



## Original Article

## Condom Use among Adolescents Aged 10 to 19 Years Attending Youth Centers and Secondary Schools in Cameroon: a Cross-Sectional Study

*Usage du préservatif chez les adolescents âgés de 10 à 19 ans fréquentant les centres des jeunes et les établissements d'enseignement secondaire au Cameroun: une étude transversale*

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### ABSTRACT

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**Mots clés :** Adolescents - Usage Du Préservatif - Centres Des Jeunes - Etablissements D'enseignement Secondaire - Education Sexuelle Complète.

**Introduction.** The HIV infection mainly concerns the young population and is predominantly sexually transmitted in Africa. In most regions of the world, teenagers, girls in particular, are the main vulnerable group of this infection. Our study aimed at identifying factors associated with reporting of sexual initiation and use of condom during the last sexual intercourse in Cameroonian adolescents. **Materials and methods.** A cross-sectional survey was conducted in 2018 and concerned four regions Cameroon (East, Far North, North and West). In total, 23 secondary schools and 14 youth centers were selected. Adolescents aged 10 to 19 were randomly enrolled. The information was collected on sociodemographic characteristics, knowledge, attitudes and practices towards HIV and AIDS. **Results.** Among the 1153 adolescents enrolled in this study at a median age of 16 years (IQR: 14-18), a half (51.2%) were boys. In total, 293 (25.4%) adolescents reported sexual initiation. Among these, 200 (69.7%) stated that they had used condoms during the last sexual intercourse. Among sexually active adolescents, those attending youth centers were more likely to report condom use during the last sexual intercourse than those in secondary schools [ $p=0.035$ ]. **Conclusion.** More frequent condom use during the last sexual intercourse among adolescents attending youth centers could be explained by better access to sex education and other STD prevention and contraceptive methods, due to the provision of comprehensive sexuality education.

### RÉSUMÉ

**Contexte.** En Afrique, l'infection à VIH concerne majoritairement les jeunes et est principalement transmise sexuellement. Les adolescents, en particulier les filles, constituent le principal groupe vulnérable à cette infection. Cette étude visait à étudier les facteurs associés, d'une part, à l'initiation de l'activité sexuelle telle que déclarée et, d'autre part, à l'usage du préservatif lors du dernier rapport sexuel chez les adolescents camerounais. **Matériels et méthodes.** Une enquête transversale a été réalisée en 2018 dans quatre régions du Cameroun (Est, Extrême-nord, Nord et Ouest). Au total, 23 établissements d'enseignement secondaire et 14 centres des jeunes ont été sélectionnés. Les adolescents âgés de 10 à 19 ans ont été enrôlés aléatoirement dans l'étude. Les données recueillies comprenaient les caractéristiques sociodémographiques, les connaissances, les attitudes et les pratiques à vis-à-vis du VIH. **Résultats.** Parmi les 1153 adolescents inclus dans cette étude à un âge médian de 16 ans, la moitié (51,2 %) comprenait des garçons. Au total, 293 (25,4%) adolescents ont déclaré avoir initié l'activité sexuelle. Parmi ceux-ci, 200 (69,7%) ont rapporté l'usage du préservatif lors du dernier rapport sexuel ; ceux qui fréquentaient les centres des jeunes déclaraient plus souvent avoir utilisé le préservatif lors du dernier rapport sexuel que ceux qui fréquentaient les établissements d'enseignement secondaire [ $p=0,035$ ]. **Conclusion.** L'usage plus fréquent du préservatif lors des rapports sexuels chez les adolescents fréquentant les centres des jeunes pourrait s'expliquer par l'offre de l'éducation sexuelle complète et un meilleur accès aux méthodes de prévention des infections sexuellement transmissibles.

### INTRODUCTION

The Human Immunodeficiency Virus (HIV) infection mainly concerns the young population and is predominantly sexually transmitted in Africa. According to UNAIDS 2020

statistics' report, about the third of the 36.9 million people infected by HIV in the world are between 10 and 24 years of age. In most regions of the world, teenagers, girls in

particular, are the main vulnerable group of this infection. Moreover, recent data suggest the sexually transmitted infections (STI) epidemic is in progression in this class of the population [1]. Development in resource-poor countries is threatened by contamination of their young and productive population, leading to collapse of economies and increased household poverty, according to a UNAIDS report in 2020. In sub-Saharan Africa, the medias (television and radio) are important sources of information about HIV and STI among adolescents [2,3]. Many studies found a weak role of parents in the acquisition of knowledge about sexuality [2,4,5]. The school, major education and knowledge acquisition channel, unfortunately, is not used enough to convey the information about sexuality [6]. It is a place where a lot of influence out of the family can affect students' behavior, but also a place where classically useful knowledge for social and professional life is acquired. Yet, successful comprehensive study programs applied nationally in developed countries have been associated with relatively low rates of pregnancy and STIs in adolescent girls, according to a UNAIDS report in 2020.

Teenage, is the period when youths particularly develop sexual experiences that can lead to STI and HIV infection. High risk sexual practices in this population include multiple sexual partners, non-protected sexual relation, and sexual relation with older sexual partners [7]. The reason of the susceptibility to these infections in females is biological and socio-economic, on the other hand, males have a higher number of partners [8–11].

The preliminary findings of Cameroon Population-based HIV Impact Assessment (CAMPHIA) study conducted in Cameroon in 2017 showed a peak of the HIV incidence in the age group 15-24 years, with 9 times higher in girls than boys. However, a few studies explored the sexual risk behaviors and associated factors among adolescents aged 10-19 years in recent years. This could help policymakers and HIV/AIDS program managers to develop adequate preventive strategies targeting youths and adolescents.

This study aimed at studying factors associated with reporting of sexual activity initiation and use of condom during the last sexual intercourse in Cameroonian adolescents.

## MATERIALS AND METHODS

### Study design and setting

The study was a cross-sectional survey conducted in 2018 that assessed the level of knowledge, attitudes and practices on HIV prevention of adolescents attending youth centers and secondary schools in Cameroon.

### Characteristics of participants and Sampling criteria

A multilevel sampling was used. The levels were regions, health districts, secondary schools and youth centers, and finally classrooms. The survey was conducted in 4 regions of the country (East, Far North, North and West), in which 10 health districts were selected. In total, 23 secondary schools and 14 youth centers were selected. Finally, 1153 adolescents aged 10 to 19 were randomly enrolled in all study sites.

Teams of investigators conducted structured interviews with the randomly selected adolescents in a confidential setting using a questionnaire. The information was collected on sociodemographic characteristics, knowledge, attitudes and practices towards HIV and AIDS.

## Variables

### Main outcome variables

The main outcome variables for this study were reporting sexual activity initiation and use of condom during the last sexual intercourse. Both of these variables were binary and categorized as “yes” or “no”.

### Exposure variables

Sociodemographic information included gender, age, region, religion, type of person living with the adolescent and education. History of attendance to HIV counselling was also sought.

### Statistical analysis

Descriptive analysis concerned sociodemographic characteristics, reporting of sexual activity initiation, and use of condom at the last sexual intercourse. Univariate and multivariate logistic regressions were used to assess the association, on the one hand, between reporting of sexual activity initiation and adolescents' sociodemographic characteristics, and, on the other hand, the use of condom at the last sexual intercourse and adolescents' sociodemographic characteristics.

All statistical analysis were performed with STATA 13.0 (StataCorp, College Station, TX).

### Ethical consideration

This study was conducted after getting ethical clearance from the Cameroon National Committee of Ethics and administrative authorization from the Ministry of Public Health. For each adolescent, a written consent of their parent or guardian was obtained. The participation of the adolescent was voluntary. No refusal to participate was registered. Data were kept confidential and accessed only by the research team.

## RESULTS

### Study Population

Among the 1153 adolescents enrolled in this study at a median age of 16 years (IQR: 14-18), a half (51.2%) were boys [Table 1]. Respectively 30.7%, 22.7%, 27.8% and 18.8% were living in East, Far-North, North and West regions and respectively 36.9%, 26.8%, 27.0% and 9.3% were catholic, muslim, protestant and other religions. Most (71.0%) were living with their parents. Only half (50.0%) had stated history of attendance to HIV counselling respectively in an educational institution (35.1%), in a healthcare facility (5.8%) or in church or mosque or youth club or home (9.1%). Respectively 49.3%, 37.9% and 12.8% were attending lower secondary education, upper secondary education and youth center.

### Adolescents' sexual behaviours

In total, 293 (25.4%) adolescents reported that they had initiated sexual activity, of whom 200 (69.7%) stated that they had used condoms during the last sexual intercourse (Table 1).

**Table 1: Baseline characteristics of the study population (Assessment of knowledge, attitudes and practices on HIV and AIDS of adolescents of multifunctional centers for the promotion of youth and secondary schools in Cameroon, 2018)**

Variable	N	% (n) or median (IQR)
<b>Male</b>	1153	51.2 (590)
<b>Age (years)</b>	1153	
10-14		28.6 (330)
15-19		71.4 (823)
Median (IQR)		16 (14 – 18)
<b>Region</b>	1153	
East		30.7 (354)
Far-North		22.7 (262)
North		27.8 (320)
West		18.8 (217)
<b>Religion</b>	1153	
Catholic		36.9 (425)
Muslim		26.8 (309)
Protestant		27.0 (311)
Others		9.3 (108)
<b>Adolescent living :</b>		
With parents		71.0 (819)
With gardian		22.7 (262)
Alone		6.3 (72)
<b>Education</b>	1150	
Lower secondary education		49.3 (567)
Upper secondary education		37.9 (436)
Youth center		12.8 (147)
<b>Experience of HIV counselling attendee</b>	1050	
None		50.0 (525)
Educational institution		35.1 (369)
Healthcare facility		5.8 (60)
Church or mosque or youth club or home		9.1 (96)
<b>Reporting sexual activity initiation</b>	1152	25.4 (293)
<b>Use of condom at the last sexual intercourse</b>	287	69.7 (200)

N: total number of subjects; n: number of subjects in the category; %: percentage; IQR: interquartile range.

In univariate analysis [Table 2], reporting sexual activity initiation was associated with male gender (Odds Ratio (OR)=2.1 (1.6-2.7),  $p<0.001$ ), age 15-19 years (OR=7.7 (4.8-12.4),  $p<0.001$ ), living in West or East region (respectively OR=1.8 (1.2-2.6) and OR=3.4 (2.5-4.6),  $p<0.001$ ), being Christian or other religion (versus Islam) (OR=1.5 (1.1-2.1),  $p=0.008$ ), living alone (OR=3.8 (2.3-6.2),  $p<0.001$ ), attending upper secondary education or a youth center (versus lower secondary education) (respectively OR=3.0 (2.2-4.0) and OR=2.3 (1.5-3.6),  $p<0.001$ ) and history of attendance to HIV counselling (OR=1.7 (1.3-2.3),  $p<0.001$ ). In multivariate analysis, all these factors remained associated with reporting sexual activity initiation ( $p<0.001$ ), except experience of HIV counselling ( $p=0.204$ ).

In univariate analysis, among adolescents who reported sexual activity initiation (Table 3), the only factor associated with reporting the use of condom during the last intersexual course was attending a youth center (versus lower and upper secondary education) (OR=3.0 (1.2-7.1),  $p=0.035$ ). This association remained statistically significant in multivariate analysis ( $p=0.047$ ). There was a non-significant association between reporting the use of condom during the last intersexual course and living in the West region both in univariate and multivariate analysis (respectively  $p=0.090$  and  $p=0.108$ ).

## DISCUSSION

In this study which focused on factors associated with sexual initiation and use of condom during the last sexual intercourse in adolescents attending secondary schools or youth centers in 4 regions of Cameroon, 293 (25.4%) adolescents reported having a history of sexual intercourse, of whom almost two thirds (69.7%) reported condom use during the last sexual intercourse. This finding was similar to the results from a study conducted among South-African adolescents where 29.0% reported using condoms consistently [12]. Unlike South Africa and Cameroon, a Cape Verdian study showed a higher prevalence of condom use (84.7%) during sexual activity due to better access to information, sex education, and other Sexually Transmitted Diseases' (STD) prevention and contraceptive methods [13]. In fact, Cape Verdian government had increased effort to implement public policies for sustained sex education for children, adolescents, and youth in the school settings. Social Skills in STD and HIV had been introduced in the primary and secondary school curricula. These courses included activities like talks, skits, and video debates on gender relations and contraceptive and condom use. Likewise, young people's access to condoms has been expanded in the health services.

Among sexually active adolescents in the current study, those attending youth centers were more likely to report condom use during the last sexual intercourse than those attending secondary schools. In accordance with the Cape Verdian experience, this situation could be explained by the provision of Comprehensive Sexuality Education in Cameroonian youth centers, which has been detailed in 2020 by UNFPA through International Technical and Programmatic Guidance on Out-of-School Comprehensive Sexuality Education. Unlike the youth centers, the course (Education for Life and Love) included for this purpose in Cameroonian secondary schools provided less sustained sex education and other STD prevention and contraceptive methods that is fewer skills in HIV and STD have been introduced in Cameroonian secondary school curricula. Moreover, health clubs' activities in secondary schools did not often address condom use methods.

In this study, reporting sexual activity initiation was associated with male gender, age 15-19 years and non-muslim religion. Similarly in a Cape Verdian study, age over 14 years and Catholic religion were related to sexual initiation among boys [12]. Noteworthy, premarital sexual intercourse is strongly banished by Islam [13,14]. Thus, there was earlier sexual activity initiation among adolescents in the East and West regions of Cameroon, which hosted less muslim persons than the North and Far-North regions. While sexual mores are known to be more permissive in the East region, perceptions of premarital virginity are changing in the West region to be more flexible [15]. The frequency of sexually active girls was increasing in West region due to growing liberation of mores in relation to economic crisis. Furthermore, mid-adolescence is a time of high vulnerability to risky behavior, especially in the presence of peers [16].

**Table 2: Factors associated with reporting of sexual activity initiation in adolescents attending multifunctional centers for the promotion of youth and secondary schools in Cameroon (Assessment of knowledge, attitudes and practices concerning HIV and AIDS prevention in adolescents attending secondary schools or youth centers in Cameroon, 2018)**

Variable	Univariate analysis					Multivariate analysis		
	<i>Sexual intercourse experienced at least once</i>					Adjusted OR (95% CI)	p	N2
N	n	%	Crude OR (95% CI)	p				
<b>Gender</b>								1149
Female	562	104	18.5	1	<0.001	1	<0.001	
Male	590	189	32.0	2.1 (1.6-2.7)		2.2 (1.6-3.0)		
<b>Age (years)</b>								
10-14	330	20	6.1	1	<0.001	1	<0.001	
15-19	822	273	33.2	7.7 (4.8-12.4)		6.9 (4.1-11.9)		
<b>Region</b>								
Far-North or north	582	96	16.5	1	<0.001	1	<0.001	
West	216	56	25.9	1.8 (1.2-2.6)		2.5 (1.6-3.8)		
East	354	141	39.8	3.4 (2.5-4.6)		4.5 (3.2-6.3)		
<b>Religion</b>								
Muslim	309	61	19.7	1	0.008	1	<0.001	
Christian or other	843	232	27.5	1.5 (1.1-2.1)		1.5 (1.0-2.2)		
<b>Adolescent living:</b>								
With parents	819	179	21.9	1	<0.001	1	<0.001	
With guardian	261	77	29.5	1.3 (0.9-1.8)		1.3 (0.9-1.8)		
Alone	72	37	51.4	3.8 (2.3-6.2)		2.9 (1.7-4.9)		
<b>Education</b>								
Lower secondary education	567	90	15.9	1	<0.001	1	0.007	
Upper secondary education	435	156	35.9	3.0 (2.2-4.0)		1.4 (0.9-2.0)		
Youth center	147	45	30.6	2.3 (1.5-3.6)		2.2 (1.4-3.7)		
<b>History of attendance to HIV counselling</b>								
No	525	105	20.0	1	<0.001	1	0.204	
Yes	527	188	30.0	1.7 (1.3-2.3)		1.2 (0.9-1.7)		

N: total number of subjects in univariate analysis; n: number of subjects in the category; %: percentage; 95% CI: 95% confidence interval; p: Wald test; N2: total number of subjects in multivariate analysis.

**Table 3: Factors associated with condom use at the last sexual intercourse in adolescents attending multifunctional centers for the promotion of youth and secondary schools in Cameroon (Assessment of knowledge, attitudes and practices concerning HIV and AIDS prevention in adolescents attending secondary schools or youth centers in Cameroon, 2018)**

Variable	Univariate analysis					Multivariate analysis		
	<i>Use of condom at the last intersexual course</i>					Adjusted OR (95% CI)	p	N2
N	n	%	Crude OR (95% CI)	p				
<b>Gender</b>								285
Female	100	72	72.0	1				
Male	187	128	68.5	0.8 (0.5-1.4)	0.533			
<b>Age (years)</b>								
10-14	19	10	52.6	1	0.101			
15-19	268	190	70.9	2.2 (0.9-1.6)				
<b>Region</b>								
Far-North or north	94	59	62.8	1	0.090	1	0.108	
West	57	44	80.0	2.4 (1.1-5.2)		2.3 (1.0-5.0)		
East	138	97	70.3	1.4 (0.8-2.5)		1.5 (0.9-2.7)		
<b>Religion</b>								
Muslim	60	42	70.0	1	0.953			
Christian or other	227	158	69.6	0.9 (0.5-1.8)				
<b>Adolescent living :</b>								
With parents	175	120	68.6	1	0.850			
With guardian	75	53	70.7	1.1 (0.6-2.0)				
Alone	37	27	73.0	1.2 (0.6-2.7)				
<b>Education</b>								
Lower secondary education	88	53	60.2	1	0.035	1	0.047	
Upper secondary education	153	109	71.2	1.6 (0.9-2.8)		1.5 (0.9-2.6)		
<b>Multifunctional youth promotion center</b>	44	36	81.8	3.0 (1.2-7.1)		3.0 (1.2-7.5)		
<b>History of attendance to HIV counselling</b>								
No	104	71	68.3	1	0.694			
Yes	183	129	70.5	1.1 (0.7-1.9)				

N: total number of subjects in univariate analysis; n: number of subjects in the category; %: percentage; 95% CI: 95% confidence interval; p: Wald test; N2: total number of subjects in multivariate analysis.

Adolescents living alone and those attending upper secondary school level, more likely to be over than 14 years old, were also more likely to report sexual activity initiation. The increase in premarital sex among adolescents living alone, especially males, can be attributed to the fact

that they were more independent from their families and had greater access to young women for sex [13]. The difference in sexual activity initiation between girls and boys could be related to the socio-cultural context considering that it is normal for a boy to engage in an active

sexual life at younger ages, before marriage. Moreover, this situation could be explained biologically ("the sexual instinct is very developed in boys during puberty"), and socially ("the boy's family environment wants him to prove his virility"; "The boy must have prior sexual experience so that he is able to teach her future wife how to have sex, and not vice versa") [15]. On contrary, women are very often discouraged or even forbidden from engaging in sex before marriage.

There were strengths in this study including the large sample size which may provide high power. Moreover, the participant's privacy was strictly maintained.

There were also some limitations, including the cross-sectional design of the study which limited the causal interpretation. Furthermore, proper use of condoms could not be assessed, such as whether there were no slippages or no early removals. These limitations would affect the implications of our findings in effective prevention of STD. Face-to-face interviews may have also generated some social desirability bias likely to result in an underestimation of high-risk sexual behaviors. In fact, socially sensitive behavior is likely to be under-reported especially when face to face interviews are used instead of self-administered questionnaires [15]. A larger sample size could have conferred more power to confirm the association between the use of condom during the last intersexual course and living in the West region [16].

## CONCLUSION

In this study which concerned Cameroonian adolescents attending secondary schools or youth centers, sexual activity initiation was associated with male gender, older age and non-muslim religion. Among sexually active adolescents, condom use at the last sexual intercourse was more reported by those who were attending youth centers. Condom use is a primary method to prevent undesirable health outcomes, specifically sexually transmitted infections [17]. More frequent condom use during the last sexual intercourse among adolescents attending youth centers could be explained by better access to sex education and other STD prevention, due to the introduction of Comprehensive Sexuality Education in the youth centers curricula.

## Competing interests

The authors declare that they have no competing interests.

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There was no funding for this study.

## Authors' contributions

Francis ATEBA NDONGO participated in the study design and conception, the recruitment of adolescents, the data analysis and the manuscript writing. BITOUGA NOAH Aristide participated in the study design and conception, the recruitment of adolescents, the data analysis and the manuscript writing. NDIE Justin and FABOU Martial participated in the study design and conception, the recruitment of adolescents and the data analysis. THE MONTEH Caroline participated in the recruitment of adolescents, and the manuscript writing. BENG AMOUGOU Célestin, KEGOUM Basile, OLOUME

BEYEME Valentine, and BACHA Abdelkader participated in the study design and conception, and the manuscript writing. ZOUNG-KANYI BISSEK Anne Cecile participated in the study design and conception, the study coordination and the manuscript writing.

All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

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