



Determinants of Sexual and Reproductive Health Problems among Students in 21 Secondary Schools in the Dschang Health District

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Abstract

Context: Sexual and reproductive health (SRH) is essential to young people's well-being, yet many adolescents especially in Cameroon continue to face sociocultural and economic barriers that limit their access to accurate information and services. This study aimed to assess the prevalence of SRH problems among secondary school students in the Dschang Health District and identify key determinants influencing these outcomes.

Methods: A cross-sectional study with an analytical component was conducted from December 2024 to July 2025 in 21 secondary schools within the Dschang Health District. Data were collected through a structured, administered face-to-face questionnaire. Participants were randomly selected, and a total of 600 students were included. Data were analyzed using R and Microsoft Excel software 2016.

Results: Among the 600 participants, 85% had heard of sexual health, 46% knew how to use a condom, but only 29% had ever utilized SRH services. Overall knowledge was moderate (57.5%). Key barriers to service use were limited financial accessibility (64%) and social stigma or fear of judgment (74%). Protective factors significantly associated with reduced SRH problems included dialogue with parents ($p = 0.001$), sex education at school ($p = 0.005$), practicing protected sex ($p = 0.004$), and knowledge of the menstrual cycle ($p \approx 0.006$).

Conclusion: Participants demonstrated a moderate level of knowledge about sexual and reproductive health,

with limited use of available services. The main barriers were reduced accessibility to services, social stigma, and fear of judgment. Positive determinants of SRH outcomes included parental dialogue, school-based sex education, practicing protected sex, and knowledge of the menstrual cycle.

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Introduction

Sexual and reproductive health (SRH) refers to the ability to enjoy a safe and fulfilling sexual life and to make informed decisions regarding reproduction according to their personal preferences. It is grounded in a fundamental principle that every individual has the right to decide whether, when, how often, and with whom to engage in sexual relations [1].

Adolescence is a dynamic and formative stage marked by distinct SRH needs. Healthy young people represent vital human capital for families, communities, and nations, contributing as valuable resources for social, economic, and political development [2]. Despite this potential, millions of adolescents aged 10 to 24 continue to face significant SRH challenges each year, primarily due to inadequate access to accurate information, youth friendly services, and protective social environments. Consequently, SRH issues remain a major global public health concern [3].

In developing countries, particularly in Cameroon, young people are exposed to multiple SRH risks, including early and unintended pregnancies, unsafe abortions, sexual violence, early marriage, sexually transmitted infections (STIs), and other pregnancy-related complications [4]. These challenges are often exacerbated by barriers that limit adolescents' willingness or ability to seek care. These Moreover, many adolescents and young adults are reluctant to seek health services due to barriers such as fear of judgment from health professionals, lack of privacy in health centers, personal embarrassment, and limited understanding or training among providers regarding the specific SRH needs of young people [5].

The rising burden of SRH problems among adolescents is particularly worrisome due to its long-term social and economic consequences. Globally, adolescent girls experience an estimated 3.9 million unsafe abortions and 10 million unintended pregnancies annually, alongside 357 million cases of curable STIs [6]. In sub-Saharan Africa, 10% to 20% of young people aged 15 to 24 report having their first sexual experience before the age of 15 [7]. STIs remain a significant public health concern, with more than 2 million adolescents aged 10 to 19 living with HIV [8]. HIV is the second leading cause of death among adolescents, and young women aged 15 to 24 are disproportionately affected, exhibiting approximately twice the HIV prevalence of their male peers [9,10]. Moreover, complications related to pregnancy and childbirth are the second leading cause of death among girls aged 15 to 19 [10]. Despite increasing research on adolescent SRH, critical evidence gaps remain, particularly concerning the contextual determinants of SRH problems among secondary school populations. Understanding these determinants is essential for designing effective, context-appropriate interventions.

Methodology

Study Design

A cross-sectional study was conducted between October 2024 and July 2025. The study targeted students enrolled in secondary schools within the Dschang Health District.

Study Population

The study population comprised students attending selected public and private secondary schools in the Dschang Health District. Secondary school students who were present during the study and who consented

to participate were included in our study meanwhile, students with incomplete data were excluded from the analysis.

Sampling Size

The sample size for each school was calculated using the WHO formula described by Lwanga, assuming a 95% confidence interval, a 5% margin of error, and a 10% anticipated non-response rate:

$$N = \frac{Z^2 \alpha P (1 - P)}{d^2}$$

Where:

- **P** = prevalence of sexual and reproductive health problems in Cameroon, assumed at 50%
- **Z** = Z-score for a 95% confidence interval, 1.96
- **d** = margin of error, 0.05

This calculation yielded a minimum required sample size of 405 participants.

Sampling Technique

A multi-stage sampling technique was employed to select study participants:

- Health Area Selection: Ten health areas were selected using simple random sampling.
- School Stratification: Within these health areas, schools were stratified into 17 public institutions and 5 private institutions (total 22, including 1 refusal).
- School Selection: Eleven schools were selected in rural areas and 11 in urban areas.
- Participant Selection: Students were randomly drawn from the existing sampling frame.
- The study was ultimately conducted in 10 health areas across 21 schools (including four private institutions), yielding 635 participants from the fourth to final year of secondary school.

Study Variables

Dependent Variables:

- Students' level of knowledge about sexual and reproductive health
- Barriers to using sexual health services
- Sexual and reproductive health problems encountered

Assessment of Knowledge

Knowledge of sexual and reproductive health was measured using yes/no questions. Scores were assigned 1 point for each correct answer:

- < 25% correct: poor knowledge
- 25–70% correct: average knowledge
- 70% correct: good knowledge

Assessment of Barriers and SRH Problems

Barriers to service use and encountered SRH problems were determined through yes/no responses to relevant questions.

Data Collection tools and procedures

Data were collected using a structured, paper-based questionnaire, available in both French and English. The questionnaire consisted of 28 items divided into four sections: socio-demographic characteristics, knowledge about sexual health, barriers to using sexual health services, and determinants of sexual and reproductive health problems.

Data Management and Analysis

Data were first entered into Kobo Collect and exported to Microsoft Excel 2019 for cleaning and consistency checks. Cleaned data were then transferred to R software for analysis.

Descriptive statistics were used to compute frequencies and proportions. Results were presented using tables and narrative summaries. Logistic regression analysis was conducted to assess associations between predictor variables and SRH outcomes. Adjusted odds ratios (AOR) with corresponding 95% confidence intervals (CI) were calculated, and statistical significance was set at $p < 0.05$.

Ethical Considerations

Ethical approval was obtained from the Regional Ethics Committee for Human Health Research, West Cameroon. Administrative authorization was granted by the Menoua Departmental Delegation of Secondary Education and the Dschang Health District. Written or verbal informed consent was obtained from students aged 18 years and above, while assent was obtained from minors alongside parental or guardian consent. All questionnaires were coded to ensure confidentiality, and data were accessible only to authorized research personnel.

Results

A total of 635 students from 21 secondary schools across 10 health areas were approached. One school refused participation and 35 questionnaires were excluded as unusable, leaving 600 completed questionnaires for analysis (response rate = 94.5%).

Socio-Demographic Characteristics

Table 1 summarizes the study population (n = 600). The median age grouping and sex distribution were as follows: 314 (52.3%) were aged ≥ 17 years, and 398 (66.3%) were female. The distribution by school year was: second year 208 (34.7%), first year 198 (33.0%), terminal year 117 (19.5%), fourth year 43 (7.2%), and third year 34 (5.7%). By religion the majority were Catholic 369 (61.5%), followed by Protestant 114 (19.0%), Muslim 59 (9.8%), and animist 58 (9.7%). Reported parental income was: average 271 (45.2%), unknown 206 (34.3%), high 73 (12.2%), and low 50 (8.3%).

Table 1: Sociodemographic Characteristics of the Study Population

Variables	Number (n=600)	Frequency (%)
Age group		
≥ 17 years old	314	52.3
< 17 years old	286	47.7
Sex		
Female	398	66.3
Male	202	33.7
Class		
Fourth	43	7.1
Third	34	5.7
Second	208	35.7
First	198	33
Terminal	117	19.5
Religion		
Animist	58	9.7
Catholic	369	61.5
Muslim	59	9.8
Protestant	114	19
Parents' income		
Low	50	8.3
Average	271	45.2
High	73	12.2
I don't know	206	34.3

Knowledge of SRH

Overall awareness and knowledge indicators are summarized in Table 2. Most respondents had heard of sexual health 507 (85%), while 277 (46%) reported knowing how to use a condom. A majority of 423 (71%) believed condoms are effective against STIs. Most students (86%) correctly identified unprotected sex as a mode of STI transmission, while 143 (24%) incorrectly believed skin-to-skin contact could transmit STIs. Regarding contraception, 441 (74%) considered contraceptive methods effective in preventing unwanted pregnancies (Table 2).

Table 2: Knowledge of Sexual and Reproductive Health among Secondary School Students in the Dschang Health District.

Variables	Effective	Frequency (%)
Heard sexual health		
No	93	15.5
Yes	507	84.5
Knows how to use a condom		
No	323	53.8
Yes	277	46.2
Effective condom STI		
No	177	29.5
Yes	423	70.5
Skin-to-skin STIs		
No	454	75.7
Yes	143	23.8
Don't know	3	0.5
STI unprotected sex		
No	86	14.3
Yes	514	85.7
STI screening is important		
No	86	14.3
Yes	514	85.7
Effective contraception during pregnancy		
No	159	26.5
Yes	441	73.5

Sources of Information on SRH

Table 3 presents the sources of information on sexual and reproductive health (SRH) among respondents who reported having heard about SRH. The majority, 388 students (44%), identified school as their main source of information, highlighting its central role in disseminating SRH knowledge. Other sources included parents (161, 18%) and friends (141, 16%). Less frequently cited sources were social networks (95, 11%) and hospitals (88, 10%). These findings underscore the pivotal role of educational institutions in providing SRH information to adolescents.

Table 3: Sources of Information on SRH among Students in the Dschang Health District

Variables	Effective	Frequency
How did you hear about SR?		
School	388	44.4
Parents	161	18.4
Friends	141	16.2
Social networks	95	10.9
Hospitals	88	10.1

Knowledge score

Using the scoring thresholds described in Methods, 345 (57.5%) had average knowledge, 172 (28.7%) had good knowledge, and 83 (13.8%) had poor knowledge (Table 4).

Table 4: Overall Knowledge of Respondents

Level of knowledge	Effective	Percentage (%)
Low knowledge	83	13.8
Average knowledge	345	57.5
Good knowledge	172	28.7

Use of Sexual and Reproductive Health Services

Only 176 (29.3%) of respondents reported ever using SRH services, while 424 (70.7%) had never used such services (Table 5).

Table 5: Use of Sexual and Reproductive Health Services

Use of SRH services	Effective	Percentage
Yes	176	29.3
No	424	70.7

Barriers to the use of SRH Services

Primary barriers reported (Table 6) included poor accessibility/financial difficulties 384 (64%), fear that parents/friends would find out 445 (74%), fear of being judged by health professionals 420 (70%), perception that service users are stigmatized 350 (58%), and personal experiences of stigma/judgement 500 (83%).

Table 6: Barriers to Non-Use of Sexual and Reproductive Health Services among Respondents

Variables	N = 600	Frequency (%)
Financial difficulties		
No	216	36
Yes	384	64
Fear that your parents or friends will find out that you are using it		
No	155	25.8
Yes	445	74.2
Fear of being judged by health professionals		
No	180	30
Yes	420	70
Do you think that students who use it are stigmatized?		
No	250	41.7
Yes	350	58.3
Stigmatized or judged after talking about sexual health		
No	100	16.7
Yes	500	83.3

Determinants of Sexual and Reproductive Health Problems among Respondents

The regression analysis showed that students' age, class, religion, and parents' income did not play a meaningful role in whether they experienced sexual and reproductive health (SRH) problems, as none of these factors were statistically significant. Instead, the factors that mattered most were related to communication, behavior,

and basic reproductive health knowledge. Students who talked openly with their parents about sexual health were far less likely to face SRH problems, a finding strongly supported by the data (aOR = 1.25; $p < 0.001$). Receiving sex education directly from teachers also appeared protective (aOR = 1.17; $p = 0.005$), highlighting the value of school-based guidance. In contrast, risky sexual behaviors were clearly linked to poorer outcomes. Students who engaged in unprotected sex had a substantially higher risk of SRH problems (aOR = 1.80; $p = 0.004$), and those who did not use contraceptives, or used them inconsistently, were similarly vulnerable (no use: aOR = 1.30; $p = 0.002$; inconsistent use: aOR = 1.77; $p = 0.005$). Limited menstrual or fertility awareness also emerged as a significant determinant, with students unable to track menstrual cycles showing increased odds of experiencing SRH problems (aOR = 0.88; $p \approx 0.006$). Even sexual activity influenced by a third party although a weaker factor still carried a measurable increase in risk (aOR = 1.04; $p = 0.008$). Overall, these results suggest that what most strongly shapes adolescents' SRH experiences is not who they are, but how they behave, what they know, and the quality of the conversations they are able to have with trusted adults.

Table 7: Factors Associated with Sexual and Reproductive Health (SRH)

Variables	OR	CI (95%)	P-value	aOR	CI (95%)	P-value
AGE						
≥17 years old	—					
> 17 years old	0.83	0.58, 1.18	0.3	0.87	0.55, 1.39	0.6
Class						
Fourth	—			—	—	
Third	2.39	0.85, 6.99	0.1	2.45	0.85, 7.37	0.1
Second	1.82	0.83, 4.41	0.2	1.66	0.73, 4.16	0.3
First	1.99	0.91, 4.85	0.1	1.76	0.72, 4.66	0.2
Terminale	2.02	0.89, 5.07	0.11	1.75	0.66, 5.00	0.3
Religion						
Animist	—			—	—	
Catholic	0.96	0.53, 1.78	0.9	1.02	0.56, 1.93	0.9
Muslim	1.14	0.52, 2.49	0.7	1.39	0.61, 3.21	0.4
Protestant	0.83	0.42, 1.68	0.6	0.91	0.44, 1.88	0.8
Parents' income						
Down	—			—	—	
Average	1.14	0.59, 2.28	0.7	1.14	0.58, 2.35	0.7
High	0.78	0.34, 1.79	0.6	0.76	0.33, 1.79	0.5
I don't know	1.21	0.62, 2.47	0.6	1.22	0.62, 2.54	0.6
Parents talk about sexual health						
No	—			—	—	
Yes	1.17	2.82, 3.20	<0.001	1.25	2.86, 3.21	<0.001
Teachers talk about sexual health						
No	—			—	—	
Yes	1.21	1.12, 1.79	0.003	1.17	1.20, 1.78	0.005
Unprotected intercourse						
No	—			—	—	

Yes	1.8	1.53, 2.20	0.003	1.8	1.53, 2.22	0.004
Uses contraceptives during intercourse						
Yes	—			—	—	
No	1.28	1.84, 2.95	0.003	1.3	1.83, 2.82	0.002
Not always	1.78	1.44, 2.34	0.004	1.77	1.40, 2.36	0.005
Knows how to count menstrual cycles						
Yes	—			—	—	
No	0.94	1.66, 2.33	0.007	0.88	1.60, 2.28	0.006
Sexual intercourse under the influence of a third party						
No	—			—	—	
Yes	1.07	1.72, 2.58	0.007	1.04	1.69, 2.56	0.008

Discussion

This study aimed to assess the prevalence of SRH problems among secondary school students in the Dschang Health District and identify key determinants influencing these outcomes.

Although awareness of sexual health was moderately high, similar to the levels reported by Wekesa et al. [11], many students still lacked practical knowledge. For instance, fewer than half (46%) knew how to use a condom correctly a pattern also noted by Kassa et al. [12] among young people in sub-Saharan Africa. Even though most students agreed that condoms are effective, echoing findings from Chandra-Mouli et al. [13], simply believing in their effectiveness does not automatically translate into safe behaviour.

Another striking finding was the low use of SRH services: more than two-thirds (71%) of students had never used them. This mirrors barriers described by other authors such as fear of judgment, lack of confidentiality, stigma, and limited accessibility highlighted [13,4]. Compared to Nigerian adolescents in the study [14], who showed higher service utilization, our results suggest that students in the Dschang area may face even stronger emotional and structural barriers.

Communication emerged as one of the most important protective factors. One of the first observations was that basic sociodemographic characteristics such as sex, age, and level of education did not show a significant influence on SRH outcomes. This finding contrasts with work from Kabiru et al. in East Africa, who found noticeable age differences in risk-taking, and with Silva [11], who showed that religion can shape young people's perspectives on sexuality. The absence of such associations in our setting suggests that what truly shapes SRH outcomes among these students may be more related to their daily experiences, behaviours, and environments rather than who they are demographically. Students who talked openly with their parents had a significantly lower risk of experiencing SRH problems, reinforcing earlier work by Ivanova [12]. Similarly, receiving sexuality education from teachers was associated with fewer SRH problems, supporting evidence from UNESCO and Mmari N [15] on the benefits of structured school-based programs.

Behavioural factors, however, had the strongest impact. Engaging in unprotected sex significantly increased students' SRH risks, aligning with findings from UNFPA [1]. Not using contraceptives or using them inconsistently also raised risks substantially, similar to what has been reported in Ethiopia [5]. Limited understanding of the menstrual cycle was another significant contributor, reinforcing Mmari N [15] who emphasized

menstrual literacy as a key element of SRH protection. Sexual activity influenced by a third party also increased the likelihood of SRH problems. This differs from the findings of Muche [14], who did not identify such an association, suggesting that social pressure dynamics may differ in this context.

This study has a few limitations that should be kept in mind. Because it was cross-sectional, we could only observe associations and not determine cause and effect. The information collected was self-reported, which means some students may have forgotten details or felt uncomfortable sharing sensitive behaviours, even though confidentiality was assured. Also, since the study was carried out in one health district, the findings may not fully reflect the situation in other areas. Finally, our questionnaire provided only a broad overview of SRH knowledge, and some important influences such as the quality of youth-friendly services or deeper family and peer dynamics were not explored in detail.

Conclusion

Overall, these results show that SRH outcomes among students in the Dschang Health District are shaped far more by behaviours, communication, and knowledge than by demographic factors. Strengthening sexuality education, ensuring that SRH services are youth-friendly and stigma-free, and encouraging meaningful conversations between adolescents and the adults around them could play a crucial role in reducing SRH problems in this population.

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