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Seroprevalence and Risk Factors Associated with *Chlamydia trachomatis* Infection among Sexually Active Patients Visiting the Buea Regional Hospital, Cameroon

Pride Tanyi Bobga[1,2,3,4,5,6*], Bime Melissa Jane Siben[6], Cyril Egbe Obi[7], Enoh Junior Enoh[2,8], Loic Noukam Oum[1,2], Agu Felix Eyong[2,9], Benjamin Nganda Wembolowa[2], Tata Liza Ting[5], Arrey Michael Tabe[2,3,10], Fabrice Ngwa Ambe[2,3,10,11]

[1]Laboratory Services, Pilem Medical Diagnostic Laboratory, Bafoussam, Cameroon
[2]Model Preparatory Initiative of Academics, Research and Health (MOPIARH), Buea, Cameroon
[3]Department of Medical Laboratory Sciences, Faculty of Health Sciences, University of Buea, Buea, Cameroon
[4]Department of Biomedical Sciences, St Louis University Institute, Douala, Cameroon
[5]Department of Public Health and Hygiene, Faculty of Health Sciences, University of Buea, Buea, Cameroon
[6]Department of Clinical Research & Implementation, INFIUSS Health, New York, NY, USA
[7]Department of Medicine, Faculty of Health Sciences, University of Buea, Buea, Cameroon
[8]Department of Biomedical Sciences, Faculty of Health Sciences, University of Buea, Buea, Cameroon
[9]Department of Nursing, Faculty of Health Sciences, University of Buea, Buea, Cameroon
[10]Department of Research Services, Model Faculties of Medicine/Engineering Entrance Preparatory Center (MUFEPREC), Buea, Cameroon
[11]Department of Medical Laboratory Sciences, INSAM Douala, Douala, Cameroon
Email: *tanyi.pride@ubuea.cm, bobgatanyi@yahoo.com

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Abstract

Background: *Chlamydia trachomatis* is a common sexually transmitted infection (STI) with significant public health implications, particularly among young adults. This study aimed to determine the seroprevalence and risk factors associated with *Chlamydia trachomatis* infection among sexually active patients attending the Buea Regional Hospital, Cameroon. **Methods:** A cross-sectional study was conducted, enrolling 247 participants aged 18 - 52 years. Participants were recruited using a consecutive sampling technique. A structured questionnaire was used to collect data on sociodemographic characteristics, sexual behavior, and *Chlamydia* screening history. Serological tests for IgG and IgM antibodies were performed to determine *Chlamydia trachomatis* (Monocent, Inc, USA) prevalence. Statistical analysis was conducted to assess associations between infection prevalence and potential risk factors using Chi-

*Corresponding author.

square and Multivariate logistics regression analysis with statistical significance set at $p < 0.05$. **Results:** The overall seroprevalence of *Chlamydia trachomatis* was 45.7%, with 42.5% testing positive for IgG and 15.4% for IgM. The highest prevalence was observed among participants aged 18 - 24 years (28.3%; $p = 0.009$). Female participants exhibited a higher prevalence (31.1%) compared to males. A significant association was found between early sexual debut (15 - 19 years) and *Chlamydia* prevalence ($p = 0.024$), with those initiating sexual activity within this age group being 1.92 times more likely to be infected (AOR 1.35 - 8.46, $p = 0.027$). Vaginal sexual engagement ($p = 0.005$) and lack of regular screening ($p = 0.004$) were also significantly associated with higher prevalence. Multivariate analysis showed that individuals aged 25 - 31 years had 3.14 times higher odds of infection (AOR 1.62 - 12.4, $p = 0.044$) compared to those over 39 years. **Conclusion:** This study shows a high seroprevalence of *Chlamydia trachomatis* among sexually active individuals, with young adults, early sexual debut, and lack of screening being key risk factors. Targeted interventions, including increased screening, education on sexual health, and early treatment, are essential to reduce the burden of *Chlamydia* infections in this population.

Keywords

Seroprevalence, *Chlamydia trachomatis,* Risk Factors, Sexually Active, Buea Regional Hospital, Cameroon

1. Background

Sexually transmitted infections (STIs), include a range of clinical syndromes that can be acquired and transmitted through sexual activity [1]. The organisms (bacteria, viruses, or parasites) that cause STIs may pass from person to person in blood, semen, or vaginal fluids [2]. More than 1 million sexually transmitted infections (STIs) are acquired each day [3]. Each year, an estimated 376 million new infections with one (1) of four (4) STIs: *chlamydia*, gonorrhoea, syphilis, and trichomoniasis [1]. *Chlamydia spp.* are important causes of human disease for which no effective vaccine exists (4). *Chlamydia trachomatis* is the most common cause of curable bacterial STI worldwide [4]. *Chlamydia*e are gram-negative, obligate intracellular pathogens and symbionts of diverse organisms, ranging from humans to amoebae. *Chlamydia trachomatis* and *Chlamydia pneumoniae*, the major species that infect humans, are responsible for a wide range of diseases [5]. *Chlamydia trachomatis* causes trachoma and inclusion conjunctivitis; however, some *C. trachomatis* strains cause genital infections, including nongonococcal urethritis in men and acute salpingitis and cervicitis in women [6].

Asymptomatic *Chlamydia* infections are common in both men and women with up to 60% exhibiting no symptoms [7]. *Chlamydia trachomatis* is the leading cause of tubal infertility and ectopic pregnancy in women [8]. An untreated *chlamydia* infection may cause severe complications in the upper reproductive tract,

primarily in young women, including ectopic pregnancy and Pelvic Inflammatory Disease (PID); an infection of the uterus and fallopian tubes that causes pelvic pain and fever [9]. PID can cause damage to the fallopian tubes, ovaries, and uterus, including the cervix, salpingitis (inflammation of the fallopian tubes), and infertility [10]. Severe *Chlamydia* infections might require hospitalization for administration of intravenous antibiotics [11]. *Chlamydia trachomatis* is increasingly prevalent among men who have sex with men in some settings [12].

Chlamydia trachomatis can be diagnosed by culture, Enzyme-Linked Immunosorbent Assays (ELISA), Serology, Nucleic Acid Amplification Tests (NAATs), which are preferred due to their superior performance [13]. *Chlamydia* infections are highly endemic in Cameroon with a prevalence ≥ 10%. Teenagers and young adults, including university students, are the population groups most affected by STIs [14]. In addition, early detectable cases of *Chlamydia* infection are difficult, approximately 70% of infected individuals will be asymptomatic for >1 year causing complications [6]. *Chlamydia* prevalence in Cameroon is of significant concern, with studies indicating rates ranging from 1% to as hight as 27.38% [14]. This study aimed to determine the seroprevalence and associated risk factors of *Chlamydia trachomatis* among sexually active patients attending the Buea Regional Hospital, South West region of Cameroon. The finding has helped to enhance additional knowledge on the prevalence, and associated risk factors of *Chlamydia* infection for informed public health interventions

2. Methods

2.1. Study Area

The study was carried out in Buea, the capital of the South West Region of Cameroon. The town is located on the eastern slope of mount Cameroon, found at an elevation of 870 m. According to the 2021 World Population Review, Buea has a population of over 47,300 [15]. The study site was at the Buea Regional Hospital Annex. This Hospital is well-equipped with laboratories that provide appropriate care to every patient visiting it. This hospital has several units including Outpatient, Surgical, Internal Medicine, Maternity, pediatrics, Laboratory unit, and Pharmacy.

2.2. Study Design

This was a cross-sectional hospital-based study involving participants who visited Buea Regional Hospital.

2.3. Inclusion Criteria

Self-reported and consented sexually active participants sent to the hospital laboratory for a *Chlamydia* test were included in the study.

2.4. Sampling Method and Sample Size

The sampling method was a consecutive sampling method.

N (sample size) was calculated using the Lorentz's formula [16]

$n = Z^2P\ (1 - P)/e^2$

Z Confidence interval = 1.96

P Prevalence from previous and similar study = 13% [17]

E level of precision = 5%

$n = (1.96)^2(0.13)\ (1 - 0.13)/0.005^2$

n = 174

2.4.1. Data Collection

The data collected for this study included the use of a semi-qualitative questionnaire to gather sociodemographic information, sexual behaviors, and risk factors from consenting participants, as well as laboratory analysis of blood samples to determine *Chlamydia* status. This study utilized an Enzyme-Linked Immunosorbent Assay (ELISA) to detect IgG and IgM antibodies against *Chlamydia trachomatis* in human serum, following the manufacturer's protocol (Monocent, Inc., USA). Serum was obtained from a blood specimen by centrifugation. Each sample was diluted (1:21) by mixing 10 µL of serum with 200 µL of sample diluent. Positive, and negative controls as well as calibrators were included in the wells to ensure accuracy. Indirect ELISA was utilized, briefly 100 µL of diluted serum samples, positive control (PC), negative control (NC) and calibrator were dispensed into the already coated wells containing *C. trachomatis* antigens and incubated at room temperature. The wells were then washed 3 times (with wash buffer) to remove unbound components, subsequently a 100 µL of tetramethylbenzidine (TMB) substrate was added and incubated for 10 minutes, after which the reaction was terminated by the addition of 100 µL of stop solution. The Optical density (OD) was measured at 450 nm using ELISA reader within 15 minutes. The cut-off value was calculated using the formula: Calibrator Optical Density (OD) multiplied by the Calibrator Factor (CF). The antibody index for each sample was determined by dividing the sample's OD by the cut-off value. A required OD calibrator > 0.250, an antibody index of < 0.9 for the NC was required while an antibody index of 0.9 and 1.1 was desired for positive control. The interpretation of results was as follows: an antibody index of less than 0.9 indicated no detectable antibodies, a range of 0.9 - 1.1 was considered borderline positive, and values greater than 1.1 confirmed the presence of detectable antibodies against *C. trachomatis* IgG or IgM. A sample was considered positive if it had positivity for IgM or IgM or both which constituted the overall (Overall results). *Chlamydia* status of the patient.

2.4.2. Data Analysis

The data obtained was analyzed using SPSS (Statistical Package for the Social Sciences) version 20, following the analysis plan [18]. Frequencies of categorical variables were computed, and cross-tabulation with the chi-square test was used to assess associations between variables. Fisher's exact test was used to compute *p*-values for observations with frequencies <5. Logistics regression analysis with statistical significance set at $p < 0.05$ was conducted to identify actual risk factors

associated with *Chlamydia* prevalence.

2.5. Ethical Consideration

Ethical approval was obtained from the Institutional Review Board (IRB) of the Faculty of Health Science of the University of Buea (2021/1657-02/UB/SG/IRB/FHS) and administrative approval was obtained from the South West regional delegation of Public Health (Ref No034/MPH/SWR/RDPH/CB.PT/610/567 and approval from Director of the Buea Regional Hospital. All eligible participants before enrolment provided written informed consent.

3. Results

A total of 247 participants were enrolled in this study. Among them, females were more represented, accounting for 64.8%. The participants' ages ranged from 18 to 52 years, with the majority (55.3%) falling between 18 and 24 years. A significant proportion of the participants had attended university (90.3%), and most were single (88.6%), as shown in Table 1. A majority of participants were students representing 72.1% (178), while 90.3% (223) had acquired university level of education. Most of our participants 82.6% (204) had no children while 72.5% (179) had no regular income. Most of our study participants representing 88.6% (218) were single.

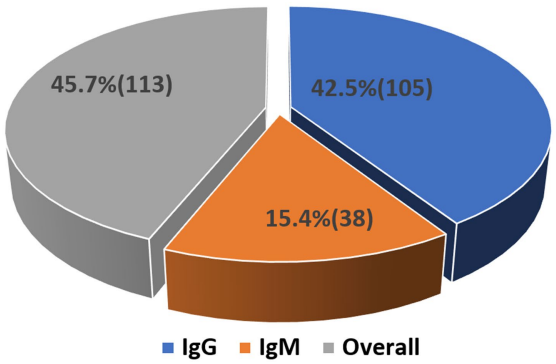
Table 1. Sociodemographic characteristics of participants.

Variables	Category	Frequency	Percent	Variables	Category	Frequency	Percent
Sex	Female	160	64.8	**Occupation**	Employed	46	18.6
	Male	87	35.2		Student	178	72.1
	Total	**247**	**100**		Unemployed	23	9.3
Age (years)	18 - 24	136	55.3		**Total**	**247**	**100**
	25 - 31	81	32.9	**Religion**	Christian	240	97.2
	32 - 38	18	7.3		Muslim	7	2.8
	39+	11	4.5		**Total**	**247**	**100**
	Total	**247**	**100**	**Parity status**	Nulliparae	204	82.6
Educational level	No Formal Education	1	0.4		Uniparae	26	10.5
	Primary	3	1.2		Biparae	6	2.4
	Secondary	20	8.1		Multiparae	11	4.5
	University	223	90.3		**Total**	**247**	**100**
	Total	**247**	**100**	**Monthly income** (FCFA)	No regular income	179	72.5
Marital status	Cohabiting	1	0.4		Below 50000	35	14.2
	Divorced	1	0.4		50^{000} - 100^{000}	22	8.9
	Married	25	10.2		100000+	11	4.5
	Single	218	88.6		**Total**	**247**	**100**
	Widow	1	0.4				
	Total	**247**	**100**				

Nulliparae = 0, Uniparae = 1, Biparae = 2, Multiparae > 2. Mean age ± SD (22.14 ± 3.27).

3.1. Overall Seroprevalence of *C. trachomatis*

The seroprevalence of *Chlamydia trachomatis* based on the IgG showed that out of 247 participants screened, 105-tested positive, resulting in a prevalence of 42.5% (Figure 1). Similarly, the seroprevalence of *C. trachomatis* based on the IgM serological test revealed that out of 247 participants screened, 38 tested positive, yielding a prevalence of 15.4%. Overall, the combined seroprevalence for both IgG and IgM was 45.7%, with 113 participants testing positive out of 247 screened (Figure 1).



IgM: Immunoglobulin M, IgG: Immunoglobulin G.

Figure 1. Prevalence of *C. trachomatis* among participants.

3.2. Factors Associated with *Chlamydia trachomatis* Infection Based on Overall Serology

Table 2 shows the relationship between sociodemographic and prevalence of *C. trachomatis.* Our study revealed that participants aged 18 - 24 years had a statistically significant prevalence of 28.3% (70) ($\chi^2 = 11.45$, $p = 0.009$). There was no statistical significance between age and prevalence of *Chlamydia* ($p > 0.05$), however the prevalence of *chlamydia* was about 2.5 times higher in females than in males with a prevalence of 31.1% (77). Participants with university degree showed a prevalence of 41.7% (103) with $p > 0.05$. The prevalence of *Chlamydia* amongst Single participants was high (41.3%, 102) however, this was not statistically significant ($p > 0.05$).

Table 2. Association between sociodemographic and overall seroprevalence of *Chlamydia trachomatis* infection.

Sociodemographic	Category	Number screened	IgG/IgM Positive overall	Prevalence (%)	Chi-square (χ^2)	*p*-value
Sex	Male	160	36	14.6	1.033	0.309
	Female	87	77	31.1		
	Total	**247**	**113**	**45.7**		
Age (Years)	18 - 24	136	70	28.3	11.456	**0.009**
	25 - 31	81	36	14.5		
	32 - 38	18	7	2.8		
	39+	11	0	0.0		
	Total	**247**	**113**	**45.7**		

Continued

Marital status	Cohabiting	1	0	0.0	2.651	0.618
	Divorced	1	0	0.0		
	Married	25	11	4.4		
	Single	218	102	41.3		
	Widow	1	0	0.0		
	Total	**247**	**113**	**45.7**		
Occupation	Employed	46	20	8.1	1.498	0.473
	Student	178	85	34.4		
	Unemployed	23	8	3.2		
	Total	**247**	**113**	**45.7**		
Religion	Christian	240	109	44.1	1.211	0.546
	Muslin	7	4	1.6		
	Total	**247**	**113**	**45.7**		
Educational level	Never been to school	1	0	0.0	1.051	0.739
	Primary	3	1	0.4		
	Secondary	20	9	3.6		
	University	223	103	41.7		
	Total	**247**	**113**	**45.7**		

IgG: immunoglobulin G, IgM: Immunoglobulin M, % = percentage, χ^2 = Chi-square, Fisher's exact test was used for frequencies < 5.

3.3. Sexual behavior as a Risk Factor of *Chlamydia trachomatis* Infection

Table 3 shows the association between sexual behavior and prevalence of *C. trachomatis* among study participants. Age of sexual debut showed statistically association with prevalence 27.1% (67) within participants who reported sexual debut between 15 - 19 years (χ^2 =7.426, p = 0.024). Participants who reported vaginal sexual engagement showed a prevalence of 40.1% (99) with significant statistical association (χ^2 =8.025, p = 0.005).

Table 3. Association between sexual behavior and overall seroprevalence of *Chlamydia trachomatis* infection.

Sexual Behavior	Category	Number screen	IgG/IgM Positive overall	Prevalence (%)	Chi-square	*p*-value
Age of sexual Debut (Years)	10 - 14	15	3	1.2	7.426	**0.024**
	15 - 19	126	67	27.1		
	20+	103	43	17.4		
	Total	**247**	**113**	**45.7**		
Number of sex partners in 3 - 12 months	≤2	213	97	39.2	0.027	0.869
	≥3	18	16	6.5		
	Total	**247**	**113**	**45.7**		
Sex experience (Years)	1	48	24	9.7	0.434	0.510
	>2	199	89	36.0		
	Total	**247**	**113**	**45.7**		

Continued

Condom usage	Never	21	9	3.6	0.171	0.918
	Rarely	104	49	19.8		
	Always	122	55	22.3		
	Total	**247**	**113**	**45.7**		
Partner having other sex partners	No	108	43	17.4	4.781	0.092
	Yes	126	61	24.7		
	No Idea	13	9	3.6		
	Total	**247**	**113**	**45.7**		
Sex engagement						
Genital sucking	Never	146	58	23.4	5.499	0.064
	Rarely	75	42	17.0		
	Always	26	13	5.3		
	Total	**247**	**113**	**45.7**		
Vaginal	Yes	229	99	40.1	8.025	**0.005**
	No	18	14	5.6		
	Total	**257**	**113**	**45.7**		
Anal	Yes	1	0	0.0	0.847	0.357
	No	246	113	45.7		
	Total	**247**	**113**	**45.7**		

3.4. Other Risk Factors of *Chlamydia trachomatis* Infection

Table 4 shows the relationship between other risk factors and occurrence of *Chlamydia* infection. Our study revealed that majority of participants who did not go for regular screening showed a statistically significant ($\chi^2 = 8.283$, $p = 0.004$) relationship with a high prevalence of 38.9% (96). Participants with a previous history of syphilis had a 2% (5) prevalence ($p > 0.05$). Our study revealed that there was a statistically significant relationship between those who believed *chlamydia* infection was symptomatic and *Chlamydia* infection prevalence with a prevalence of 43.3 % (103) ($\chi^2 = 6.204$, $p = 0.013$).

Table 4. Other risk factors associated with *Chlamydia trachomatis* infection.

Other risk factors	Category	Number screen	IgG/IgM positive overall	Prevalence (%)	Chi-square	*p*-value
Get drunk	Never	42	15	6.1	3.216	0.200
	Rarely	181	89	36.0		
	Always	24	9	3.6		
	Total	**247**	**113**	**45.7**		
Testing regularity	No	189	96	38.9	8.283	**0.004**
	Yes	58	17	6.8		
	Total	**247**	**113**	**45.7**		

Continued

History of STI						
Gardnerella	No	244	111	44.9	0.535	0.464
	Yes	3	2	0.8		
	Total	**247**	**113**	**45.7**		
Syphilis	No	236	108	43.7	0.453	0.984
	Yes	11	5	2.0		
	Total	**247**	**113**	**45.7**		
Gonorrhea	No	245	113	45.7	1.700	0.192
	Yes	2	0	0		
	Total	**247**	**113**	**45.7**		
Tryponoma vaginalis	No	246	112	45.3	1.191	0.275
	Yes	1	1	0.4		
	Total	**247**	**113**	**45.7**		
***Chlamydia* with no symptoms**	No	224	107	43.3	6.204	**0.013**
	Yes	69	06	2.4		
	Total	**247**	**113**	**45.7**		

3.5. Factors associated with Prevalence of *Chlamydia trachomatis* (Multivariate Analysis)

A multivariate analysis to determine the risk factors associated with *Chlamydia trachomatis* as shown in Table 5 was conducted. Our study revealed that participants aged 25 - 31 years were 3.14 times (95 % CI: AOR 1.62 - 12.4, $p = 0.044$) more likely to contract *Chlamydia trachomatis* compared to individuals > 39 years. Age of sexual debut was statistically associated with prevalence of *Chlamydia trachomatis* demonstrated by the fact that participants with sexual debut between 15 - 19 years were 1.92 times (95% CI: AOR 1.35 - 8.46, $p = 0.027$) more likely to be positive for *Chlamydia* compared to those with sexual debut above 20 years.

Table 5. Multivariate analysis of risk factors associated with *Chlamydia trachomatis*.

Variable	Category	COR (95% CI)	*p*-value	AOR (95% CI)	*p*-value
***Chlamydia* with no symptoms**	Yes	3.14 (1.34 - 9.42)	**0.017**	1.67 (0.81 - 6.68)	0.301
	No	1		1	
Vaginal route	Yes	4.12 (0.86 - 8.13)	0.418	--	--
	No	1		1	
Age	18 - 24	5.34 (1.48 - 24.70)	**0.026**	1.91 (0.92 - 11.46)	0.821
	25 - 31	3.14 (1.74 - 17.1)	**0.037**	2.18 (1.62 - 12.4)	**0.044**
	32 - 38	0.98 (0.70 - 12.45)	0.745	1.34 (0.92 - 12.1)	0.455
	39+	1		1	

Continued

Genital sucking	Rarely	2.34 (1.71 - 10.16)	0.464	--	
	Always	1.18 (0.87 - 13.33)	0.18	--	--
	Never	1		1	
Partner having sex with others	Yes	2.05 (1.26 - 11.31)	0.192	--	
	No	0.96 (0.72-6.78)	0.227	--	--
	No idea	1		1	
Testing regularity	No	1.47 (1.14 - 8.59)	**0.048**	1.18 (0.69 - 7.34)	0.623
	Yes	1		1	
Age of sexual debut (years)	10-14	1.21 (0.72 - 10.65)	0.732	0.86 (0.67 - 7.71)	0.901
	15-19	2.34 (1.86 - 4.94)	**0.014**	1.92 (1.35 - 8.46)	**0.027**
	20+	1		1	

CI: confidence interval, COR: Crude Odd ratio, AOR: Adjusted odd ratio.

4. Discussion

Chlamydia trachomatis is a global public health concern with Africa experiencing a high incidence rate. Many Western countries have implemented efficient *Chlamydia* infection control programs amongst sexually active individuals; however, this is not the case in Africa. This cross-sectional epidemiological study was performed to assess the epidemiology of *Chlamydia* infection and to identify potential risk factors that could elevate the incidence of *Chlamydia* at the Buea regional hospital.

The overall prevalence of *Chlamydia trachomatis* in our study was 45.7%, with 15.4% tested positive for IgM and 42.5 % tested positive IgG. These findings indicates that most of the participants had a chronic or poorly treated past infection which resulted in higher IgG seroprevalence similar to a study carried out by Rabiepoor *et al.* [19]. The overall seroprevalence of *Chlamydia* infection in our study was greater than that reported by Tadongfack *et al.* [20], who reported a prevalence of 38.3% in Dschang and over 3 times higher than a similar study carried out in Dschang by Sobze *et al.* [14] with a prevalence of 13%. These differences may exist due to the relatively higher sample size used in our study and our study was carried out in Buea, which is made up largely of students with several young person's attending numerous lay private schools who are sexually active increasing the rate of high-risk sexual behavior. The higher prevalence of IgG can be explained by increasing concerns regarding auto medication and hence poorly treated as well the asymptomatic nature of the disease.

The findings of this study demonstrate a statistically significant association between *Chlamydia* infection prevalence and age, with the highest prevalence observed in the 18 - 24 year age group (28.3%). These results align with existing publication by Gerbase *et al.* [21], who consistently identified young adults as the most vulnerable population for *Chlamydia trachomatis* infections. The elevated

prevalence in this age group may be attributed to behavioral, biological, and social factors, including higher rates of unprotected sexual activity, multiple sexual partners, and lack of funds for routine screening. The significant association between age and *Chlamydia* prevalence underscores the need for targeted prevention strategies among young adults.

Although educational level and marital status were not statistically significant ($p > 0.05$), single individuals had a higher prevalence (41.3%), likely due to increased exposure to multiple partners and lower STI screening rates as reported De *et al.* [22]. The lack of association with education suggests that knowledge alone does not prevent infection; instead, behaviors like condom use and healthcare seeking play a greater role. The absence of a significant association between *Chlamydia* prevalence and educational level suggests that knowledge alone may not be a strong determinant of infection risk. Previous studies have shown that while awareness of STIs and their transmission is generally high, behavioral factors such as condom use, partner selection, and healthcare-seeking behavior play a more crucial role in STI acquisition [22]. This further ascertains that health psychology, health belief model are stringent on instilling discipline in individual risky behaviors related to prevention of STI.

Regarding sex, females had a higher prevalence (48.1%, n = 87) compared to males (41.1%, n = 160). This may be attributed to the anatomical structure of the female reproductive tract, which is more exposed and susceptible to *Chlamydia* infection. However, a study by Huai *et al.* [23] reported a higher prevalence in males (2.7%) than in females (2.3%), which was attributed to the higher sexual activity observed in the male population studied. The higher prevalence in females, despite a lower female-to-male ratio in our study, can potentially be explained by several factors. Biologically, the female reproductive tract is more conducive to *chlamydia*l infection than the male urethra. The endocervix, in particular, contains columnar epithelial cells that are highly susceptible to *Chlamydia trachomatis*, providing an ideal environment for bacterial colonization and persistence. In contrast, the male urethra has fewer of these vulnerable cells, making infection slightly less likely or easier to clear. Females often engage in sexual activity earlier, tend to date older men, and have lower rates of consistent condom use, as reported by Gravningen *et al.* [24]. Early sexual exposure may lead to a greater number of lifetime partners and diverse sexual experiences, which significantly influence their sexual behaviors. More so the higher number of female participants can explain this compared to male participants as shown in **Table 1**.

A crosstab for sexual behavior was also done to analyse sexual behavior as a risk factor in association with prevalence. Our study revealed that younger age at the time of first sexual intercourse (15 - 19 years) was 1.92 times (AOR, 1.35 - 8.46, $p = 0.027$) likely to contract *Chlamydia trachomatis*. Indicating a high-risk factor to *Chlamydia* infection as a previous study carried out by Matteelli *et al.* [25] showed sexual behavior to be a risk factor of *Chlamydia trachomatis* infection among younger population [25]. Other risk factors analyzed for this study: Testing regu-

larity (No) showed a prevalence of 50.6% (n = 189). Lack of regular testing can serve as a risk factor as well as, history of STI as risk factor since it causes microbial dysbiosis (a result of an overgrowth of anaerobic bacteria) that increases the risk of acquiring other STIs such as *Chlamydia trachomatis* [26]. Limited testing among our participants could be attributed to the cost associated with testing and the perception of stigma, which discourages young individuals from seeking regular testing and treatment. The high prevalence among participants who did not undergo regular testing could also be explained by the increasing trend of self-medication and the fact that most students had no regular income.

Our study revealed no statistically significant relationship between alcohol misuse (drunkenness) and *chlamydia* prevalence. Interestingly, the prevalence was higher among participants who rarely got drunk compared to those who regularly did. This finding aligns with the study by Llamosas-Falcon *et al.* [27]. The higher prevalence among those who rarely got drunk could be attributed to the fact that the majority of our participants were students, who are expected to have limited leisure time due to academic demands. However, getting drunk indirectly influences decision-making and sexual behavior, as it increases the likelihood of engaging in risk-taking sexual activities, including having sex with strangers.

5. Conclusions

This study indicates *Chlamydia trachomatis* remains a major public health concern, particularly among young adults attending the Buea regional hospital evidenced by a high prevalence (45.7%). A high IgG seroprevalence (42.5%) of *Chlamydia trachomatis* was observed indicating chronic or poorly treated infections, necessitating the need for improved screening and treatment. Age was a key risk factor, with the highest prevalence in the 18 - 24 year age group, stressing the importance of targeted interventions. While education level and marital status were not significant, single individuals had higher prevalence rates, suggesting behavioral factors influence STI risk. Females had a higher prevalence than males, warranting gender-specific reproductive health strategies. Risk factors such as early sexual debut and lack of regular STI testing emphasize the need for better sexual health education and screening access. Strengthened public health measures, including awareness campaigns and behavioral interventions, are crucial to reducing *chlamydia* transmission in high-risk populations.

6. Limitation to the Study

1) The use of consecutive sampling at a single hospital (Buea Regional Hospital) may not represent the broader Cameroonian population, particularly rural or non-clinical populations.

2) ELISA detects antibodies (IgG/IgM), which indicate exposure but not active infection. Nucleic Acid Amplification Tests (NAATs) would have provided a more accurate current infection rates.

3) Sexual behavior data relied on participant recall and honesty, which may un-

derreport stigmatized behaviors (e.g., multiple partners, anal sex).

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Author Contributions

PTB, BMJS and FNA designed and supervised the study, EJE, AFE, OCE, LNO, PTB, TLT, AMT participated in data collection and implementation of the study, PTB, EFE drafted the manuscript, FNA, BNW, BMJS, NLO, TLT revised the drafted manuscript. All authors validated the final copy for publication.

Conflicts of Interest

Authors declare no conflict of interest.

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