

# Sexual Practices at Risk of Sexually Transmitted Infections among Students at the University of Parakou in 2022: a Cross-Sectional Survey.

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## ABSTRACT

**Aims:** The aim was to study sexual practices at risk of sexually transmitted infections among students.

**Study design:** This was a descriptive cross-sectional study with analytical aims.

**Place and Duration of Study:** University of Parakou, from June 06 to 26, 2022.

**Methodology:** The sampling technique used was simple random sampling, in which five entities were selected from the eleven basic campus entities. Data were collected using a self-administered questionnaire distributed electronically to students via the KoBoToolbox server. The dependent variable was condom use. The independent variables were sociodemographic, cultural, environmental, behavioral and sexually transmitted infection (STI) history. Data were entered into KoboCollect. Data analysis was performed using Epi-Info software version 7.1.3.3. The difference was statistically significant for a p-value of less than 0.05.

**Results:** A total of 420 students were surveyed out of the 2626 who had read the link on the forums, giving a participation rate of 15.99%. Of the 420 students surveyed, 220 (52.38%) were male and 200 (47.62%) females, giving a sex ratio (M/F) of 1.09. The mean age of the students was  $21.8 \pm 2.8$  years, with extremes of 17 and 35 years. Sexually active students accounted for 73.57%. Condom use was 32.04%. In 45.16% of cases, students had contracted an STI in the previous three months. Vaginal penetration was practiced in 93.20% of cases. Factors associated with condom use in univariate analysis were gender ( $p=0.002$ ), vaginal penetration ( $p<0.001$ ) and types of sexual penetration practiced during the last sexual intercourse ( $p=0.002$ ).

**Conclusion:** The relatively low frequency of condom use among students at the University of Parakou suggests high-risk sexual relations for STIs. There is a need to raise awareness among students of the importance of condom use.

**Keywords:** Sexual practices, STI, condoms use, students, Parakou, R. Benin

## 1. INTRODUCTION

In recent years, the ever-increasing prevalence of sexually transmitted infections (STIs) has become a major global health concern [1, 2].

According to the World Health Organization (WHO), more than a million people contract an STI every day. By 2020, an estimated 374 million people will have contracted one of the following four STIs: chlamydia (129 million), gonorrhoea (82 million), syphilis (7.1 million) and trichomoniasis (156 million). Also, already in 2016 more than 490 million people were living with a genital herpes simplex virus (HSV) infection, and 300 million women have a papillomavirus infection, which is the leading cause of cervical cancer [3-6].

These STIs are all the more worrying in that they mainly affect young people, due to certain high-risk behaviors (non-use of condoms, oral sexual practices, multiple sexual partnerships), and amplify the transmission and spread of other infections with serious consequences, such as HIV and viral hepatitis B and C, within this segment of the population [7-9].

For the WHO, prevention of this scourge involves sex education and the promotion of good sexual practices. This strategy presents the correct use of condoms as an important means of preventing not only STIs, but also unwanted pregnancies [10].

In developing countries such as Benin, increasing urbanization and poor sexual education are leading to and sustaining profound changes in sexual practices, especially among young people [11].

In 2019, a study of schoolchildren in Cotonou found that sexual intercourse was unprotected in 80% of cases, with group sex (orgies) occurring in 76.6% of cases [12]. This result defies all the not inconsiderable effects of several national organizations, including the "Association Béninoise de Marketing Social (ABMS)", which through its "Amour et Vie" program, works to supply young people with condoms free of charge, organize sex education and counseling sessions, and screen and treat cases of STIs in schools and students.

It is in this context that we felt it necessary to describe the sexual practices of students at the University of Parakou and to identify STI risk factors within this population.

## **2. MATERIAL AND METHODS**

### **Study place**

The study took place at the University of Parakou in the Republic of Benin. Founded in 2001, the University of Parakou will have around 20,723 students enrolled at the start of the 2021-2022 academic year, in eleven (11) faculties, professional training institutes and doctoral schools.

### **Type of study**

This was a descriptive cross-sectional study with analytical aims.

### **Study population**

All students enrolled in the five selected entities at the University of Parakou during the 2021-2022 academic year.

### **Inclusion criteria**

All students, aged at least 15 years, regularly enrolled at the University of Parakou during the 2021-2022 academic year were included in our study, having given their free and informed written consent.

### **Sampling technique**

The sampling technique used was simple random sampling, in which five entities were selected from the nine basic campus entities.

### **Data collection techniques and tools**

Data were collected using a self-administered questionnaire distributed electronically to students via the KoBoToolbox server.

### **Data collection period**

Data were collected over a three-week period, from Monday 06 to Sunday 26 June 2022.

### **Dependent variable**

Condom uses during sexual intercourse. This is a dichotomous variable which was answered yes or no by the respondent.

### **Independent variables**

The independent variables were sociodemographic (gender, age, level of education), environmental (geographical and financial accessibility), cultural (preconceived ideas, religious prohibitions), behavioral (Viagra use, alcohol consumption) and STI history (herpes).

### **Data capture and analysis**

Data were entered into KoboCollect. Data analysis was performed using Epi-Info software version 7.1.3.3. The difference was statistically significant for a p-value of less than 0.05.

## **3. RESULTS AND DISCUSSION**

### **3.1. RESULTS**

The questionnaire was seen by 2626 students in the five selected entities at the University of Parakou in 2022, 420 of whom responded, giving a participation rate of 15.99%.

Figure 1 shows the flow chart for this survey.

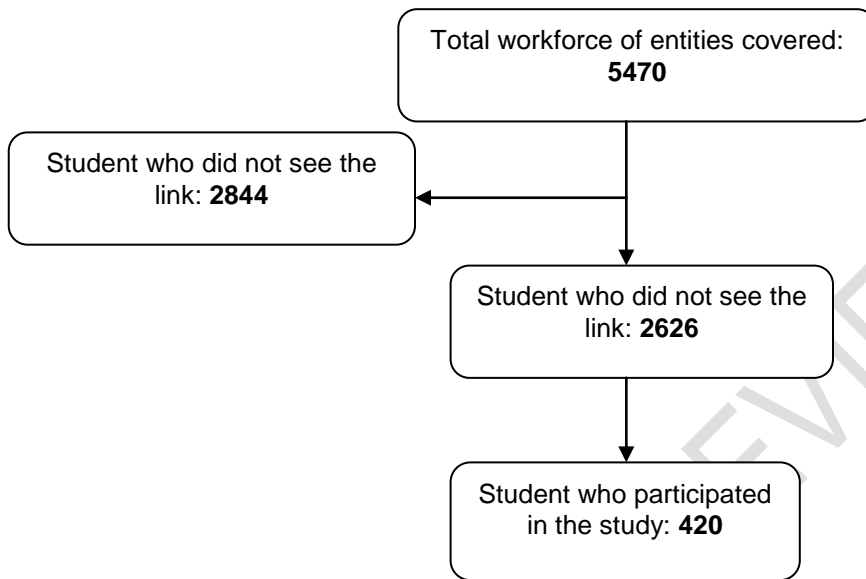


Fig 1. Flow chart of survey recruitment

#### Socio-demographic characteristics

Of the 420 students surveyed, 220 (52.38%) were male, giving a sex ratio (M/F) of 1.09. The average age of the students was  $22 \pm 3$  years. The most common religion was Christian (61.19%). The most common income-generating activity was selling (58.55%) (Table 1).

Table 1. Distribution of students surveyed at the University of Parakou in 2022 by socio-demographic characteristics (N=420)

	Numbers	%
<b>Age (N=420)</b>		
[17-26] years old	400	95.24
[27-36] years old	20	4.76
<b>Gender (N=420)</b>		
Male	220	52.38
Female	200	47.62
<b>Level of education (N=420)</b>		
Licence 1	100	23.81
Licence 2	117	27.86
Licence 3	163	38.81
Master 1	19	4.52
Master 2	21	5.00
<b>Religion (N=420)</b>		
Christian	257	61.19
Muslim woman	112	26.67
Traditional African	22	5.24

None	29	6.90	
<b>Income-generating activity (N=420)</b>			
None	268	63.81	
Dealer	89	58.55	
Bar waitress	3	1.97	
Nightclub manager	1	0.66	
Other	59	38.82	
<b>Monthly income in FCFA (N=420)</b>			
0-10000	147	35.00	
10000-20000	74	17.62	
20000-30000	114	27.14	
> 40000	85	20.24	

#### Condom use

The frequency of students having used a condom at least once was 59.87%. Sexually active students who had their last sexual intercourse less than three days ago were 26.54%. The frequency of condom use at last intercourse among students was 32.04%. The male condom was the most widely used with a percentage of 97.98%. The most predominant mode of supply was purchase in town with 60.61%. The main reason for not using condoms was the voluntary and deliberate choice not to use them (Table 2).

**Table 2. Distribution of students surveyed at the University of Parakou in 2022 according to data on condom purchase and use.**

	Numbers	%
<b>Condom use (N=309)</b>		
Yes	99	32.04
No	210	67.96
<b>Reason for not using a condom (N=210)</b>		
Deliberate choice not to use	135	64.28
Partner refusal	47	22.38
Condoms not available	47	22.38
Financial difficulties	3	1.43
<b>Religious prohibition of condom use (N=420)</b>		
Yes	120	28.57
No	300	71.43
<b>Existence of dialogue with parents about sexuality (N=420)</b>		
Yes	148	35.24
No	272	64.76
<b>Supply mode (N=99)</b>		
Buying in town	76	76.77
Free distribution	20	20.20
Buying on campus	3	3.03

#### Sexual practices and STI experiences

Vaginal penetration was the most common sexual practice among the students surveyed (93.20%). Vaginal penetration was unprotected in 40.95% of cases. Sexual partners at last intercourse were occasional in 37.22% of cases (Table 3).

**Table 3. Distribution of students surveyed at the University of Parakou in 2022 according to data relating to their last sexual intercourse.**

	Numbers	%
<b>Period of last sexual intercourse (N=309)</b>		
< 3 days	82	26.54
[3-7] days	57	18.45
[8-30] days	84	27.18
> 30 days	86	27.83
<b>Type of partner (N=309)</b>		
Regular partners boyfriend/girlfriend	150	48.54
Occasional partners	115	37.22
Husband/wife	35	11.33
Sex workers	9	2.91
<b>Safe sex (N=99)</b>		
Vaginal penetration	59	59.60
Other sexual penetrations	40	40.40
<b>Unprotected sexual intercourse (N=210)</b>		
Vaginal penetration	86	40.95
Other sexual penetrations	124	59.05
<b>Sexual practices</b>		
Vaginal penetration	288	93.20
Blowjob	132	42.72
Cunnilingus	119	38.51
Sodomy	23	7.44
Group sex	12	3.88
Sharing masturbation objects	4	1.29
Sadomasochistic practices	3	0.97
Oral-anal sex	1	0.32

Sixty-two students (14.76%) had already experienced an STI, including 28 (45.16%) in the last three months, with 18 cases of genital herpes (64.29%). **Table 4** shows the STI experiences of the respondents.

**Table 4. Distribution of respondents according to data on their STI experiences**

	Numbers	%
<b>History of STI at least once (N=420)</b>		
Yes	62	14.76
No	358	85.24
<b>STI symptoms present during the survey</b>		
Genital discharge	15	34.88
Tingling sensation	13	30.23
Genital pain	6	13.95
Genital burns	5	11.63
Genital lesions	4	9.30
Other	4	9.30
<b>STIs presented in the last three months</b>		
Genital herpes	18	64.28
Gonorrhea	4	14.28
Chlamydia	2	7.14
Condyloma	2	7.14
Viral hepatitis	2	7.14

Trichomonas	1	3.57
Syphilis	1	3.57

### Factors associated with condom use

Men used condoms more than women at last intercourse ( $P=0.01$ ). Vaginal penetration was the most protected sexual penetration compared with other sexual penetrations among students ( $P=0.01$ ). Male sex and vaginal penetration were associated with condom use among respondents (Table 5).

**Table 5. Factors associated in univariate analysis with condom use at last sexual intercourse among students at the University of Parakou in 2022.**

	Condom use				RP	[IC <sub>95%</sub> RP]	P
	Yes		No				
	N	%	N	%			
<b>Gender</b>							0.002
Male	68	39.30	105	60.70	1	-	
Female	31	22.80	105	77.20	2.47	[1.20-1.72]	
<b>Age</b>							0.233
[17-26] years old	95	32.87	194	67.13	1	-	
[27-36] years old	4	20	16	80	0.84	[0.66-1.06]	
<b>Sexual penetration</b>							0.002
Vaginal penetration	59	40.69	86	59.31	1	-	
Other penetrations	40	24.39	124	75.61	1.27	[1.08-1.49]	

### 3.2. DISCUSSION

Not using a condom during sexual intercourse is considered a risky sexual practice. The aim was to study risky sexual practices for sexually transmitted infections among students at the University of Parakou in 2022.

In this study, we found that 32.04% of students had used a condom during their last sexual intercourse to prevent sexually transmitted infections. This low frequency was due to the fact that 64.28% of students had made a deliberate and voluntary choice not to use a condom.

In Nigeria in 2019, the prevalence of regular condom use was 38.6% according to Ajayi et al. [13]. Also in sub-Saharan Africa, in a systematic review and meta-analysis, 52.9% of sexually active students used condoms, according to Izudi et al. [14]. In western Ethiopia, more precisely in the town of Nekemte, 51.6% of female students had already used a condom [15]. But another study in the same country reported over 86% irregular condom use [16].

Other studies have revealed even lower rates of regular condom use in some countries. The percentage of regular condom use was reported to be 29.1% in Lomé [17]. Less than 6% of students reported constant condom use at a university in Madagascar [18].

According to some authors, barriers to condom use among students could be summed up as false prejudices about its use, not planning sex, stigma and religious barriers [14, 19]. For

other authors, the reasons cited are reduced sexual pleasure from condom use, partner trust and partner refusal [18, 20, 21].

Thus, the different sociodemographic, behavioral, environmental and cultural characteristics of these distinct populations could account for these observed differences.

The male condom was used in 97.98% of cases in the present study. The male condom is the most accessible on the Beninese market. It is much more widely used than the female condom. More widespread use of the latter could offer more choice and influence the frequency of condom use in general.

This study revealed that 40.95% of students had practiced unprotected vaginal penetration and 59.05% other unprotected non-vaginal sexual intercourse during their last sexual encounter. Our study showed that the most risk sexual practices were unprotected vaginal penetration and other unprotected non-vaginal sexual intercourse. Kassie et al. in Ethiopia in 2019 report early sexual intercourse, relationships under the influence of substances and multiple sexual partnerships as risk behavior [22]. These risk behaviors are also mentioned by Diallo et al in Guinea [23].

On the other hand, in a study by Dangbemey et al, carried out in Cotonou in 2020, on sexual practices among teenage and young middle-school girls, the most risk sexual practice was group sex with several sexual partners ("partouze"), reported by 76.6% of teenage girls. In addition, sexual intercourse was unprotected in 80% of cases [12]. These results differ from those observed in our study. We can attribute these differences to the small size of our sample, but also to socio-demographic and other factors.

Nevertheless, oral sex remains a high-risk practice. In fact, they would be responsible for the resurgence of old STIs and could contribute to a higher proportion of new HIV infections [24]. This suggests that prevention campaigns should not trivialize these practices, even if they were not predominant in the present study.

In this study, the factors associated with condom use in the prevention of sexually transmitted infections among students at the University of Parakou in 2022 were male sex ( $p=0.002$ ), vaginal penetration ( $P<0.001$ ) and the types of sexual penetration practiced during the last sexual intercourse ( $P=0.002$ ).

A study by Muhindo et al showed that on bivariate analysis of factors associated with condom use at recent vaginal intercourse, there were statistically significant associations between perceived confidence in discussing condom use ( $P<0.01$ ), confidence in negotiating condom use ( $P<0.001$ ) and condom use at last vaginal intercourse [25]. Moreover, these factors vary according to study and region. Houéto et al. reported that level of education, drug use, knowledge of partner's serostatus and ease of access to condoms were associated with condom non-use [26].

Similarly, older age before first intercourse, discomfort with condom purchase, relationship stability, marriage, familiarity with condom use, and multiple sexual partnerships determined condom use [27-30].

We infer that the factors associated with condom use in this study have been partially corroborated by other studies. These differences between the associations could be justified by the difference in sample size in these authors' study compared with that used in this study.

## 4. CONCLUSION

At the end of the study, it was found that few students at the University of Parakou had used a condom the last time they had vaginal intercourse. Similarly, the study showed a higher trend in condom use among men than among women. These results suggest the need to raise awareness among students in general, and female students in particular, of the benefits of condom use. This will help reduce the incidence of sexually transmitted infections and indirectly the rate of unwanted pregnancies in this population.

## CONSENT

All participants in this study gave written informed consent. Completion of the consent letter was a prerequisite for starting the questionnaire.

## ETHICAL APPROVAL (WHEREEVER APPLICABLE)

Not applicable.

## REFERENCES

1. Cone MM, Whitlow CB. Sexually transmitted and anorectal infectious diseases. *Gastroenterol Clin North Am.* 2013 Dec;42(4):877-92.
2. Shannon CL, Klausner JD. The growing epidemic of sexually transmitted infections in adolescents: a neglected population. *Curr Opin Pediatr.* 2018;30(1):137-43.
3. 3. ONUSIDA. The road to ending AIDS: updated global AIDS report 2023. Geneva 2023. [accessed online 29 October 2023]. Available at: 2023-unaids-global-aids-update-summary\_en.pdf
4. 4. Rowley J, Vander Hoorn S, Korenromp E, Low N, Unemo M, Abu-Raddad LJ, Chico RM, Smolak A, Newman L, Gottlieb S, Thwin SS, Broutet N, Taylor MM. Chlamydia, gonorrhoea, trichomoniasis and syphilis: global prevalence and incidence estimates, 2016. *Bull World Health Organ.* 2019;97(8):548-6
5. [ PubMed ] 5. James C, Harfouche M, Welton NJ, Turner KM, Abu-Raddad LJ, Gottlieb SL, Looker KJ. Herpes simplex virus: global infection prevalence and incidence estimates, 2016. *Bull World Health Organ.* 2020;98(5):315-2
6. 6. Santa-Barbara RC, Hueso-Montoro C, Martin-Salvador A, Alvarez-Serrano MA, Gazquez-Lopez M, Perez-Morente MA. Association between Sexual Habits and Sexually Transmitted Infections at a Specialized Center in Granada (Spain). *International Journal of Environmental Research and Public Health.* 2020; 17(18):6
7. 7. Causevic S, Salazar M, Orsini N, Kågesten A, Ekström AM. Sexual risk-taking behaviors among young migrant populations in Sweden. *BMC Public Health.* 2022; 22(1):6
8. 8. Ali R, Tadele A. Risky Sexual Behavior across Extremes of Wealth in sub-Saharan Africa: A Meta-Analysis of Demographic and Health Surveys. *J Health Sci.* 2021;31(1):159-6

9. 9. Vasilenko SA. Sexual Behavior and Health From Adolescence to Adulthood: Illustrative Examples of 25 Years of Research From AddHealth. *J Adolesc Health*. 2022; 71(6S):S24-31.
10. 10. World Health Organization. Global health sector strategy against sexually transmitted infections 2016-2021. WHO 2016; WHO/RHR/16.09, 64p. consulted online on 29 October 2023. available at: [https://www.who.int/en/news-room/fact-sheets/detail/sexually-transmitted-infections-\(stis\)](https://www.who.int/en/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis)).
11. [ PubMed ] 11. Chugh TD, Gaiind R. Sexually transmitted infections. *Clin Lab Med*. 2012;32(2):143-58.
12. 12. Dangbemey DP, Hounkpatin B, Aboubakar M, Lokossou S, Tognifode V, Ogoudjobi M, et al. Sexual practices of adolescents and young people of Cotonou teaching colleges in Benin Republic. *Sexologies*. 2020;29(1):1158-3
13. 13. Ajayi , AI , Ismail , KO . & Akpan, W. Factors associated with consistent condom use: a cross-sectional survey of two Nigerian universities. *BMC Public Health*. 2019; 19:1207. <https://doi.org/10.1186/s12889-019-7543-1>
14. 14. Izudi J, Okello G, Semakula D, Bajunirwe F. Low condom use at the last sexual intercourse among university students in sub-Saharan Africa: Evidence from a systematic review and meta-analysis. *PLoS One*. 2022;17(8):e0272692.
15. [ PubMed ] 15. Genemo ES, Korsaa AT, Baisa HG. Emergency Contraceptive Pill Use and Its Impact on Condom Utilization Among University Students: A Cross-Sectional Study. *Int J Womens Health*. 2022; 14:1115–2
16. [ PubMed ] 16. Yarinbab TE, Tawi NY, Darkiab I, Debele F, Ambo WA. Determinants of Risky Sexual Behaviors among Students of Mizan Aman College of Health Science, Southwest Ethiopia: A Cross- Sectional Study. *Int J Womens Health Wellness*. 2018; 4:074.
17. 17. Segbedji K, Djadou K, Tchagbele O, Azoumah K, Geraldo A, Agbeko F et al. Sexual health of collegiate adolescents: knowledge, attitudes, and practices facing risks of sexually transmitted infections in northeast lome. 2016; 4:85-9
18. [ PubMed ] 18. Rahamefy OH, Rivard M, Ravaoarinoro M, Ranaivoharisoa L, Harrison A, Rasamindrakotroka J et al. Sexual behavior and condom use among university students in Madagascar, Sahara-J: *Journal of Social Aspects of HIV/AIDS*. 2008; 5(1):28-3
19. [ PubMed ] [ Cross Ref ] 19. Elshiekh HF, Hoving C, de Vries H. Exploring Determinants of Condom Use among University Students in Sudan. *Arch Sex Behav*. 2020; 49(4):1379-91.
20. [ PubMed ] 20. Adebisi AO, Asuzu MC. Condom use amongst out of school youths in Nigeria. *Afr Health Sci*. 2009; 9(2):92-7
21. 21. Sidibe T, Sangho H, Traore MS, Cisse MB, Diallo B, Keita MM, et al. Knowledge and practices of high school students in contraception and STI prevention. *Mali Med*. 2006; 21(1):39-4

22. 22. Kassie BA, Yenus H, Berhe R, Kassahun EA. Prevalence of sexually transmitted infections and associated factors among the students of the University of Gondar, Northwest Ethiopia: a cross-sectional study. *Reprod Health*. 2019; 16(1):1
23. 23. Diallo A, Diallo Y, Magassouba AS, Bah IK, Sy T. Sexual intercourse among students in Matoto commune in Conakry, Guinea [Sexual intercourse among students in Matoto, Conakry, Guinea]. *Pan Afr Med J*. 2020; 35:1
24. [ PubMed ] 24. Habel MA, Leichter JS, Dittus PJ, Spicknall IH, Aral SO. Heterosexual Anal and Oral Sex in Adolescents and Adults in the United States, 2011-2015. *Sex Transm Dis*. 2018; 45(12):775-8
25. [ PubMed ] 25. Muhindo R, Sanyu B, Okonya JN. Factors Associated with Condom Use among Female University Students in Uganda. *J Public Health Dis Prev*. 2018; 1:102.
26. 26. Houéto DS, EB, Sambieni EN. Factors Associated With Condom Use Among High School Students of Natitingou Agricultural Technical School, Benin, in 2017. *Int Q Community Health Educ*. 2021; 41(4):363-68.
27. 27. Haffejee F, Ducray J, Basdav J, Kell C. Factors influencing the adoption of HIV prevention measures in low socio-economic communities of inner-city Durban, South Africa. *Sahara J*. 2023; 20(1):2185806.
28. 28. Morris L, Kouya F, Kwalar R, Pilapil M, Saito K, Palmer N, et al. Factors associated with inconsistent condom use in adolescents with negative or unknown HIV status in Northwest Cameroon. *AIDS Care*. 2014;26(11):1440-5.
29. 29. Santos MJO, Ferreira MMDC, Ferreira EMS. Sexual and reproductive health risk behaviours: higher education students' perceptions. *Rev Bras Enferm*. 2022; 75(6):e20210712.
30. 30. Kavuma D, Ndibazza J, Kirwana VB, Mukasa Kafeero H, Katongole SP, Baluku JB. Factors Associated with Condom Use Among Out-of-School Young People on Anti-Retroviral Therapy in Central Uganda. *HIV AIDS (Auckl)*. 2022; 14:217-30.