made towards combating the HIV/AIDS epidemic, there is still currently no cure for the disease. According to the World Health Organization, since the beginning of

the pandemic, over 42.3 million people have died from HIV/AIDS.¹ The epidemic disproportionately affects Sub-Saharan Africa, which has over two-thirds of the current 37.7 million people living with HIV/AIDS.² In Ghana, the prevalence of HIV/AIDS is 1.7%, meaning it is considered an epidemic in the country. Moreover, it was found that only 56% of infected individuals are aware that they have the disease, and only 34% of infected individuals have access to antiretroviral therapy (ART).³

While many tend to overlook the HIV/AIDS epidemic in Ghana due to its declining presence, the disease remains a public health concern. Among all regions of Ghana, the Eastern region has one of the highest prevalences of HIV/AIDS at 2.8%.⁴ To combat HIV/AIDS, the Ghana National AIDS/STI Control Programme has been distributing free condoms and confidential ART across the country.⁵ Additionally, to tackle the disease, there has been a focus on educating young people, individuals who are the most vulnerable, about HIV/AIDS. For example, in high schools across Ghana, reproductive health curricula, which include discussions about HIV/AIDS, have been implemented.⁶ However, the curricula are largely inaccurate or lacking in information, creating gaps in HIV/AIDS knowledge among young people and worsening the impact of the epidemic. For example, in one study analyzing reproductive health curricula in Ghana, it was found that 100% of the curricula had at least one problem, causing greater misconceptions among students.⁶ While many organizations, such as the Planned Parenthood Association of Ghana, have worked to improve HIV/AIDS education in Ghana, there is essentially no standardized curriculum for educating junior and senior high school students on HIV/AIDS in the country.⁷

In a junior high school, grade levels 7 through 9, more than 90% of students had reported learning about sexual and reproductive physiology, and over 70% of students indicated that they have learned about contraceptives and unexpected pregnancy.⁸ Moreover, 50% of the male students who learned about HIV prevention reported delaying their sexual debut to avoid the disease.⁸ Although, as in this junior high school, it has been found that individuals with education have a greater understanding of HIV/AIDS, there are still gaps in knowledge that exist, making some individuals less likely to take preventative measures against the epidemic.⁹ In fact, in a study analyzing young women's knowledge of HIV/AIDS in Ghana, only 14.5% reported using a condom at their last sexual intercourse.⁹ A lack of comprehensive health education can not only make individuals more vulnerable but can also increase stigma against people living with HIV/AIDS (PLHIV). In another study analyzing "students' perceived self-efficacy,

attitude towards and knowledge about HIV/AIDS," it was found that a lower investment in education directly correlates to a greater likelihood of stigma and discrimination against PLHIV.³ Moreover, as seen in Figure 1, a lack of HIV/AIDS education decreases knowledge of types of transmission and prevention of HIV/AIDS. This leads to stigma and discrimination, increasing embarrassment and isolating PLHIV. To prevent this dangerous chain of events, the focus must shift towards improving reproductive and sexual health education in Ghana. The purpose of this scoping review is to examine a) the existence and impact of HIV/AIDS education among high school-aged individuals in Ghana, and b) the association of factors, such as stigma, family dynamics, the media, and social environments, and HIV/AIDS education and risk perception. This thesis will delve into the impacts of HIV/AIDS education to identify where gaps in knowledge exist and to provide a foundation for intervention.

Methods

The Joanna Briggs Institute Manual for Evidence Synthesis outlined the methodology of our scoping review. Through this methodology, we performed a robust and systematic review of the literature.

Identifying relevant studies

To ensure that a sufficient number of sources were identified and reviewed, we searched three databases: PubMed, Embase, and Web of Science. After consulting a University of California Los Angeles research librarian to refine our search strategy, we decided on these three databases given their open access and high capacity of reproductive health sources. We used one separate search strategy on PubMed (Table 2), one on Embase (Table 3), and one strategy on Web of Science (Table 4) to ensure that we screened as many sources as possible on the topic of HIV/AIDS education in Ghana.

In our review, we only focused on studies that included the 15-18-year age group and that took place in Ghana. We did not restrict the publication date in order to gain a comprehensive understanding of HIV/AIDS education and how it has evolved in the last two decades. Our search engines focused on HIV/AIDS in Ghana, reproductive health education, and factors that

could enhance education, such as family and social support. On Covidence, we filtered our search results firstly through the abstract/title review and then through the full-text review to determine which studies meet the inclusion and exclusion criteria.

Study selection

We were focused on finding articles that either explicitly discussed the effectiveness of HIV/AIDS education in schools or those that revealed consequences, such as increased stigma, due to gaps in knowledge. There were no restrictions on the study design. To meet the inclusion criteria, articles had to a) be written in English, b) be based in Ghana, c) be focused on HIV/AIDS knowledge and education, d) include young adults ages 15-18. Articles that discussed stigma, risk perception, and social support as they relate to HIV/AIDS knowledge were included in the study. Exclusion criteria included articles that included participants of people living with HIV/AIDS. While we attempted to refine our search strategies to include schools, the results were limited and too specific. The results also included populations ages 15-18 who shared their opinions and knowledge about HIV/AIDS.

Charting and summarizing the data

The search results were imported from PUBMED/WEB OF SCIENCE/EMBASE into Covidence. The Covidence data management software generated our references. Two reviewers reviewed the articles.

Results

A total of 1214 articles were identified from the search strategies across all three platforms. When duplicates were removed, 852 articles were screened, and all titles and abstracts were read. After this initial review, 688 articles were excluded from the study, leaving 164 articles to be included in the full-text review. 23 articles were analyzed in this scoping review. Figure 4 highlights this methodology which was adopted from the PRISMA 2020 Flow Diagram for New Systematic Reviews, which included Searches of Databases and Registers Only.

Study characteristics

In the 23 studies included in this review, most participants were between the ages of 11-24, with a couple of studies also including older individuals (n=5). This allowed us to isolate our target population of 15-18-year-olds while also including studies with individuals who were a few years older and younger to gain a broad range of perspectives. Most of our studies included both males and females with the exception of three studies that focused solely on females. All of our studies were based in Ghana; however, four studies also included research from other African countries. Most of our selected studies were cross-sectional (n=18), meaning data was collected from multiple individuals at one point in time. The others are mixed method (n=1), longitudinal (n=1), and literature reviews (n=3). Our oldest study was published in 2003.

Overall, after analyzing our selected studies, we found that while HIV/AIDS education and knowledge do exist in Ghana, there are still significant gaps in knowledge in younger populations in the country. For example, in a study analyzing HIV/AIDS knowledge of female teens, it was found that 90% were aware HIV/AIDS could be transmitted through bodily fluids, emphasizing that some understanding of the epidemic does exist. However, in the same study of 260 senior high school girls, about 50% believed that a cure for HIV/AIDS also exists.¹² While this may seem like a simple misconception, it can be extremely dangerous. If a woman believes that a cure exists, she is less likely to be concerned about contracting the disease and will, therefore, be less likely to use protective measures, such as a condom, during sexual intercourse. In fact, in another study also focusing on young Ghanaian women, “only 14.5% [of respondents reported that they] had used a condom at their last sexual intercourse.”⁹ This small percentage could also be the result of power imbalances, where older partners could influence whether a condom is used or not, and is heightened by misconceptions in HIV/AIDS education mentioned above. Furthermore, several other misconceptions about the mode of transmission of HIV/AIDS also exist.

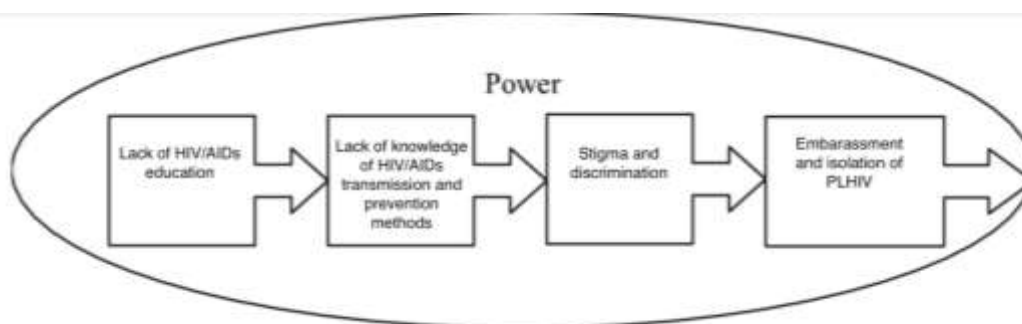


Figure 1: Adapted from Link & Phelan Model of Stigma¹⁰

Table 1: Characteristics of included research articles (N=23)

Author, Year, and Sample	Age and Gender	Origins	Design	Outcomes	Key Findings
Dzah et al., 2019 (n=294)	15-24; women and men	Ghana, Sekondi-Takoradi Metropolis	Cross-sectional	-Inadequate knowledge of HIV/AIDS -Stigma against PLHIV -Celibacy is common -Ethnic differences contribute to attitude and knowledge of HIV/AIDS -Younger populations had worse attitudes about HIV	-61.6% have a “good knowledge of HIV” -73.8% had never had sex before -41.5% use a condom regularly -57.5% said they would not eat out of the same bowl as a PLHIV -73.8% deny witchcraft as a cause -94.6% had never had an HIV test before -Muslims, 15-19 years old, had poorer knowledge of HIV
Stephenson, 2009 (n=4778) for study 1 Burkina Faso (n=3106) for study 2 Ghana (n=3571) for study 3 Zambia	15-24; women and men	Burkina Faso, Ghana, and Zambia	Cross-sectional	-Study 1 and 3: having more children → greater knowledge of HIV/AIDS -Study 2: media usage and health autonomy → greater knowledge of HIV/AIDS -Knowledge of family planning methods → increased knowledge of HIV	-Study 1: For males in Zambia, education is not correlated to HIV/AIDS knowledge. -Study 2: living in a community with higher levels of educational attainment → increased HIV/AIDS knowledge and lower levels of HIV/AIDS -Study 3: employed women have greater knowledge of HIV/AIDS
Asampong et al., 2013 (n=80)	Adolescents, parents, 18-35	Ghana, Somanya and Adidome	Cross-sectional	-Ethnic diversity leads to different parenting styles -Children had mixed emotions about speaking to their parents about sex -Teenage pregnancy	-Sexual activity starts at 25+ years in both communities -Adolescents think 20 years is the proper age for sexual activity to begin -Parents believe media exposes sex to minors -Sex education comes from

				linked to both reduced sex education and delinquency -Lack of listening to parents about when to be sexually active -Stigma exists	the family -Stigma around sex, considered “bad,” “spoilt,” or “disrespectful” if engaging in sex
Appiah-Ageyekum & Suapin, 2013 (n=260)	Female teens	Ghana	Cross-sectional	-HIV/AIDs knowledge is improving -HIV/AIDs transmission remains unclear -Female students were reluctant to use condoms -Some respondents believed HIV/AIDs could be cured → spiritual and herbal treatment -There should be more education and awareness campaigns about HIV/AIDs	-73.3% of respondents could correctly identify the meaning of HIV and AIDs -36.7% of the girls either were not sure or disagreed that the virus was transmissible -90% were aware that HIV/AIDs could be transmitted through bodily fluids -50% of the SHS girls believed that HIV/AIDs had a cure
Katey & Addo, 2020	15-24; men and women	Ghana	Literature review	-School and community-based approaches to tackling HIV/AIDs education adopted by the Ghana Health Service -Most youth are uncomfortable asking questions about sex in schools	-Social media, computer-based, and cyber-based interventions are recommended to improve education -These interventions will complement existing interventions by the Ghanaian health system
Opoku <i>et al.</i>, 2022 (n=342)	15+; men and women	Ghana citizens	Cross-sectional	-Male students had greater knowledge of HIV/AIDs than female students -Students scored high on self-efficacy but low on both attitude and knowledge about HIV/AIDs -Stigma against PLHIV exist -Sex education does exist	-Decreased investment in education → decreased knowledge → greater negativity toward PLHIV -Correlation between increased education and increased HIV/AIDs education -Attitude and knowledge → self-efficacy -Students were likely introduced to treatment, causes, and transmission methods of HIV/AIDs through school courses
Nketiah-Amponsah <i>et al.</i>, 2018 (n=9659)	15-49; women	Ghana	Longitudinal study	-Inadequate knowledge of HIV/AIDs exists -Age, pregnancy, and	-Only 40.3% of women had a comprehensive knowledge of HIV/AIDs -Education interventions

				secondary education → increased knowledge of HIV/AIDS -Wealth, Christianity, and marriage → increased knowledge in younger populations -Increased education campaigns	could be delivered through mobile phone -Interventions should be sensitive to all literacy levels -Formal education → a more comprehensive knowledge of HIV/AIDS
Leon et al., 2017, (n=9543) for study 1 Ghana	Women 15-49; men 15-59	Cameroon, Ghana, Kenya, Tanzania	Cross-sectional	-A negative linear effect of education on cases of HIV/AIDS exists -Public Health environments need to improve for education to become a social vaccine -Ghana sample: 23% with no education, 18% with incomplete and complete primary education, and 59% with some secondary or more education	-In Ghana, there is no statistically significant evidence to support the negative linear relationship between education and HIV/AIDS -Across all countries, education is evolving from being a risk factor to becoming more of a social vaccine -Greater focus on public health environment → increased efficacy of education
(n=10,172) for study 2 Cameroon					
(n=6173) for study 3 Kenya					
(n=10,733) for study 4 Tanzania					
Darteh, 2020, (n=1407)	15-24; women	Ghana	Cross-sectional	-Inadequate knowledge of HIV/AIDS exists -Younger women with secondary or higher levels of education and those from the Upper East Region → greater HIV/AIDS knowledge -The media and radio are efficient forms of HIV/AIDS education -In general, HIV/AIDS knowledge is relatively low among Ghanaian women	-22% of respondents had knowledge of HIV/AIDS -14.5% reported using a condom at their last sexual intercourse -Reduced media and radio usage → less knowledge of HIV/AIDS -Mass media campaigns could target the knowledge gap regarding HIV/AIDS that exists among young Ghanaian women

Kyilleh et al., 2018, (n=80)	10-19; girls and boys	Ghana, West Gonja District	Cross-sectional qualitative focus groups	<ul style="list-style-type: none"> -Lack of knowledge about reproductive health choices among adolescents → a reliance on peer education -Premarital sex and having multiple sex partners is normalized among adolescents -At-home abortion methods used → herbal plants and drinks -Reproductive health services exist but are not utilized due to stigma 	<ul style="list-style-type: none"> -Reproductive health services → increased use of condoms and contraception -Information comes from teachers, nurses, and mainly peers -Health workers can not speak at schools → school authorities think they want to encourage premarital sex -Beliefs that condoms are a waste of time → more STIs -Lack of patient confidentiality in reproductive health services deters adolescents
Halabi et al., 2013, (n=24)	N= 24 curricula: 7 school-based, 15 adult-based, 2 multi-purpose curricula	Ghana	Cross-sectional	<ul style="list-style-type: none"> -Factual errors, omitted information, and promotion of fear-based abstinence exist in current curricula -Information discussing condom usage and transmission methods is inaccurate or lacking -Greater funding for education programs 	<ul style="list-style-type: none"> -100% of school-based curricula have at least one problem -One presentation instructed that female and male condoms must be worn together -This curriculum puts the burden of infection on the women → increases stigma (EX: what clothes the female is wearing) -A focus on fear-based abstinence rather than protective measures
Nketiah-Amponsah & Afful, 2013	No sample size	Ghana	Literature Review	<ul style="list-style-type: none"> -A universal awareness of HIV/AIDs does exist; however, knowledge of the specifics of the virus is still limited -Knowledge of preventative methods is declining -Gender inequalities → differing knowledge levels of HIV/AIDs -An education intervention that targets women would be most effective 	<ul style="list-style-type: none"> -HIV/AIDs prevalence fell from 3.6% to 1.9% in 2007 → universal awareness -Condoms listed as a protection measure by women fell from 72.2% to 65.9% -Men tend to have more knowledge of the virus than women -84% of men heard about HIV/AIDs from the radio

Wolf et al., 2000 (n=632)	11-26; n=106 peer educators; n=242 male respondents; n=284 female respondents	Ghana	Cross-sectional	<ul style="list-style-type: none"> -A lack of communication about reproductive health exists -Respondents communicated with family members, friends, and teachers about reproductive health -Abstinence, condoms, and not sharing razors remain the three most common protection methods -The focus should turn toward peer education 	<ul style="list-style-type: none"> -13% felt comfortable talking to no one about reproductive health -44% and 42% indicated comfortability in family members and friends -12% talk to teachers about reproductive health topics -58% have not protected themselves against HIV/AIDS in the past three months -After implementing the peer educator program, 28% reported that they had heard of HIV from a peer educator
Oduro & Otsin, 2012	Analyzed 14-19; men and women	Ghana	Literature review	<ul style="list-style-type: none"> -Young people's perceptions of HIV/AIDS and the stigma associated with the disease were analyzed -Stigma exists: in one language, "ye yariba bon," which translates to AIDS is a bad disease, is spoken -Fear increases this stigma 	<ul style="list-style-type: none"> -Scary images, such as skeletons, are associated with AIDS -Mysterious diction, such as a "bag of bones," describing the disease exists → greater stigma and less awareness -Blame is not only placed on the infected individual but also on their loved ones
Finlay et al., 2020 (n=7116)	10-19; men and women	Burkina Faso, Ethiopia, Ghana, Nigeria, Tanzania, and Uganda	Cross-sectional	<ul style="list-style-type: none"> -Many adolescents lack basic knowledge of menstruation and STIs -Increased age → increased STI knowledge -Knowledge of HIV/AIDS is relatively high among employed and wealthier individuals -Increased sexual activity → increased awareness of HIV/AIDS 	<ul style="list-style-type: none"> -89.7% of respondents reported that HIV/AIDS exists -Knowledge of menstruation, other STIs, and reproductive health was relatively low across Africa -70% of 10-year-olds knew about HIV, while only 8.5% knew about other STIs -19-year-olds were 1.4 times more likely to know about HIV than 10-year-olds -Young students were more informed about reproductive health
Wowolo et al., 2022 (n=70)	12-18; men and women	Kumasi, Ghana	Cross-sectional	<ul style="list-style-type: none"> -Adolescents raised by single mothers → decreased stigma towards other children with HIV/AIDS -Types of parent or guardian and their gender → differences 	<ul style="list-style-type: none"> -17-18-year-olds had an external stigma score of 2.91, whereas 12-14-year-olds had a stigma score of 2.36 -Adolescents raised by single mothers have a 1.81 stigma score, whereas those raised by caregivers have a 2.06 score

				in stigma and social support factors -Age was associated with increased stigma -Adolescents raised by a caregiver of the same gender → increased social support scores	-Stigma beliefs are generally rooted in Ghanaian society → isolation of PLHIV
Ocran <i>et al.</i>, 2022 (n=31)	20 students 11-19; 10 school-based health coordinators ; 1 MSHEC; men and women	Lower Manya Krobo Municipality	Cross-sectional	-Conflicting policies and ambiguity in sexual policies → confusing sex education -Teachers and nurses teach “abstinence, being faithful, and condom usage.” -Increased discussion of power dynamics, gender differences, and stigma should be implemented	-HIV prevalence is twice the national average in this region (5.64%) -Many are uncomfortable with outside individuals visiting schools to discuss prevention methods -A lack of funding → fewer “organizations involved in school-based HIV education activities” -Teachers and nurses teach “abstinence, being faithful, and condom usage” with a religious focus
Afriyie & Essilfie, 2019 (n=706)	11-19; girls and boys	- Komenda-Egyafo-Abirem, Central Region Ghana	Cross-sectional	-An increase in sexual partners → an increased risk of contracting HIV/AIDs -Adolescents generally did not believe that they were at risk of contracting HIV -A greater understanding of HIV/AIDs is needed among adolescents in this area, potentially through an education campaign -Many do not believe condoms will protect them from contracting HIV	-27.7% of adolescents were sexually active -65.4% did not use a condom during their last sexual intercourse -37.2% had multiple sexual partners -20.5% believed they were at risk of contracting HIV -Rural and urban adolescents differed in their understanding of HIV (17.1% vs 24.6) -51.8% started having sexual intercourse before the age of 14
Owusu, 2015 (N=120)	9-13; women and men	Ghana, Cape Coast	Mixed-method	-All respondents had some knowledge of HIV/AIDs -Transmission methods were unclear: the majority of respondents refused to purchase vegetables from infected individuals -Respondents did not want HIV-infected	-35% of children identified their teachers as their primary source of HIV/AIDs information -16% indicated their parents being the most useful -23% identified mass media as their primary source -52% believed HIV could be contracted from a mosquito bite -47% believed HIV can be

				teachers to teach them -Respondents gained education from a variety of sources -An education intervention is recommended to reduce the stigma against PLHIV	transmitted through food sharing -73% did not disclose whether an individual in their family had HIV → stigma
Boonstra, 2017	12-19; women and men	Burkina Faso, Ghana, Malawi, and Uganda	Cross-Sectional	-Adolescent pregnancy occurs both within and outside of relationships -Many believe school-based sex education should occur in primary school and be mandatory and age-specific -Teachers need greater access to materials and training	-In Ghana, 47% of women ages 15-19 reported using contraceptive methods the last time they had sex -In Ghana, 52% of young people attend sex education classes or talks -In Ghana, 93% of young people believe sex education should be taught in schools -In West Africa, 21% of females reported having sex by the age of 15
Amo-Adjei & Darteh, 2023 (n=3517)	15-24; men and women	Ghana	Cross-sectional	-Increased education → decreased stigma and discrimination against PLHIV -Beliefs, religion, and myths can affect stigma -Increased condom usage → decreased stigma -Overall, women were more likely to show stigma than men	-Younger males (63%) and younger females (59%) had a higher likelihood of exhibiting stigma -86% of males and 81% of females without a formal education showed discrimination -For males, increased family income → decrease in stigma and vice versa for females -70% of males and 80% of females who did not identify with a religion expressed stigma
Tenkorang et al., 2021 (n=2982)	15-17, women and men	Ghana, Greater Accra, Brong Ahafo, and Northern Region	cross-sectional	-Females who learned about values and interpersonal skills delayed their sexual debut -The majority of respondents were Christian -Males and female youth in the Northern region delayed their sexual debut more than individuals from the other two regions -Male youth who learned about HIV	-25% of males had experienced sexual intercourse -Over 90% learned about sexual and reproductive physiology -Over 70% had learned about contraceptives and unintended pregnancy -50% of male youth who learned about HIV prevention delayed their sexual debut -Male youth who accepted myths about HIV transmission had a greater chance of engaging in sex

Wolf & Pulerwitz, 2003, (n=490)	11-26; women and men	Ghana	cross-sectional	prevention delayed earlier their sexual debut -Increased age → -Rural youth were twice as likely to speak to peers than urban youth communication with about -23% of respondents have no education or only some basic education -Geographic locations → differences in -31% of respondents had spoken to peers about reproductive health, 9% spoke to adults, and 19% spoke to both -Communication with peers → increased likelihood of -42% of individuals spoke to no one protection measures used against HIV -Individuals who spoke with peers about reproductive health were 2.81 times more likely to use condoms
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Table 2: PubMed

No.	Query Results	Results
#16.	#4 OR #15	464
#15.	#14 AND (#7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13)	295
#14.	#5 AND #6	2,090
#13.	("Awareness"[MAJR] OR "Health Education"[MAJR])	168,502
#12.	"Health Knowledge, Attitudes, Practice"[MeSH]	133,542
#11.	"Education"[Mesh] OR "educational support"	937,343
#10.	"Psychosocial Support"	6,697
#9.	"Family Support" OR "Family Assistance"	9,166
#8.	"Community Support"	3,494
#7.	("Social Environment"[Mesh] OR "social support" OR "social care" OR "Social Support System*")	189,986
#6.	("Ghana"[Mesh] OR "Gold Coast" OR Accra OR Kumasi OR Akan*)	41,773
#5.	("HIV Infections"[Mesh] OR AIDS OR "Acquired Immunodeficiency Syndrome" OR HIV OR "Human immunodeficiency virus")	576,059
#4.	#1 AND #2 AND #3	255
#3.	("ghana"[MeSH Terms] OR "ghana"[All Fields] OR "ghana s"[All Fields])	29,327
#2.	("health education"[MeSH Terms] OR ("health"[All Fields] AND "education"[All Fields]) OR "health education"[All Fields])	1,046,229
#1.	("curr opin hiv aids"[Journal] OR ("hiv"[All Fields] AND "aids"[All Fields]) OR "hiv aids"[All Fields])	183,955

Table 3: Embase

No.	Query Results	Results
#10.	#1 AND #2 AND (#3 OR #4 OR #5 OR #6 OR #7 OR #8)	284
#9.	#1 AND #2	3,893
#8.	'attitude to health'	140,210
#7.	'educational support'	2,080
#6.	'psychosocial support'	8,606
#5.	'family support' OR 'family assistance'	13,176
#4.	'community support'	4,751
#3.	'social care'/exp OR 'social support' OR 'social care' OR 'social support system*'	305,345
#2.	'ghana'/exp OR 'ghana' OR 'gold coast' OR accra OR kumasi OR 'akan (people)/exp OR 'akan (people)'	59,455
#1.	'human immunodeficiency virus'/exp OR 'human immunodeficiency virus' OR 'acquired immune deficiency syndrome'/exp OR 'acquired immune deficiency syndrome' OR 'hiv infections'/exp OR 'hiv infections' OR 'aids'/exp OR aids OR 'acquired immunodeficiency syndrome'/exp OR 'acquired immunodeficiency syndrome' OR 'hiv'/exp OR hiv	1,186,903

Table 4: Web of Science

No.	Query Results	Results
#15.	(#4 OR #14)	466
#14.	#13 AND (#7 OR #8 OR #9 OR #10 OR #11 OR #12)	192
#13.	(#5 AND #6)	2280
#12.	TS=(“Health Knowledge” OR “Awareness”)	456587
#11.	TS=(“Education” AND “Educational support”)	1214
#10.	TS=(“Psychosocial Support”)	6937
#9.	TS=(“Family Support” OR “Family Assistance”)	13139
#8.	TS=(“Community Support”)	4999
#7.	TS=(“social environment” OR “social support” OR “social care” OR “Social Support System*”)	147222
#6.	TS=(“Ghana” OR “Gold Coast” OR Accra OR Kumasi OR Akan*)	47175
#5.	TS=(“HIV Infections” OR AIDS OR “Acquired Immunodeficiency Syndrome” OR HIV OR “Human immunodeficiency virus”)	1240998
#4.	(#1 AND #2 AND #3)	308
#3.	ALL=(Ghana)	72652
#2.	ALL=(Health Education)	1407443
#1.	ALL=(HIV AIDS)	189479

In a mixed-methods study in Cape Coast, Ghana, focusing on 9-13-year-olds, it was found that 52% of respondents believed HIV could be contracted from a mosquito bite, 62% believed HIV could be transmitted through witchcraft, and 47% believed HIV could be transmitted through food sharing.¹³ These misconceptions stem from a lack of knowledge directly correlated with inadequate curricula, as 35% of the students identified that their teachers are their main source of HIV/AIDS

information. Moreover, in a similar study, it was found that young people in schools “were more likely to know about menstruation, HIV, and STIs other than HIV.”¹⁴ When asking young people about HIV/AIDS education, “93% of young people believe sex education should be taught in schools.”¹⁵ While this is the belief of many young people, adults, such as school administrators, are often wary of allowing teachers or health workers to speak about reproductive health in schools.¹⁶

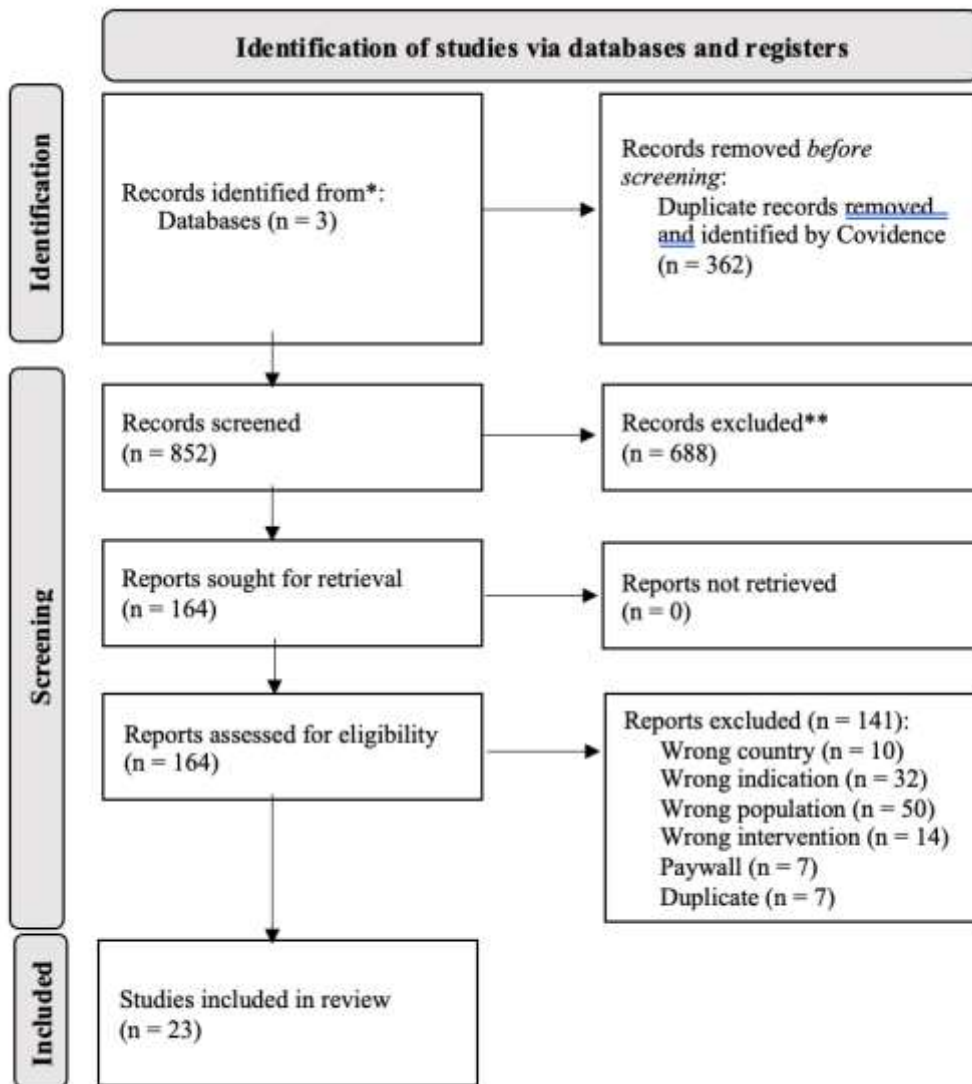


Figure 2: Adopted from the PRISMA 2020 Flow Diagram for New Systematic Reviews which Included Searches of Databases and Registers Only¹¹

They believe discussing these topics is inappropriate because it encourages premarital sex. While abstinence can be focused on in sex education curricula, many people think that preventative measures should also be taught in schools for individuals who do not abstain from having sexual intercourse.¹⁷ Additionally, if school administrators and parents are uncomfortable with outside healthcare workers teaching their children about reproductive health, many believe that the teachers at the schools instead should be equipped with better training and quality materials to discuss

these topics.¹⁵ It is the overall general belief that reproductive health should be discussed in schools; however, issues arise when implementation strategies are discussed.

In a study that analyzes reproductive health curricula in Ghana, a significant amount of inaccurate information was found in the materials. For example, when discussing condom usage, one of the presentations on female condoms cautioned that both male and female condoms be worn together.⁶ Additionally, information about HIV/AIDS transmission is minimal. While

statements like “unprotected sex with an infected partner can transmit HIV” are present, there is no specific focus on prevention methods.⁶ This is likely because most curricula focus on abstinence instead of preventative measures to discourage students from participating in sexual intercourse, leading to a lack of discussion around protective measures. Overall, it was found that 100% of the curricula had at least one problem, making students more vulnerable to contracting the disease.⁶ To help eliminate HIV/AIDS in Ghana, there must be a greater focus on the presence and quality of reproductive health education. Perhaps this education could be standardized nationally so it does not vary from school to school, leading to inaccurate information. While significant cultural barriers exist to this education, a happy medium that allows for some reproductive health education to be taught in schools can be reached.

Discussion

The purpose of this scoping review is to research the existence and impact of HIV/AIDS education among high school-aged individuals in Ghana and to understand the association between factors such as stigma, family dynamics, the media, and social environments, and HIV/AIDS education. Our findings indicated that misconceptions about HIV/AIDS exist and stem from a lack of quality reproductive health education.

In the study involving only women 15 to 24 years old above, a correlation was found between the frequency of watching television and listening to the radio and having accurate knowledge of HIV/AIDS.⁹ When understanding the root cause of an epidemic, it is critical to understand where knowledge about a disease comes from outside the education system, especially in a country where education is not guaranteed. In Ghana, many individuals learn about HIV/AIDS through the television or radio. In fact, in a literature review, it was found that 75.7% of women and 84% of men had heard about the disease from the radio broadcast. While the focus should be on improving reproductive health education in schools, support factors, such as accessibility to television, could also be enhanced when working to tackle the HIV/AIDS epidemic through education. This

scoping review provides evidence that supports the necessity of spreading accurate information about HIV/AIDS in Ghana and validates television and the radio as potential sources of education.

When understanding why there is a lack of HIV/AIDS education in Ghana, we must also analyze the barriers that exist to this education. Stigma towards people living with HIV/AIDS and about the disease itself serves as a significant barrier to education in Ghana. In a literature review analyzing 14-19-year-old men and women, several stigmatizing statements were used, including “as for AIDS, it is only bad people who cannot control themselves and open their pants everywhere who get it,” and “ye yariba bon” or AIDS is a bad disease.¹⁸ As emphasized in Figure 1, when negative labels, like “bad,” are used to describe PLHIV and HIV/AIDS itself, PLHIV feel embarrassed and are isolated from society. This discrimination and stigma results in individuals being less inclined to research and learn about HIV/AIDS. This review intends to correlate support factors and stigma with current reproductive health education and curriculum to understand the disconnect in HIV/AIDS knowledge in Ghana, adding to existing literature. This scoping review provides evidence of the importance of spreading accurate HIV/AIDS information, revealing how crucial it is to end this stigma.

The current literature also suggests that peer HIV/AIDS education could be a promising addition to teacher-to-student education. After implementing a peer educator program where HIV/AIDS information is shared through peers, 28% of interviewed people reported they had heard of AIDS in the past 30 days from a peer educator.¹⁹ The program clearly revealed how peers can have a significant influence on education. Furthermore, family was also found to have an impact on reproductive health education. In the same study, 44% of individuals interviewed reported speaking to their family members about reproductive health, specifically HIV/AIDS.²⁰ Support does not have to only come from education in schools, and in Ghana, there could be a greater emphasis on peer and parental HIV/AIDS education to prevent the spread of the disease. Given previous literature has underscored the effectiveness of a peer educator program, a similar approach could be introduced to

Junior and Senior High Schools in Ghana in order to combat the disease. Additionally, there are other organizations in Ghana, such as The Alliance for Reproductive Health Rights, that have focused on educating the youth about reproductive health.²⁰ Perhaps, these organizations could work hand-and-hand to implement a peer educator program in schools in Ghana.

This thesis serves to focus on a significant epidemic, HIV/AIDS, in Ghana that is underrepresented in the current literature. Through this scoping review, it was revealed that there is a clear lack of literature and research on HIV/AIDS education in junior and senior high schools in Ghana. Factors such as stigma, the media, and social environments were also analyzed to identify where the disconnects in HIV/AIDS knowledge are, providing a backdrop for improving the reproductive health education system in Ghana.

Implications for public health

In regard to public health, there must be a greater focus on a communal effort to combat HIV/AIDS through reproductive health education. In previous literature, it was found that while many individuals have indicated that HIV/AIDS is discussed by teachers and administrators in schools, there is a focus on abstinence instead of other protection methods against STIs.¹⁷ Inevitably, some students will choose to have sexual intercourse, so it is extremely important to emphasize other preventative measures in addition to abstinence. In the same article, it was noted that “when outside people come into the school, they talk about the protective measures.”¹⁷ If there is a greater emphasis on community efforts, such as encouraging nurses and healthcare workers to speak in schools about HIV/AIDS, there will likely be an increase in health education and disease awareness. Moreover, previous literature also underscores that there are “no organizations involved in school-based HIV education activities due to lack of funding.”¹⁷ Perhaps the government could set aside funding for this cause, as again, an improvement in public health is not only rooted in the willingness of healthcare workers to speak in schools but also in the government’s ability to emphasize education in fighting the HIV/AIDS epidemic in Ghana.

Social implications for education

Socially, there must also be a greater emphasis on the normalization of sexual health education being discussed in schools. Understandably, many parents are against this education because they do not want their children to be encouraged to have sexual intercourse. However, as a result, these parents are preventing their children from understanding the disease and protecting themselves. As mentioned above, many students believe reproductive health should be taught in schools, and we must listen to these students when deciding whether or not to teach specific topics regarding sexual health. In fact, these are the individuals who are at the greatest risk of contracting the disease. Given these students are almost adults, it is pertinent that they are taught proper reproductive health education to protect themselves. However, it is also important not to overlook the importance of tradition and culture in Ghanaian society. This is often the reason for parents’ reluctance to allow their children to listen to sexual health discussions. These cultural traditions must be respected, and a happy medium can be reached when discussing reproductive health education, potentially through pre-approved, age-specific curricula.

Limitations

This research has limitations. Given the broadness of a scoping review, there is an inherent bias in selecting research articles compared to a systematic review. Additionally, most of the studies included in this review follow a cross-sectional methodology. This limits the research’s ability to track reproductive health education over time, as cross-sectional studies focus on a group of people at one specific time. This could have an effect on the types of implications that are focused on in this study. While two central implication themes are highlighted, this review could absolutely have more implications than those discussed in this paper. While there were no restrictions on publication date in our search strategy, given the research was conducted in December 2024, some newly published articles may be missing from this review. These limitations mean that this scoping review does not cover completely all research regarding

reproductive health education involving HIV/AIDS in Ghana

Conclusion

Through this scoping review, we analyzed the literature that delved into reproductive health education with a focus on HIV/AIDS knowledge among Ghanaian students. We conclude that more research is needed on sexual education curriculum and disease awareness in junior and senior high schools from both the student and teacher points of view. This will inevitably underscore the importance of sexual health education and further identify support factors.

Additionally, we recommend that more organizations spend time in schools educating students about reproductive health and, more specifically, HIV/AIDS. This education should include but is not limited to discussing transmission methods, preventative factors, and the existence of stigma and discrimination. Education is not the only solution to the HIV/AIDS epidemic; however, it is one that, with continued effort and determination, can truly make a difference in the lives of young people as they mature into adults.

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Authors contributions

Chloe N Alderson wrote, organized, and designed this review. Dr. Ransford Aduah and Dr. Traci Wells oversaw the execution of this paper, providing meaningful recommendations and preparing the manuscript for publication. All authors listed in this paper approve the manuscript

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