Journal of HyoJeong Academia

Article

Knowledge, Practices on HIV Prevention, and Association between HIV Seropositivity, Religious Affiliation and Sexual Violence in Congolese Teenagers: Need for an Integrated School Health and Moral Education

Nlandu Roger NGATU[1,2*], Christian-Mapong WANSU[2,3], Alpha Ngansaki KINGO[2], Luzitu Severin NANGANA[2,4] and Leon KABAMBA [2]

[1]Department of Public Health, Kagawa University Faculty of Medicine, Miki-cho, Kagawa 761-0793, Japan.
[2]Congo-Japan Communicable and Noncommunicable Diseases Research Group, Kongo central, Democratic Republic of the Congo (DRC).
[3]Unité de Médecine Préventive, Hopital Kimbanguiste de Kinshasa, Kinshasa, DRC.
[4]Ecole de Santé Publique, Université de Kamina, Kamina, DRC.
*Correspondence: ngatunlandu@gmail.com

Abstract: The WHO African Region is severely affected with 3.4% of adult population living with HIV. In the Democratic Republic of the Congo (DRC), a country experiencing recurrent armed conflicts for two decades and where sexual violence has been used as a weapon of war by foreign and local terrorist groups, the HIV prevalence is estimated to be 1.26%. This study assessed the knowledge, attitudes and practices (KAP) survey on sexual transmission of HIV infection prevention in the Democratic Republic of the Congo (DRC). This was a cross-sectional study consisting in a KAP survey conducted in schools and communities in two provinces, Kinshasa and Kongo central, in DRC. We assessed the knowledge and practices regarding preventive measures for sexual transmission of HIV infection, and searched to determine behavioral, sociocultural, and faith-based factors associated with HIV/AIDS KAPs and HIV seropositivity. Results shows that 59.8% of the 3,869 participants were females (40.2% of males), 55.4% were teenage school students. Mean age of the participants was 18.3 (SD: 5.2) years; 58% of teenagers lacked appropriate knowledge on the 6 high-risk behaviors for HIV infection. Overall, "forced sex history" was reported by 28.7% of participants, including 42.2% of teenage school students; of them, 50.8% of forced sex incidents occurred at age < 15 years. Overall HIV positive test rate was 11.1% (10.7% in teenagers); it was 11.5% in participants from conventional Christian communities, 12.9% in participants from liberal Christian and spiritual communities, 12.5% in Muslims, 0% in those from Unificationist faith community. On the other hand, when asked about condom use in case of occasional sex for sexually active individuals, a higher proportion of teenagers did not use it, 50.8% (vs. 18.9% in older subjects); only 5% of teenagers (vs. 10.6%) condom users utilized it consistently for occasional sex. HIV seropositivity was positively associated with female gender (OR=1.46 (0.5); $p<0.05$), age of first sex (OR=1.79 (0.6); $p<0.01$ and history of forced sex (OR=1.59 (0.3); $p<0.05$), whereas it was negatively associated with knowledge on high-risk behaviors for HIV infection (OR=1.97(0.4); $p<0.01$) and religious affiliation (conventional Christianity vs. non-conventional/spiritual communities; OR=1.91 (0.1); $p<0.05$). Findings from this study suggest that history of forced sex, age at first sex and religious affiliation were determinants of HIV seropositivity, particularly in young subjects. It is imperative to improve awareness and implement efficient moral, behavioral and school health education program targeting the major local HIV-associated risk behaviors in DRC.

Keywords: Congo, HIV infection, Religious affiliation, Sexual violence, Teenager

Citation: Nlandu Roger NGATU. et al. Knowledge, Practices on HIV Prevention, and Association between HIV Seropositivity, Religious Affiliation and Sexual Violence in Congolese Teenagers: Need for an Integrated School Health and Moral Education. *JHJA* **2023**, 2.

Received: 14 March 2023
Accepted: 28 December 2023
Published: 31 December 2023

Publisher's Note: JHJA stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

1. Introduction

HIV-associated acquired immunodeficiency syndrome (AIDS) has become one the leading causes of deaths worldwide, and the sub-Saharan Africa (SSA) remains the most affected region. Recently, the UNAIDS reported that approximately 1.8 million adolescents

are living with HIV in SSA in 2018 [1]. Worldwide, 510,000 young people between 10-24 years of age were newly infected with HIV of whom 190,000 were adolescents between 10 and 19 years. On the other hand, about 5,000 young people getting newly infected worldwide, that is almost 2 million new infections occurring annually [2].

The Democratic Republic of the Congo (DRC) is a country that has been experiencing over two decades of recurrent armed conflicts in its mineral-rich East Congo area, caused by local, as well as foreign terrorist groups and armies. In this war-affected area where over 5 million civilians have died and 5 million other displaced, rape has been used as a weapon of war, with girls under 18 years of age being disproportionately affected [3-5]. This fact has contributed to the increased HIV prevalence in the region. Furthermore, data from the Demographic and Health Survey (DHS) has indicated that, in DRC, HIV infection was more prevalent in urban areas than in rural ones [6]. However, another study that focused on spatial patterns of HIV epidemic has suggested that increased distance to urban area is no more protective against HIV infection, and that the epidemic is currently diffusing from urban to rural areas in DRC [7].

Our previous pilot study conducted among Congolese and Japanese university students showed a higher proportion of Congolese young people lacking accurate knowledge on major high-risk behaviors for HIV infection as compared to their Japanese counterparts [8]. Obviously, disparity in HIV/AIDS prevalence among African countries has been attributed to socioeconomic and cultural factors. A previous study that assessed the relationship between religious affiliation and HIV infection among Congolese citizens showed highest rates of infection among Catholic Christians than non-Catholic believers [9]. Furthermore, a cohort study conducted in voluntary counseling and testing (VCT) centers in Kongo central province by Kautako-Kiambi and colleagues [10] showed that HIV seropositivity was associated with religious affiliation and age, with non-Christian believers being less likely to be infected by HIV.

To our knowledge, there have been no studies that thoroughly explored HIV-related knowledge and practices among teenage students, and the relationship between HIV seropositivity, KAPs and religious affiliation. KAPs regarding HIV/AIDS are believed to be one of the cornerstones in the fight against sexually transmitted infections (STIs), HIV/AIDS in particular. Considering the vulnerability of youth to STIs, it is noteworthy to often evaluate their KAPs; this helps to design efficient preventive strategies. The objective of this study was to assess the KAPs of Congolese teenagers on sexual transmission of HIV infection and determine the behavioral and sociocultural factors associated with HIV seropositivity.

2. Materials and Methods

2.1. Study design and participants

A cross-sectional study was conducted in two Congolese provinces located in the western area of DRC, the capital Kinshasa and Kongo Central, from 1st January 2018 through April 2019. The two provinces provide acceptable security conditions compared to eastern and southern areas of the country. KAP surveys were conducted in schools and community settings (churches, social and training centers) between September 2018 through March 2019. Participants were male and female young Congolese aged 15-25 years. Of the 3,889 enrolled subjects, there were 3,869 (99.4%) who completed the survey. Participants anonymously answered a structured self-administered questionnaire, as reported previously [8]. We assessed the accuracy of knowledge and practices mainly related to high-risk and protective sexual behaviors, namely precocious sex (PS), multiple sex partnership (MSP), men sex with men (MSM), paid sex or commercial sex work (CSW), consistent condom use in case of occasional sex partner, abstinence before marriage. On the other hand, considering the sexual violence epidemic that prevails in DRC since the beginning of the longstanding Congo war and the subsequent and recurrent armed conflict since 1997 and their influence on the increased STIs prevalence, additional questions related to sexual violence episodes and their perpetrators were added in the survey questionnaire.

2.2. Ethical consideration and statistical analysis

For subjects aged 18 years or younger, consent was obtained from their parents prior, whereas adult participants provided informed consent individually. Ethical approval was obtained from the ethical review board of the School of Public Health, University of Lubumbashi, DRC. Statistical analysis was performed with the use of Stata software version 2015. Group comparisons were performed using chi-square test for categorical variables. Multivariate logistic regression analysis was performed to determine factors associated with the HIV seropositivity.

3. Results

3.1. Characteristics of the Participants, HIV-related KAPs and Seropositivity (N=3,869)

Of the 3,869 individuals who were surveyed, 41.2% (n=1,556) were males whereas 59.8% (n=2,313) were females. The majority of the participants were teenagers aged 15-19 years, 55.4% (n=2,143) and high school students, 92.7 % (n=3,588). Mean age of the survey participants was 18.3 ± 5.2 years. A lower proportion of participants used social media, 44.38% (n=1,717), including 39.7% of teenagers; most of the participants belonged in the faith group that included liberal Christians and believers from spiritual churches, 53.16% (n=2,057) (Table 1). "Forced sex history" was reported by 28.7% of the participants, including 42.2% of teenagers; among them, 50.8% of forced sex incidents occurred at age < 15 years (not shown).

Table 1. Characteristics of survey participants

Characteristics		< 18 years; n (%)	Older subjects; n (%)	N
Gender	Male	769 (49.4)	787 (50.6)	1,556
	Female	1,374 (59.4)	939 (40.6)	2,313
Occupation	High school student	2,131 (99.4)	1,457 (84.4	3,588
	University student	4 (0.2)	94 (5.5)	98
	Teacher / professor	4 (0.2)	41 (2.4)	45
	Others	4 (0.2)	96 (5.6)	100
Marital status	Single	2119 (98.8)	1569 (90.9)	3,688
	Married	19 (0.9)	134 (7.7)	153
	Divorced or other	5 (0.4)	23 (1.3)	28
Religious affiliation				
Conventional Christianity (catholic, protestant)		852 (53.9)	729 (46.1)	1,581
Liberal Christianity & spiritual group		1,230 (59.8)	827 (40.2)	2,057
Islamic community		9 (30)	21 (70)	30
Unificationist community		21 (15.9)	111 (84.1)	132
Non-believer		31 (44.9)	38 (55.1)	69
Use of social media	Yes	681 (39.7)	1,036 (60.3)	1,717
	No	1,144 (53.4)	998 (46.6)	2,142
Total		-	-	3,869

Figure 1 shows the HIV/AIDS knowledge level of participants. We considered 6 high-risk behaviors for HIV infection to assess their knowledge and practices. It was observed that almost half (50.1%) of participants did not have appropriate knowledge about those 6 risky behaviors, with a higher proportion of teenagers (58%) lacking appropriate knowledge (vs. 47.3% in older participants) (Fig. 1(a)). Specifically, STIs and MSP are factors that increase the risk of sexual transmission of HIV in African communities, whereas sex avoidance before marriage or abstinence has been reported to be a protective factor. In this study, a higher proportion of teenage participants had accurate knowledge on STIs as a risk factor for sexual transmission of HIV infection, as compared to older ones (41.6% vs. 34%; $p<0.05$). The same trend was observed for MSP, but not significantly (Fig. 1(b)).

Furthermore, a higher proportion of teenage participants, 80% (vs. 30% in older subjects; $p<0.001$), had no sexual experience at the time of this survey (Fig. 1(c)). When asked whether the first sex was characterized by violence, 79% of teenagers with sexual experience reported that their first sexual encounter was forced ($p<0.001$) (Fig. 1(d)).

Besides abstinence, condom use in case of occasional sex is considered one of the preventive behaviors for HIV infection for sexually active individuals. About half (50.8% versus 18.8% in older subjects) of teenage participants responded that they do not use condom because they think one should not have sex before marriage. A higher proportion of older subjects (25.9% versus 16.9% in teenagers) answered that they do not use condoms in case of occasional sex; 10.9 % (vs. 5%) of them replied using it consistently ($p<0.05$) (not shown).

When considering cultural factors, the highest HIV testing rate was observed in the participants from the Unificationist faith group (50%), followed by participants from conventional Christian communities (catholic,

protestant), 37.7%, as shown in Figure 2. In addition, overall rate of HIV positive test was 11.1%; it was lowest (0%) in the group of participants from the Unificationist faith group, and highest in the group pf participants from liberal Christianity and spiritual churches, 12.9%.

Furthermore, the rate of HIV seropositive test the group participants from Islamic group was 12.5%, whereas it was 11.5% among participants from conventional Christian communities. However, when comparing HIV + test rates of the survey participants according to faith group, no statistically significant difference was observed (Fig.2).

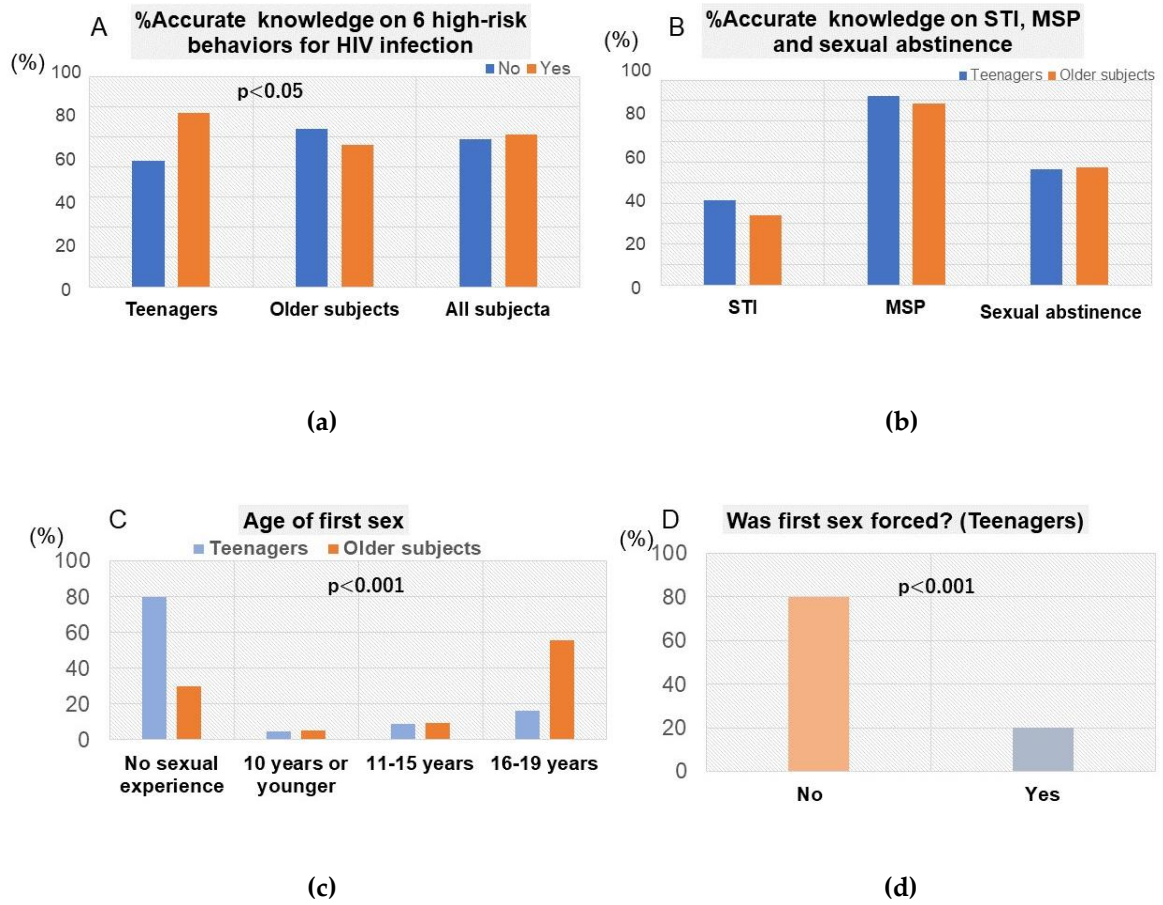

Figure 1. Participants (%) with accurate knowledge on 6 high-risk behaviors for HIV infection (a); on STIs, MSP and sexual abstinence (b); age of first sex (c); proportion of teenage participants who have experienced forced sex (d).

Legend: HIV, human immunodeficiency virus; STIs, sexually transmitted infections; MSP, multiple sex partners. Figure 1 shows higher proportion of teenagers having accurate knowledge on high-risk sexual behaviors than older participants ($p<0.05$) (a); Furthermore, a higher proportion of teenagers had no sexual experience at the time of this survey ($p<0.001$) (c); Of the teenagers who had sexual experience, 80% experienced forced sex ($p<0.001$) (d).

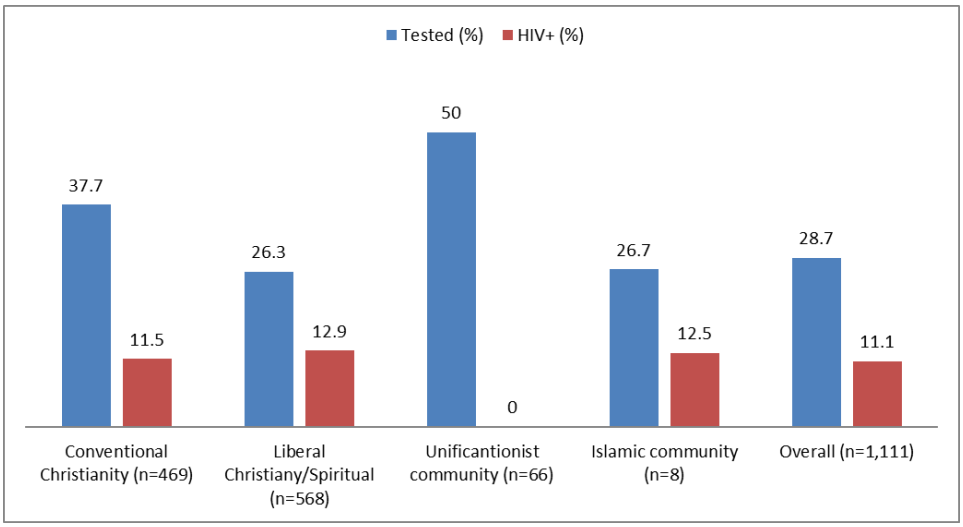

Figure 2. Trend in rates of HIV testing and HIV test results according to religious affiliation.

Figure 2 shows that participants from unificationist community had the lowest (0%) HIV seroprevalence (vs. other faith groups).

3.2. Determinants of KAPs knowledge accuracy and HIV+ test (n=1,111)

Logistic regression analysis was performed, and it was observed that knowledge on HIV/AIDS was inversely associated with age (OR=1.78 (0.15); p<0.05) (not shown), whereas HIV seropositivity was positively associated with gender (OR=1.46 (0.5); p<0.05), religious affiliation (conventional faith community vs. non-conventional faith groups, OR=1.91 (0.1); p<0.05), age at first sex (OR=1.79 (0.6); p<0.01) and history of forced sex (OR=1.59 (0.3); p<0.05), whereas it was inversely associated with knowledge on high-risk behaviors for HIV infection (OR=1.97 (0.4); p<0.01).

Table 2. ORa, adjusted odds ratio (adjustment for age and gender); CI: confidence interval

Characteristics	ORa (SE)	95% CI	p-value
Age (15-18 years vs. >18 years; >18 y. as reference)	1.06 (0.2)	0.72 – 1.56	0.740
Gender (F vs. M; male gender as reference)	1.46 (0.5)	1.04 – 3.05	**0.048**
Occupation (teenagers vs. older subjects; the latter as reference)	0.97	0.71 – 1.30	0.826
Religious affiliation (conventional faith groups vs. non-conventional faith groups; the latter as reference)	1.91 (0.1)	1.90 – 3.35	**0.036**
Knowledge on high-risk behaviors for HIV infection (poor vs. good; poor as reference)	1.97 (0.4)	1.81 – 2.09	**0.002**
Age at first sex (older subjects vs. <15 years; older group as reference)	1.79 (0.6)	1.68 – 1.96	**0.004**
History of forced sex (no vs. yes; no as reference)	1.59 (0.3)	1.08 – 2.34	**0.017**
Number of forced sex (1 vs. more; 1 as reference)	0.97 (0.1)	0.72 – 1.32	0.877

4. Discussion and conclusion

This study explored the KAPs and HIV seropositivity rate in a cross-sectional survey conducted among Congolese youth in Kinshasa and Kongo central province. Accurate knowledge on risk behaviors for HIV is of utmost importance for an efficient prevention. In this study, 50% of participants (42% of teenagers) did not have accurate knowledge on the six high-risk behaviors for the sexual transmission of HIV infection, which is truly alarming, given that DRC is one of the countries with relatively high HIV prevalence. Our previous study conducted in the

same study sites about 9 years earlier showed lack of accurate knowledge in nearly 40% of Congolese university students. Poor knowledge on factors associated with HIV sexual transmission remain a challenge for health policymakers in DRC; effort should be made to improve HIV/AIDS awareness among young Congolese people.

Our study also showed that age of first sex was inversely associated with HIV seropositivity in teenagers, increasing the risk of infection by almost 1.8-fold. Such a finding has never been reported before in the context of multiple crises in DRC. Moreover, having a history of forced sex was also positively associated with HIV seropositivity in our survey. The fact that the latter finding was observed in western Congolese provinces located far from conflict-affected eastern DRC may suggest that sexual violence might have become a generalized phenomenon in the country. Recently, a cohort study conducted by Abrahams and colleagues [11] in the town of Durban, South Africa, which included women who underwent post-rape care services and those without history of rape showed high incidence HIV infection, 6.6 per 100 person-year.

Furthermore, a number of studies have previously shown that the age of first sex was a risk factor for STIs, including HIV infection. Studies conducted in Zimbabwe by Hallett and colleagues [12], and in Nepal by Shrestha and colleagues [13] showed that individuals who have had early sexual debut were more likely to engage in risky sexual behaviors such as MSP and paid sex or CSW, which expose them to STIs in general.

Religious affiliation was found to be associated with HIV seropositivity in our study, with members of conventional Christian communities being more likely to have positive HIV test as compared with non-conventional Christianity and spiritual faith communities. Risk behaviors for STIs, including HIV infection and other infections transmitted through sexual intercourse, are often related to education, culture and traditions. School, family, church-based sexual education and religious beliefs may influence peoples' behaviors differently depending on educational orientation [9, 14]. In our study, the fact that participants from some faith communities tended to have accurate knowledge on HIV-related risk behaviors and are less or not affected by HIV epidemic in DRC than others possibly suggest differing faith-based educational and cultural backgrounds acquired from their respective household, sociocultural or faith community environments.

Despite the relatively big sample size used in this study and novel observations on HIV infection related for the sexual transmission of the causal agent of AIDS in the context of DRC. However, the study has a limitation. Considering the cross-sectional design of the study, the relationship between HIV infection and the characteristics of the participants that we observed may not be generalized to all teenage population in DRC. There is a need to conduct other studies that would include teenagers from other Congolese provinces.

In conclusion, this study showed poor knowledge of HIV infection prevention measures among the participants, relatively high rate of forced sex events, whereas religious affiliation, age at first sex and history of forced sex were revealed to be predictors of HIV positivity. There is an urgent need to improve HIV/AIDS awareness in DRC; the implementation of an efficient moral, behavioral and school-based health education program targeting sexual violence and HIV infection is imperative.

Acknowledgement: We would like to thank Dr Rollain Muanda Nsemi of FFWPU/USA and Mr Sachio Imon of IAAP/Japan for their support.

References

1. Dzah, S., Tarkang, E. and Lutala, P. Knowledge, attitudes and practices regarding (HIV/AIDS among senior high school students in Sekondi-Takoradi metropolis, Ghana. *Afr J Prim Care Fam Med. 11*(1), e1-e11 (2019).
2. UNAIDS. Adolescent HIV prevention. https://data.unicef.org/topic/hivaids/adolescents-young-people/.
3. Coghlan, B. et al. Mortality in the Democratic Republic of Congo: An Ongoing Crisis. https://www.rescue.org/report/mortality-democratic-republic-congo-ongoing-crisis.
4. Bartels, S. et al. Militarized Sexual Violence in South Kivu, Democratic Republic of Congo. *J Interpers Violence 28*(2), 340-358 (2013).
5. Lussy, J. et al. Trends in sexual violence patterns and case management: a sex disaggregated analysis in Goma, Democratic Republic of Congo. *Conflict and Health 15(*59) (2021).
6. DRC Ministry of Planning (Ministère du Plan et Suivi de la Mise en oeuvre de la Révolution de la Modernité, MPSMRM), M.d.l.S., International, P.M.a.I, Key Findings. Democratic Republic of Congo Demographic and Health Survey 2013-14 - Key Findings [SR218.e] (dhsprogram.com).
7. Carrel, M. et al. Changing spatial patterns and increasing rurality of HIV prevalence in the Democratic Republic of the Congo between 2007 and 2013. *Health & Place 39*, 79-85 (2016).
8. Ngatu, N. et al. Perception of the risk of sexual transmission of HIV among Congolese and Japanese university students. *Environ Health Prev Med. 17*, 139-146 (2012).
9. Hawkes M. et al. HIV and religion in the Congo: a mixed-method study. *Curr HIV Res. 11*(3), 246-53 (2013).

10. Kautako-Kiambi, M. et al. Voluntary counseling and testing for HIV in rural area of Democratic Republic of the Congo: knowledge, attitude, and practices survey among service users. *J Tropl Med. 2015*, 281093 (2015).
11. Abrahams, N. et al. Increase in HIV incidence in women exposed to rape. *AIDS (London) 35*(4), 633-642 (2021).
12. Hallet, T. et al. Age at first sex and HIV infection in rural Zimbabwe. *Stud Fam Plann. 38*(1), 1-10 (2007).
13. Shrestha, R., Karki, P. and Copenhaver, M. Earl sexual debut: a risk factor for STIs/HIV acquisition among a nationally representative sample of adults in Nepal. *J Comm Health 41*(1), 70-77 (2016).
14. Noden, B., Gomes, A. and Ferreira, A. Influence of religious affiliation and education on HIV-related sexual behaviors among unmarried youth in rural central Mozambique. *AIDS Care 22*(10), 1285-94 (2010).