

Role of Sexual Risk Behaviors and Sexual Attitude in Perceived HIV Vulnerability Among Youths with Disabilities in Two Nigerian Cities

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Abstract The role of sexual attitude and sexual risk-behavior in the perception of HIV-vulnerability and differences among youths with disability and able-bodied youths was investigated. The cross-sectional survey included purposively selected youths with visual, hearing and physical impairments ($n = 181$) and able-bodied youths ($n = 181$ as comparison group) with mean age of 23.75 years in public institutions. Data was gathered with the use of a 44-item questionnaire which included a Braille version. Analysis included descriptive, cross-tabulation, and 2X2 ANOVA. Sexual risk behavior is related and has influence on perceived HIV-vulnerability in both groups, while sexual attitude did not. Youths with disability who have liberal sexual attitude and high score in sexual risk-behavior reported the highest perceived HIV-vulnerability. Visually-impaired participants perceived a higher level of HIV-vulnerability compared to the hearing and physically impaired. Health care planners should consider sexual risk behavior in improving perceived HIV-vulnerability in both impaired and able-bodied populations.

Keywords Perceived HIV-vulnerability · Youths with disability · Sexual attitude · Sexual risk-behavior · Nigeria

Introduction

Despite the billions of dollars spent over the past three decades in curtailing the Human Immune Deficiency Virus (HIV), the spread of the virus and its negative consequences remain a threat to the human race. Extensive HIV/AIDS-related research has been conducted among able-bodied populations to the neglect of people living with disabilities [1] as if they are asexual or immune to HIV. Disabilities do not necessarily preclude potentials for sexual attraction, whether heterosexual or homosexual [2] considering the background

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of existing literature evidence [3] that sexual attitude and expression is a characteristic of both challenged and able bodied people. There is some controversy over differences between able bodied and challenged people in their perception of HIV vulnerability. Further, the role of psychological factors in such possible differences remains poorly understood.

Perceived vulnerability to HIV/AIDS is the subjective belief or possibility of contracting HIV. Also referred to as perception of risk of HIV/AIDS, it is an individual's subjective perception of being infected by the HIV [4]. According to Do and Meekers [5], perceived HIV/AIDS vulnerability forms the basis of HIV/AIDS risk avoidance behavior. Risk avoidance behaviors follow a strong disinclination to take risks. They include conscious or unconscious actions taken to avoid participating in specific risk-laden behaviors. Further, several factors have been linked to perceived HIV/AIDS vulnerability including reflection on risk [6]. Reflection on risk means careful thought on risk, especially the process of reconsidering previous actions, events, or decisions. Demographic variables such as age and gender [4], as well as psycho-social factors which include knowledge of HIV/AIDS, sexual risk behavior and attitude towards sexual practices [5, 7, 8] have also been related to perceived HIV/AIDS vulnerability.

Perceived HIV/AIDS vulnerability could be explained in the light of existing theories. Cognitive-behavioral and social learning theories as well as health belief model posit that self-protective changes in behavior is as a result and reflection of individual's risk perception [4, 9]. This implies that human behavior is shaped by the level of associated risk because people always put side by side risk possibilities of their behaviors before attempting such behaviors. The Health Belief Model (HBM) provides explanation for health related behaviors by assuming that an individual's perceived vulnerability to a disease, perceived severity of the condition, possible benefits of preventive behavior and barriers to carrying out such preventive behaviors influence an individual's health related behavior [10, 11]. Health related behaviors mean an action taken by a person to maintain, attain, or regain good health and to prevent illness. It includes: exercising regularly, eating a balanced diet, and obtaining necessary inoculations. Adopting these behaviors is rather systematic than spontaneous, involving different cognitive stages [6].

Some studies have been conducted earlier on perceived HIV susceptibility. But before 2004, almost no research exists that focuses on HIV/AIDS and disability in Africa [1]. Brooks et al. [12] observed that unprotected vaginal sex were less likely to be reported among people with high perceived HIV vulnerability, indicating a relationship between sexual attitude and HIV vulnerability. Ward et al. [4] found that participants who engaged in some risky sexual activities such as unprotected sex with commercial sex workers perceive themselves as being at low risk of contracting HIV/AIDS. This irrational perception or belief is against personal safety and employs denial techniques. Ndubani et al. [13] reported in a survey of young Zambian men that while the vast majority of them (91 %) perceived themselves to be at risk of HIV infection and 86 % knew that condoms could reduce the risk of HIV, only 27 % used condoms consistently. Do and Meekers [5] found that more women (36.5 %) than men (26.8 %) perceived themselves as being at risk of HIV/AIDS infection as a result of sex with multiple partners.

There is evidence that sexual debut among people with disabilities is earlier than the general population, with the former reporting first sexual experience at age 14 as against 16.5 in the general population [14]. In a study in Kenya and Cameroon, it is shown that people with disability engage in sexual behaviors that are risky such as multiple partners, exposure to sexual violence (rape) and unprotected sex (without condom). Thirty-four percent of people living with disabilities reported non-condom usage. Concerning multiple

sexual partnership among Cameroonian participants, majority (54.3 %) of the women were involved, while 53 % of the men were involved [15, 16]. Kendi et al. [17] reported high risk perception of HIV/AIDS among 25 % of visually impaired students compared to 18 % among sighted students. The high perceived HIV/AIDS vulnerability among this group was associated with fear of rape, sexual abuse and other sexual molestations, exploitation and inability to negotiate safe sex [17, 18]. Low condom use was reported among the deaf in Cameroon, with 24 % in men and 10 % in women [19]. Additionally, many studies support that sexual violence, poverty and cultural practices are related to increased HIV vulnerability [18, 20, 21].

In the 36 empirical studies reviewed by Hanass-Hancock [7], only five were carried out in Nigeria with the highest i.e. 12 from South Africa. It could be observed that comparative and quantitative studies on sexual behavior of people in this group in Africa in the context of HIV/AIDS are either few or not available. It is against this background that this study aims to investigate the sexual attitude and sexual risk behavior of youths with disability as they affect their vulnerability to HIV/AIDS employing comparative analysis techniques. It is also to further expand literature in this area and enrich the knowledge of people with disability with regards to their sexual attitude, behaviors and perceived HIV/AIDS vulnerability. The present study therefore intends to answer the following questions:

1. Is there any significant independent and interactive influence of sexual attitude and sexual risk behavior on perceived vulnerability to HIV/AIDS among Youths Living with Disability (YWD)?
2. Is there any relationship between perceived vulnerability to HIV/AIDS, sexual attitude and sexual risk behavior among YWD?
3. Is there any significant difference between YWD and comparison group on perceived vulnerability to HIV/AIDS?

Method

The comparative survey adopted a cross-sectional design. The independent variables are sexual attitude and sexual risk behavior. The variables were considered at two levels, yielding a 2X2 factorial combination. The dependent variable is perceived vulnerability to HIV/AIDS.

The study took place in government institutions that have a mixture of People Living with Disability (PLWD) and people without disabilities (comparison group) in two cities, i.e. Ibadan and Oyo, South West, Nigeria. These institutions have a fairly balanced combination of youths with and without disabilities. The major inhabitants of the study location are called *Yorubas*, the second largest ethnic group in Nigeria [22]. Youths with disabilities i.e. the blind, deaf and physically challenged were compared with youths in the institutions without any obvious disability as controls. They were purposively selected from the list of youths in the institutions.

The protocol for the study was duly reviewed and ethical permission received from the State Ministry of Health Ethics Committee. Youths with disabilities were required to fulfil eligibility criteria including:

1. Living with a disability i.e. either deaf, blind or physically challenged. Physical impairment or disability is a short or long term limitation on a person's physical

- functioning, mobility, dexterity or stamina. Examples include; cerebral palsy, spinal cord injury, amputation, etc.
2. Currently registered with any of the following institutions as a student, or trainee, i.e. the Federal College of Education (Special), Oyo; The State Rehabilitation Centre for the Disabled, or the Cheshire Home for the Disabled in Ibadan.
 3. English literate or able to read the English Braille research questionnaire and consent form.
 4. Expression of autonomous desire (informed consent) to participate.
 5. Confirmed by the instructor or class teacher to be between 16 and 30 years old. The comparison group i.e. youths without disabilities in these institutions were also expected to fulfil conditions 2, 3, 4, and 5 above.

Following discussions on the scientific and ethical validity of the study, approval to have access to the participants was obtained. Subsequent discussions about the study were held with potential participants, while research assistants with special trainings in the areas of sign language and Braille facilitated communication with the deaf and the blind respectively.

Twenty-nine visually impaired youths in the institutions accepted, fully-completed, and returned the questionnaires. In a similar manner 112 youths with hearing impairment as well as 40 physically challenged youths also participated. Thus, all the 181 YWD who expressed their willingness were purposively selected. In order to make comparisons; for the number of YWDs participating in each institution an equal number of youths without disability were systematically selected, making a total of 362 participants. Similar sampling method and sample size were adopted in similar local and foreign studies [23–25].

Instruments

A 44-item structured self report questionnaire divided into Sections A to D was used to collect data. Section A contains 6 items seeking information on participants' bio-data. Section B contained the 7-item questionnaire assessing Perceived Vulnerability to HIV/AIDS, adapted from Koopman and Reid's [26] work. It has a 5-point response rating scale of strongly agree to strongly disagree. Sample items include: "There is a good chance I will get HIV/AIDS during the next 5 years", and "I am worried that I might get infected with HIV". A high score on the scale indicates high level of perceived vulnerability to HIV/AIDS, vice versa. The authors reported a Cronbach alpha reliability coefficient of 0.86, and a mean of $\bar{X}=25.60$ [27]. A revalidation of the scale yielded Cronbach alpha of 0.91; split half reliability of .87 for part one, and .76 for part two, indicating that the scale is very reliable in measuring perceived vulnerability to HIV/AIDS among YWD in Nigeria; while a Cronbach alpha of 0.83 was reported among normal youths. To establish norms, mean score of $\bar{X}=14.56$ and $SD = 6.5$ was reported among YWD while a mean of $\bar{X}=11.24$, and $SD = 5.41$ were reported in the normal population.

Section C contained the 25-item Sexual Attitude Scale developed by Hudson et al. [28]. The authors reported a reliability coefficient of 0.92. Sample items include: I think pre-marital sex may be a sign of a decaying social order. Score on the scale range between 0 (very liberal orientation) to 100 (very conservative orientation). A revalidation of the scale yielded Cronbach alpha of 0.74; $\bar{X}=72.38$ and $SD = 11.23$ for normal population and Cronbach alpha of 0.72; $\bar{X}=70.01$ and $SD = 11.82$ for YWD. The reliability for all the participants shows Cronbach alpha of .73, $\bar{X}=71.20$; $SD = 11.50$; $n = 362$.

Section D developed by Lawal and Olley [29] was adopted to measure Sexual Risk Behaviors. It has 6 items measuring response on 4 point likert scale ranging from “Always” = 4, “Sometimes” = 3, “Occasionally” = 2 and “Never” = 1 respectively. Sample items include: I had sex with someone more than one time apart from my primary partner without condoms in the last 3 months. The scale has reliability coefficient (Cronbach) of .82. The revalidation of the scale shows Cronbach alpha of 0.84; SD of 3.0 and means \bar{X} =7.48 for normal population and Cronbach alpha of 0.83; while among YWD, a means \bar{X} =14.56 and SD = 6.5 were observed. The reliability of the scale among the participants was; Cronbach alpha = .83, \bar{X} = 8.61; SD = 3.912 and n = 362. An individual’s score above the mean in each of these research scales was adopted as cut off points to dichotomise the levels of each of the variables measured by the respective scales as reported above.

Data collection was done through the administration of questionnaires in the schools selected for the study. In every school visited the letters of introduction and ethical approval were presented to the school authorities. Thereafter the researchers met the class teachers and prospective participants with the help of the research assistants. Questionnaires were given to consenting participants, allowed to read through the documents, complete the questionnaires and return same directly to the research assistants within 2 days. Data obtained from the field were coded, entered into the computer using SPSS 17. Both descriptive and inferential statistics were adopted with calculations done at 0.05 level of significance. Descriptive and inferential statistics including 2X2 ANOVA, LSD post hoc analysis, and correlation were used in analyzing the data.

Results

Following data analysis, the following results were obtained and presented in Tables 1, 2, 3, 4, and 5.

Table 1 shows that of the 181 YWD, 112 were hearing impaired (61.9 %), 40 were physically challenged (22.1 %), while 29 (16.0 %) were visually impaired. Their ages ranged from 16 to 25 years with mean age of 20.3 years. Participants’ gender shows that, 105 (58 %) were males while 76 (42 %) were females. In terms of marital status, 169 (93.4 %) were single, while the remaining 12 (6.6 %) were married. About the comparison group, 117 (64.6 %) were males while 64 (35.4 %) were females. Their ages ranged from 16 to 30 years with a mean age 24.5 years.

Table 2 reveals that among YWD, participants who have liberal sexual attitude and high score in sexual risk behavior reported the highest mean (\bar{X} =18.91, SD = 5.56, n = 11); meaning that they perceived that they are highly vulnerable to HIV and in possible danger of contracting the disease. However, those with conservative sexual attitude and low sexual risk behavior reported far lower mean score on perceived vulnerability to HIV (\bar{X} =13.93, SD = 6.77, n = 82); meaning that they perceived lesser risk of contracting HIV.

Compared with the able-bodied group, Table 2 indicates that participants with conservative sexual attitude and high sexual risk behavior reported the highest mean on perceived HIV vulnerability (\bar{X} =13.50, SD = 6.87, n = 14); while participants with conservative sexual attitude and little involvement in sexual risk behavior reported the least score on perceived HIV vulnerability (\bar{X} =10.32, SD = 6.03, n = 72). This implies that able-bodied youths with conservative sexual attitude and high sexual risk behavior

Table 1 Descriptive statistics table showing the demographic characteristics of participants (YWD and control) and mean score on perceived HIV vulnerability

Youths with disability					Comparison group			
Variables	<i>n</i>	(%)	\bar{X} on HIV/AIDS vulnerability	SD	<i>n</i>	(%)	\bar{X} on HIV/AIDS vulnerability	SD
Age								
16–20	148	81.8	14.47	6.50	38	21	12.68	7.63
21–25	33	18.2	15.00	6.77	67	37	9.93	3.83
26–30	–	–	–	–	76	42	11.64	5.02
Gender								
Male	105	58	14.73	6.51	117	64.6	11.74	5.38
Female	76	42	14.33	6.61	64	35.4	10.30	5.31
Religion								
Christianity	116	64.1	15.44	6.73	143	79	11.47	5.54
Islam	61	33.7	12.79	5.87	38	21	10.32	4.70
No religion	4	2.2	16.25	6.45	–	–	–	–
Marital status								
Married	12	6.6	15.33	6.79	37	20.4	10.54	4.98
Single	169	93.4	14.01	6.54	144	79.6	11.40	5.49
Education								
No education	2	1.1	15.50	9.19	–	–	–	–
Primary	1	.6	13.00	2	1.1	14.50	0.71	
Secondary	106	58.6	14.55	6.80	57	31.5	11.07	6.31
Tertiary	72	39.8	14.58	6.22	122	67.4	11.25	4.95
Disability								
Physical	40	22.1	12.55	7.81	n = 181			
Hearing	112	61.9	14.93	6.20				
Visual	29	16.0	15.93	5.40				
n = 181								

Table 2 2X2 Cross-tabulation descriptive statistics table comparing the influence of sexual attitude and sexual risk behavior on perceived HIV/AIDS vulnerability between YWD and comparison group

Sexual attitude	Sexual risk behavior	Variable interaction	\bar{X}	SD	n	Ranking
Youths with disability						
Conservative	High	CH	18.45	5.02	20	2nd
	Low	CL	13.93	6.77	82	3rd
Liberal	High	LH	18.91	5.56	11	1st
	Low	LL	13.49	6.20	68	4th
Comparison group						
Conservative	High	CH	13.50	6.87	14	1st
	Low	CL	10.32	6.03	72	4th
Liberal	High	LH	13.31	5.40	35	2nd
	Low	LL	10.57	3.50	60	3rd

Table 3 2X2 ANOVA table showing influence of sexual attitude and sexual risk behavior on perceived HIV/AIDS vulnerability, among YWD and comparison group

Source	SS	Df	MS	F	Sig.
YWD					
Sexual attitude (A)	.002	1	.002	.000	.995
Sexual risk behavior (B)	589.608	1	589.608	14.760	.000
A × B	4.834	1	4.834	.121	.728
Error	7,070.405	177	39.946		
Total	46,082.000	181			
Control group					
Sexual attitude (A)	.029	1	.029	.001	.974
Sexual risk behavior (B)	269.182	1	269.182	9.705	.002
A × B	1.436	1	1.436	.052	.820
Error	4,909.429	177	27.737		
Total	28,032.000	181			

R squared = .081, R squared = .059

Table 4 LSD multiple comparison test showing main effects of sexual risk behavior on perceived vulnerability to HIV/AIDS among YWD and comparison group

Sexual risk behavior	n	Mean	SD	1
YWD group				
1. High	31	18.61	5.13	–
2. Low	150	13.73	6.50	4.88*
Comparison group				
1. High	49	13.37	5.78	–
2. Low	132	10.43	5.02	2.94**

* $P < .01$, ** $P < .05$

Table 5 Correlation matrix showing relationship between perceived vulnerability to HIV/AIDS, sexual attitude and sexual risk behavior

S/ N	Variables	1	2	3
YWD group				
1	Perceived vulnerability to HIV	1		
2	Sexual attitude	.035	1	
3	Sexual risk behavior	.333 ^a	.051	1
Comparison group				
1	Perceived vulnerability to HIV	1		
2	Sexual attitude	-.032	1	
3	Sexual risk behavior	.339 ^a	-.093	1

^a Correlation is significant at the 0.01 level (2-tailed)

perceive that they are highly vulnerable to HIV than participants with conservative sexual attitude and perceived low-risk sexual behavior.

Table 3 shows that among YWD, there was no significant main influence of sexual attitude ($F\{1,177\} = .000; p > .05$), but a significant main influence of sexual risk behavior ($F\{1,177\} = 14.760; p < .01$) on perceived vulnerability to HIV/AIDS. The 2-way interaction of sexual attitude and sexual risk behavior had no significant influence on perception of HIV vulnerability ($F\{1,177\} = 0.121; p > .05$). Compared with the able-bodied group, sexual risk behavior had influence on perceived vulnerability to HIV ($F\{1,177\} = 9.705; p < .05$); while there was no significant main influence of sexual attitude ($F\{1,177\} = 0.001; p > .05$), nor any joint influence of sexual attitude and sexual risk behavior on perceived HIV vulnerability ($F\{1,177\} = .052; p > .05$).

Table 4 shows that among YWD participants with high sexual risk behavior scored higher ($\bar{X} = 18.61$; $SD = 5.13$; $n = 31$) than participants with low sexual risk behavior ($\bar{X} = 13.73$; $SD = 6.30$; $n = 150$) on perceived HIV vulnerability. The mean difference was significant. It also shows that participants in the comparison group with high sexual risk behavior scored higher ($\bar{X}=13.37$; $SD = 5.78$; $n = 49$) on perceived HIV vulnerability than participants with little involvement in sexual risk behavior ($\bar{X}=10.43$; $SD = 5.02$; $n = 132$) on perceived HIV vulnerability. The mean difference was also significant. 17 % of YWD also reported higher scores on sexual risk behavior compared to 27 % of able-bodied participants.

Table 5 shows that among YWD, perceived vulnerability to HIV yielded positive correlation with sexual risk behavior ($R = 0.333; p < .01$) while it recorded no significant correlation with sexual attitude ($R = 0.035; p > .05$). A similar finding was obtained in the comparison group where a significant relationship was found between perceived HIV vulnerability and sexual risk behavior $R = 0.339; p < .01$).

Discussion

This study has yielded new series of information about the role of sexual risk behaviors and sexual attitude in perceived HIV vulnerability among YWD. The findings disprove the misconception that people with disability are asexual. It also established some similarities and differences among YWD and the comparison group. Three questions guided the focus of this study. The findings largely provided relevant answers as presented in the results.

There was no difference between YWD and the comparison group concerning the main and interactive influences of sexual risk behavior and sexual attitude on perceived HIV vulnerability. Sexual risk behavior influenced perception of HIV vulnerability while sexual attitude and combination of sexual attitude and sexual risk behavior had no significant influence in the two groups. Participants with high sexual risk behavior scored higher than participants with low sexual risk behavior on perceived HIV vulnerability among YWD and the comparison group. 17 % of YWD also reported higher scores on sexual risk behavior compared to 27 % of able-bodied participants. Further, a significant positive relationship was found between sexual risk behavior and perceived HIV vulnerability in both YWD and control groups. Finally among YWD, participants with liberal sexual attitude and high score in sexual risk behavior reported the highest level of perceived HIV vulnerability while those with conservative sexual attitude and low sexual risk behavior reported perceived lower HIV vulnerability. Compared with able-bodied youths, participants with conservative sexual attitude and high sexual risk behavior reported perceived high level of HIV vulnerability while those with conservative sexual attitude with little

involvement in sexual risk behavior reported perceived low HIV vulnerability. These findings are herein discussed.

The influence of sexual risk behavior on perceived HIV vulnerability among YWD and comparison group implies that an individual's level of involvement in HIV/AIDS risk-related behaviors could affect his or her perception of HIV vulnerability. This is in agreement with the findings of Garrard et al. [6] where individual reflection on risk was found to be associated with perceived HIV/AIDS vulnerability. This finding also supports the observation that psycho-social factors including sexual risk behavior are related to perceived HIV/AIDS vulnerability [5, 7, 8].

The perception of vulnerability to HIV by participants involved in higher level of sexual risk behaviors in this study, as opposed to the opinion of participants in the previous study conducted by Ward et al. [4] is rational. A reflection on cognitive-behavioral, social learning theories, as well as health belief model could be useful in understanding this better, in that self-protective changes in behavior often come as a product of an individual's risk perception [4, 9]. This implies that in this sample, perception of HIV vulnerability is shaped by individual level of sexual risk behavior. It also implies that there are no differences in both YWD and able-bodied people in perceived HIV vulnerability, as both groups would likely consider their possibility of contracting HIV before participating in HIV-related sexual risks. This further confirms that YWD and able-bodied youths are similar in the expression of perception of HIV vulnerability, even with differences in their degree of involvement in sexual risk behavior.

The positive relationship between sexual risk behavior and perceived HIV vulnerability in both YWD and control groups is logical. It suggests that an increase in an individual's level of sexual risk behavior leads to an increased possibility of feeling vulnerable to contract HIV, whether living with disability or not. It also means that increase in participation in sexual risk behavior could serve as a stimulus to overt or covert behavioral responses associated with perception of HIV vulnerability; *à la* stimulus–response model.

Sexual attitudes are a person's beliefs about sexuality shown by his behavior and are based on cultural views and previous sexual experience. There have been conflicting evidences in the role of sexual attitude and perceived HIV vulnerability, with the findings of Brooks et al. [12] to the affirmative and that of Ward et al. [4] to the contrary. Contrary to expectations in this study, there was no significant relationship between sexual attitude and perceived vulnerability to HIV. This means that having a liberal or conservative sexual attitude does not affect one's perception of HIV vulnerability. Even though an association may exist, yet it would not be sufficiently significant for causal explanation. This finding further extends the controversy that among people living with disabilities as well as in people without any disability sexual attitude may not influence perception of HIV vulnerability. This also confirms that able-bodied people and people living with disability are similar in some respects about the expression of sexuality-related issues [3].

A major contribution of this study to knowledge in the area of perceived HIV vulnerability among people living with disability is that combination of levels of specific factors could increase the perception of HIV vulnerability in the population. In this study, it was observed among YWD that participants who reported liberal sexual attitude and high score in sexual risk behavior reported the highest level of perceived HIV vulnerability. This suggests that a specific behavior is determined by particular levels of related traits in an individual. It could therefore be inferred that a specific behavior is not strictly or exclusively determined by an individual's possession of a certain trait. Rather, the dominance of a specific level of a particular trait, in precise and synergistic combination with specific

levels of other similar traits provides the background for the possibility of a specific behavior.

It was also discovered that perception of HIV vulnerability is associated with type of disability based on available descriptive statistical evidence obtained. Specifically, participants with visual disability reported the highest level of perceived HIV vulnerability followed by the hearing impaired, and lastly people with physical disability. People with visual impairment have significant gaps and delays in their understanding of both the social and physical aspects of sexuality, including susceptibility to HIV/AIDS. Low self-esteem, poor social skills, difficulties in interpersonal relationships, as well as naivety about sexual anatomy and functions are often apparent [30]. Sighted youngsters who seek out the company of visually impaired children tend to fall below the social median themselves [31]. The inability to visually scan the scene often limits choices of potential dating partners [30]. These are potential links to sexual risk behaviors and possibly perception of high vulnerability to HIV by the visually impaired. The hearing-impaired are not excluded as they also have a three times greater risk of abuse compared to those without impairments [32].

This was a cross-sectional research design that relied on survey data. The 6 years mean age difference in the two groups might have accounted for the differences observed in the participants' responses. Future research designs may benefit from the inclusion of a qualitative approach to understanding perceived HIV vulnerability, as well as their suggestions for improving sexual health among YWD. In summary, sexual risk behavior is related and has a critical role in influencing an individual's perception of HIV vulnerability, among people living with disability as well as among people without obvious disabilities. Sexual attitude has no influence and also not related to perception of HIV vulnerability. Visually impaired people perceived a higher level of HIV vulnerability compared to the hearing and physically impaired. It is therefore suggested that sexual health planners and people involved in the socio-psychological health of people living with disability should plan programmes targeted at improving their sexual risk behaviors. The writings of many professionals in the field of visual and other impairments point to a need for better sexuality education for this group [33, 34] as part of a holistic HIV/STD and teenage pregnancy reduction [3]. Young people who are visually impaired should be encouraged to pursue desired relationships in appropriately assertive ways [35]. These will no doubt improve the psychological health of the disabled and fulfilment as not only humans but sexual beings.

Conflict of interest None declared.

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