



Original article

Prevalence, knowledge, sexual behaviour, and risk of transmission of hepatitis B virus amongst students of the University of Buea, Cameroon

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ABSTRACT

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Hepatitis B infection is a major health problem of public health importance. It is transmitted from person to person by contact with blood or other body fluids from an infected person. Lack of or insufficient knowledge about HBV negates the global effort towards prevention of the infection. HBV and HIV share similar routes of transmission and younger age groups have greater predisposition to HBV and other STIs including HIV/AIDS. This study was designed to determine the prevalence of HBV and assess the knowledge, attitude and sexual behaviour of students of the University of Buea concerning HBV infection. A descriptive cross sectional study was carried out from December 2011 to July 2012 involving 320 students of the University of Buea residing in hostels in the main residential quarter, Molyko. Structured questionnaires were administered to the participants selected using the multi stage random sampling technique. Results revealed that 70% of the participants had already had sexual debut and majority (59.8%) had negative sexual behavior.

Among students who had sexual debut, majority (61.6%) did not use a condom at sexual debut, 37.5% had multiple sex partners (≥ 2) during the preceding twelve months, while 15.5% of the males and 6.6% of the females have never used a condom. A reasonable percentage (64.5%) had little or no knowledge on the modes of transmission or prevention of HBV, and 63.7% of the students interviewed did not perceive themselves as being at risk of HBV, hence was frequently involved in risky sexual practices. Female students had more positive attitude towards infected persons than males. These findings justify the prevalence rate of HBV of 7.7% found amongst 181 participants who carried out the HBsAg test. The poor knowledge on HBV infection and prevention, including high risk sexual practices express the need for elaborate sensitisation and possible vaccination programmes for university students and Cameroonian youths.

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1. Introduction

Hepatitis B infection is a potentially life-threatening infection of the liver caused by Hepatitis B virus (HBV). It is a major health problem of public health importance affecting about two billion people worldwide (WHO, 2008). HBV related conditions or complications such as chronic hepatitis; liver cirrhosis and liver cancer are responsible for 1.2 – 2 million deaths per year (Kramvis et al, 2007). The prevalence varies from 0.2% to 20% across the globe. Approximately 45% of the world's population lives in the highly endemic regions of Africa and Asia-Pacific (WHO 2001). In sub-Saharan Africa, the prevalence of HBsAg (Hepatitis B surface Antigen) ranges from 3-20% and markers from past exposure range from 60-99% (Ayoala, 2008).

Cameroon falls among the highly endemic countries to HBV infection with a steadily rising prevalence, which was above 8% in the entire population in 1992 (Ndumbe et al, 1992), and 11.8% among the pygmies in 2010 (Foupouapouognini et al, 2010).

Hepatitis B virus is transmitted from person to person by contact with blood or other body fluids of an infected person such as semen, saliva and vaginal secretions. The virus can be acquired perinatally from mother to child, in early childhood through interpersonal contacts with infected household contacts, through sexual contacts, blood transfusion and through cosmetic practices such as tattooing and body piercing (WHO, 2008; Eyasu, 2011). There is a 90% risk of chronic infection in vertical transmission and 10% risk in horizontal transmission (Chapman, 2006). Higher risk has also been associated in the third decade of life (Lwoff, 2007). Hepatitis B is a vaccine preventable disease whose diagnosis is made by serology. It is therefore, important to establish the pertinence and distribution of vaccines among various populations and to evaluate the need to implement preventive measures (Gjorup, 2000; Shu, 2007).

HIV and HBV share similar routes of transmission and according to WHO (2008), HBV is 50 to 100 times more infectious. The younger age groups have greater predisposition to HBV and other sexually transmitted infections (STIs), including HIV/AIDS (WHO 2001, Njefi, 2010). Knowledge about hepatitis B is absolutely necessary but the provision of knowledge alone is not sufficient, since it does not necessarily lead to behavior change. Attitudes, beliefs, cultural values, norms, the influence of family, peers and the media are all important determinants of whether or not appropriate behavior is adopted by adolescents (Smith et al, 2000). A study of the knowledge, attitude and sexual behavior of students of University of Buea can serve as a proxy to assess the risk of HBV transmission amongst university students in Cameroon and can be used as reference by health planners in instituting policies in universities.

2. Materials and methods

2.1. Research procedure

The study was a descriptive cross sectional study carried out from December 2011 to July 2012. The study population comprised students of the University of Buea residing in the student residential area (Molyko), a radius of about two kilometers from the university. The University of Buea is a state university located in the South West Region of Cameroon, with a student population of 19,000. Ethical approval No. 2012/0043/UB/FHS/IRB was obtained from the University of Buea Institutional Review Board (IRB), and administrative clearance No.R11/MPH/SWP/PDPH/PS.CH/4446/124 was provided by the Regional Delegation of Public Health, South West Region.

Using a multistage cluster random sampling, 320 participants were selected in the study area. The final students' selection by balloting was carried out by someone who was not part of the research team. Two informed consents were sort from each participant. The first consent was signed by participants in the non-laboratory phase of the study, and the second was signed by those who were willing to be tested for hepatitis B surface antigen (HBsAg). Those willing to be tested and who wished to receive their results indicated a contact address and/or telephone number on the consent. All consented participants compiled a standardized questionnaire on knowledge, attitude and sexual behavior and submitted within 24 hours sealed in an envelope that was provided.

About 2ml of venous blood was collected into an EDTA tube from 181 students who consented to the HBsAg screening. The collected blood samples were coded and taken to the Faculty of Health Sciences laboratory and Solidarity Clinic Laboratory for analysis. Analysis was done using the Diaspot strip test. Safety measures were maintained during the collection, transportation and analysis. Confidentiality was assured at each stage of the data collection and analysis.

Pre and posttest counseling was done and the test results issued to the participants who did the HBsAg test and were willing to know their results. The participants with positive results were referred to the Buea Regional Hospital for follow up.

2.2. Data analysis

Data was analyzed using EPI-INFO version 3.5.1 and MICROSOFT EXCEL-2007. Descriptive statistics were presented using absolute numbers, percentages, ranges and measures of central tendency as appropriate. Chi-square test and Student's T-test/Duncan test were used to examine the relationship between variables. Differences in proportion were evaluated using the chi-square test while differences in means were calculated using Student's T-test or Duncan test. Statistical significance was assumed when $P < 0.05$.

3. Results

Three hundred and twenty students (193 females and 127 males) of University of Buea residing in the students' residential area were assessed for knowledge, attitude and sexual practices towards hepatitis B virus infection, and only 181 participants (56.6%) consented to free screening for HBsAg. Ages of participants ranged from 17-31years with mean age of 21.4years. Majority (60%) was found within 20-22 years range. 8.8% were post graduate students, 3.4% were married and 94.4% were Christians.

Respondents' knowledge concerning HBV infection focused on methods of transmission and prevention. Up to 64.5% of the respondents had poor knowledge concerning HBV infection. Participants got information about HBV from various sources and most of them acknowledged that the internet and doctors/nurses (32% and 31%) were the most valid sources of knowledge concerning HBV infection (Figure 2). According to them, the churches and family relations are the least reliable sources of information on HBV infection.

An assessment of attitude and practices of respondents towards HBV infection revealed that 63.7% of the students had high risk attitudes and practices towards HBV infection and infected persons. A higher percentage of females had more positive attitude towards infected individuals than males (P -value=0.02).

An assessment of the sexual behavior of respondents who had already had sexual debut (70%) showed that majority (59.8%) had negative sexual behavior, and were repeatedly involved in high risk sexual endeavors (Table 1). A higher percentage of males (78.7%) than females (70.0%) had had sexual debut, though a greater percentage of the females than males (44%) were sexually active (had sex in the past 12 months). The difference was not significant (P -value = 0.69).

Table 1

Responses to questions on sexual behavior.

	Yes N (%)	No N (%)	Total N (%)
Have you ever had sexual intercourse?	224(70.0)	96(30.0)	320(100)
Are you currently sexually active? i.e. Have you had sex within the last 12 months?	211(94.2)	13(5.8)	224(70)
Did you use a condom the first time you had sexual intercourse?	86(38.4)	138(61.6)	224(70)
Have you used a condom with your regular partner(s) during the last 12 months?	179(82.5)	38(17.5)	211(65.9)
Have you had sex with someone having multiple (more than one) sexual partners?	38(17.0)	136(83.0)	224(70)
Did you use a condom the last time you had sex with someone having multiple (more than one) sexual partners?	30(81.1)	8(18.9)	38(11.9)
Have you ever consumed alcohol or taken drugs before sexual intercourse?	86(38.4)	138(61.6)	224(70)
Did you use a condom the last time you had sex after consuming alcohol or taken drugs?	53(60.7)	33(39.3)	86(26.9)

Mode=3.0; maximum=8.0; minimum= 1.0; median 4.0; Variance=2.36. F-test=89.04.

Note: Sexual behaviour was assessed by giving 0 to positive and 1 to negative behaviour. The scale classified sexual behaviour as good with a score ≤ 3 and poor > 3 . Mean sexual behaviour score was 4.05 ± 1.5 for those who had debuted sexual intercourse only and 2.83 ± 2.3 for the general population of respondents.

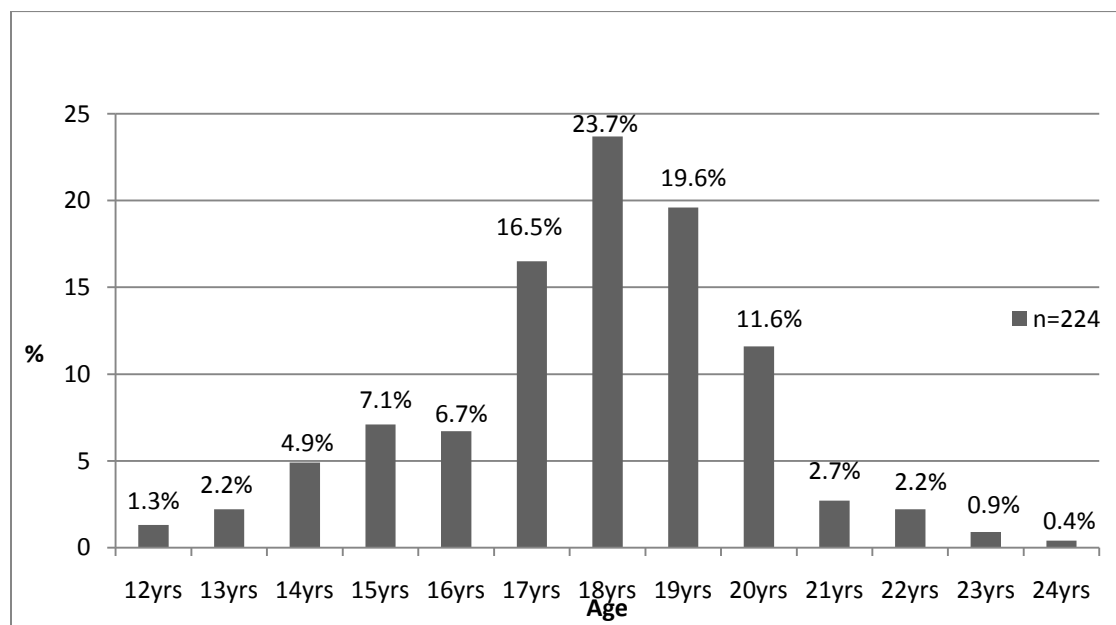


Fig. 1. Age at first sexual intercourse.

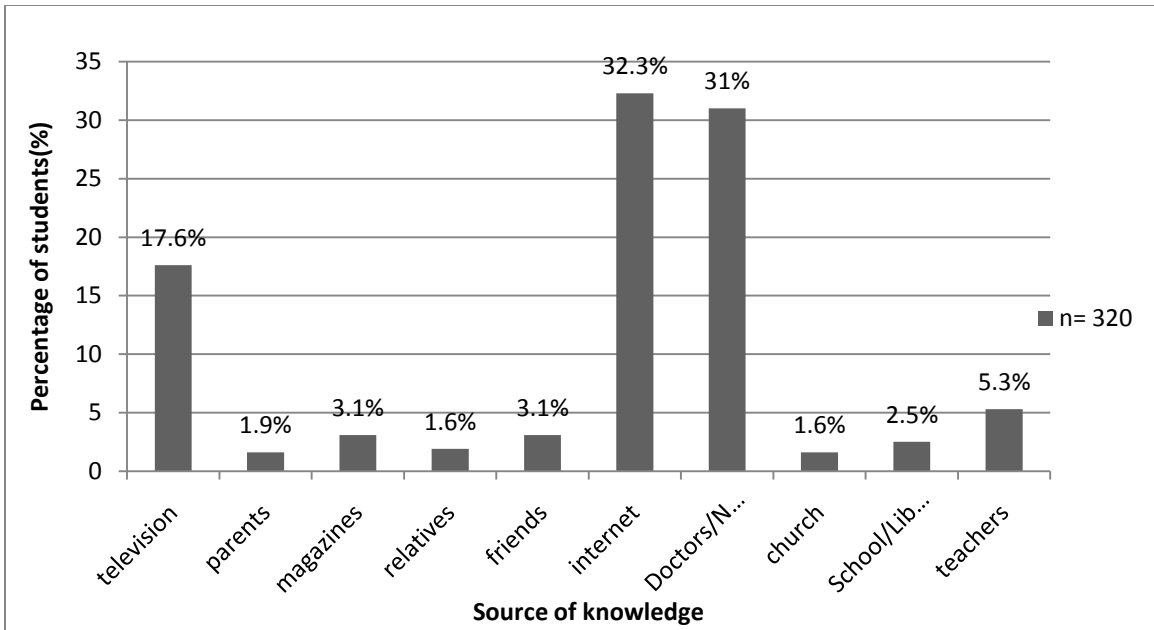


Fig. 2. Participants' most valid source of knowledge about HBV infection.

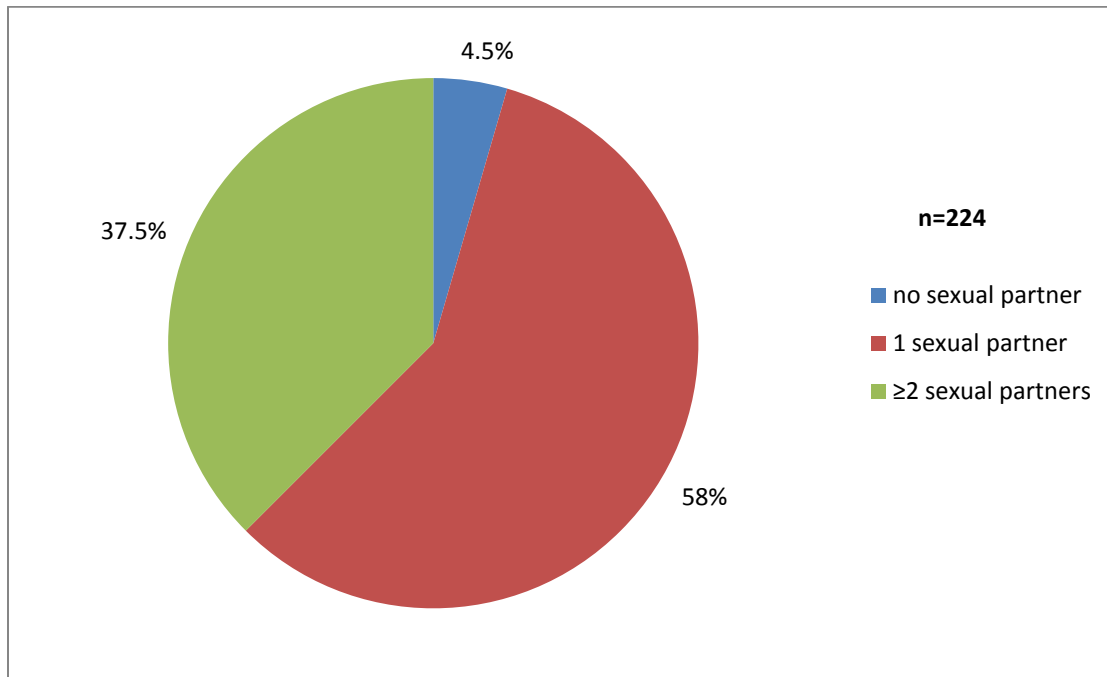


Fig. 3. Number of sexual partners in the sexually debuted respondents during the preceding 12 months.

Among students who had sexual debut, 37.5% of them had multiple sex partners during the preceding 12 months period (Figure 3). The sexually active students showed similar percentage for multiple sexual partners with (P-value = 0.0018). Males had slightly higher percentage than females.

In addition, 14 out of the 181 who took part in the HBsAg screening were positive giving a prevalence rate of 7.7%.

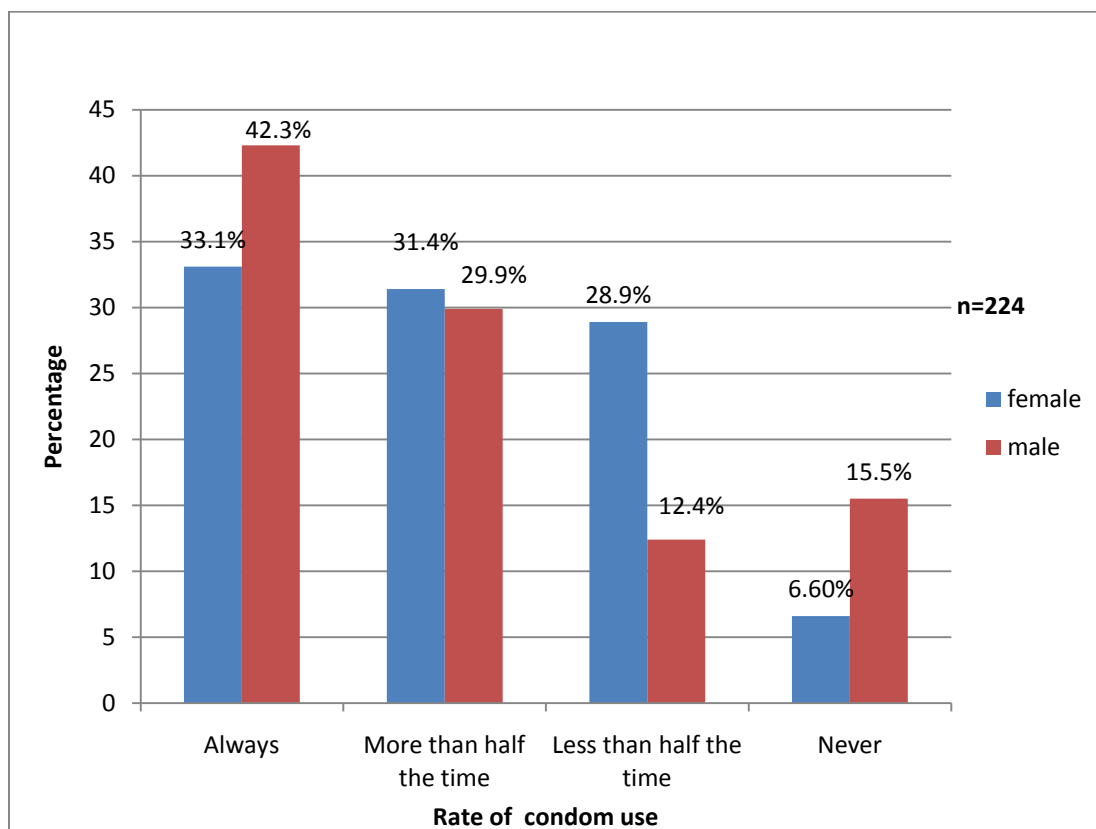


Fig. 4. Frequency of condom use with regular sexual partner(s) in the sexually debuted students.

Among respondents who have had sexual intercourse, majority (61.6%) did not use a condom at sexual debut and 82.5% of the sexually active students used at least a condom during the last 12 months. Of those who used a condom, 41.58% were regular users (Figure 4). Generally a greater percentage of males than females confirmed condom use.

4. Discussion

4.1. Knowledge and attitude

Lack of or insufficient knowledge about HBV infection negates efforts towards its prevention. The poor knowledge on HBV transmission and prevention expressed by 64.5% of the university students interviewed is additional backup for the high prevalence of 7.7% amongst the students, 11.8% amongst pygmies in Cameroon, and the general population (8.3%), though 73.4% of them have heard about hepatitis B infection / disease. In a similar study in Ghana, Bonacini and Maurizio (2009), recorded 74% lack of awareness including inadequate knowledge concerning the transmission and prevention of HBV. UIHaq et al (2012), also obtained a poor knowledge score in a HBV study in Pakistan, but not in a community of university students. The poor knowledge about HBV might be attributed to lack of an elaborate national hepatitis B infection prevention and control programme in Cameroon, reason for the high prevalence.

A reasonable proportion of respondents considered the internet (32.3%) and medical practitioners (31%) as the most valid sources of information about HBV; confirming the ability to rely on the internet and competent persons as sources of health information. Accessibility to these sources of information is important because in

another study on a different population in Pakistan, family members, friends and neighbors were important sources of knowledge concerning HBV infection (UIHaq, 2012).

Only 15.6% of the respondents agreed that HBV could be transmitted by sharing eating cutleries with an HBV infected person(s) and 64.4% reported that healthy looking persons could have HBV. Furthermore, 48.1% of respondents admitted that HBV could be acquired through blood transfusion with infected blood and 38.1% agreed that HBV could be acquired by using already used needles. These results are similar to results obtained in Ghana (Chireh, 2010), and in Egypt (Hanan et al., 1999) by other authors.

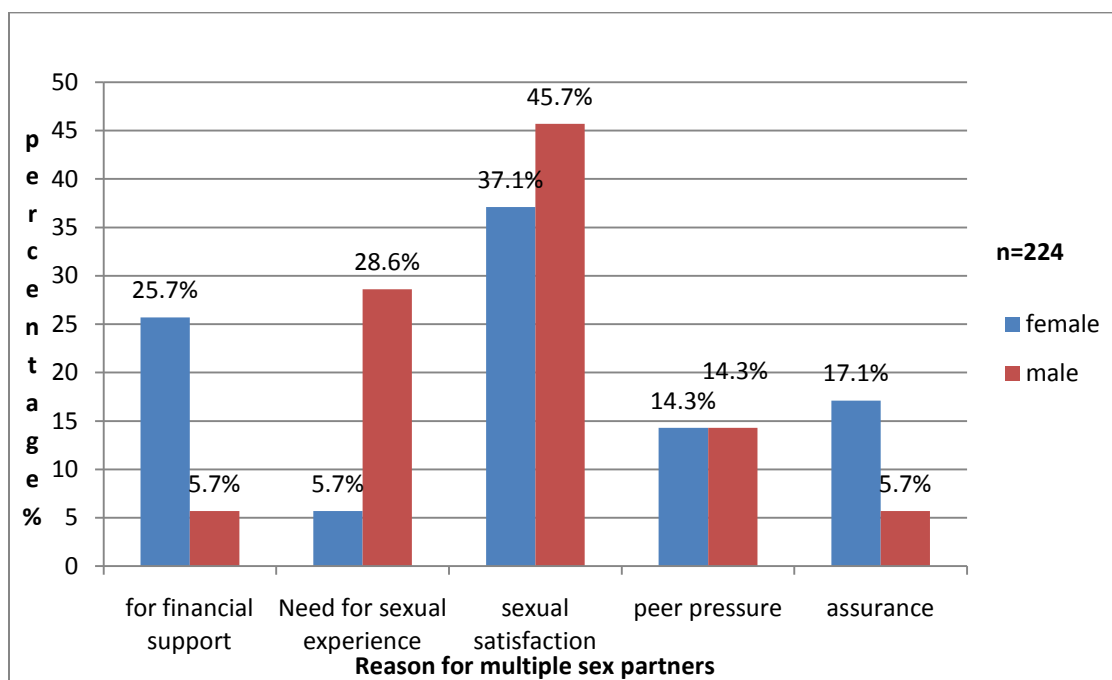


Fig. 5. Participants' reasons why some students have multiple sex partners.

According to the participants, sexual satisfaction was an important consideration for multiple sex partners. Furthermore, more male students (45.7%) advocated sexual satisfaction as the main reason for having multiple sex partners than female students (37.1%). Females were distinguished with the need for financial support (25.7%) as reason for multiple sex partners.

Concerning Mother-to-child transmission, only 30.6% of the participants reported that a woman infected with HBV could transmit the virus to her unborn child, and only 27.3% admitted that a HBV infected woman, could transmit the virus to her newborn child through breastfeeding. These results are low compared to the result obtained in Ghana by Chireh in 2010, where he obtained 56% correct responses on knowledge on mother to child transmission. The screening of pregnant women in Cameroon for HBV is not yet a statutory practice, a process that can create awareness by circulating knowledge from pregnant women to other members of the community.

The low level of knowledge on condom use noted among female students could be explained by unavailability of female condoms in most stores, and less emphasis placed on sensitizing females on use of the female condom. 90.2% of males knew how to use the male condom compared to 65.6% of females ($p=0.00$, Chi-square corrected=22.95), and only 29.6% of the respondents knew how the female condom is used. The situation was alarmed by the fact that up to 69.4% females did not know how to use the female condom ($P=0.00$, Chi-square corrected=15.05) which is statistically significant.

4.2. Sexual behavior

Increase in sexual activity among adolescents is a growing public health concern worldwide (WHO, 2004a; WHO, 2004b). Risky sexual behavior among youths and adolescents includes early sexual debut, unprotected

sexual intercourse, and multiple sexual partners (CDC, 2006), common practices among the youths of Universities in Cameroon. Though 30% of the participants had not had sexual debut, analysis of those who had engaged in sexual intercourse showed poor mean sexual behaviour score, and when compared with previous studies on the same population, there has been a sudden rise in sexual activity among the students, since 94.2% of those who had been involved in sexual intercourse were sexually active, higher than the finding by Munoh (79%) in 2008 and Njefi (76.1%) in 2010 in the University of Buea.

A higher percentage of males than females had debuted sexual activity, similar to results reported earlier in Cameroon (Njefi, 2010), in Nigeria (CDC, 2006) and in Uganda (Agardh, 2011). These authors justify with the explanation that males are given more liberty for sexual adventures than females (Manka, 2002), just as it may also be a criterion for acceptance into male peer groups. The modal age of initiation in sexual intercourse was 18 years for both males and females, corresponding to the age that most students gain admission to the university after migrating away from parental control, and acquire independence status, with maximum freedom, void of any form of control in their hostel rooms.

39.8% of the sexually active students had had multiple sex partners within the preceding twelve months. In Uganda, Agardh (2011), found similar results (42%) in a study involving university students. The result is lower than findings by Munoh (59.6%) in 2008, and Njefi (62.2%) in 2010 in the University of Buea and Yaoundé respectively. The decrease obtained in the present study, could be as a result of increased number of anti-AIDS campaigns targeting high risk behavior in the region by National AIDS Control Committees. The finding is further justified by the fact that 42.4% of the respondents always used the condom with their regular partner(s), a percentage greater than the 29.6% previously documented by Njefi (2010) in the University of Buea, and 24.2% by Munoh (2008) in the University of Yaoundé.

Most of the students who had had sexual intercourse did not use a condom during their first sexual intercourse (61.6%) with 38.4% using a condom during their first sexual encounter. A larger proportion of females (64.5%) did not use the condom during their first sexual encounter, similar to results obtained by Munoh (2008). This might be due to absence of the condom, lack of information on condom use, poor knowledge about the risk of contracting HIV, HBV and other STIs, not ignoring religious and socio-cultural beliefs and practices.

5. Conclusion

Generally, the students' knowledge, attitude and sexual behaviour as a risk to HBV infection were poor, with females being more knowledgeable than males. Majority of the students did not perceive themselves as being at risk of HBV infection hence their risky sexual practices, though more positive attitude was, however noticed towards HBV infected persons. Majority of the respondents relied on medical professionals, the internet and the mass media as the reliable sources of knowledge about HBV infection. 90.2% of males and 65.6% of females knew how to use the male condom and only 29.6% of the respondents knew how to use the female condom. Up to 69.4% of the females did not know how to use the female condom. The practice of condom use among respondents was generally poor, as it was not consistent, exposing them to the risk of acquiring HIV, HBV, and STDs. Sexual behavior of those who had engaged in sex was generally poor and risky, with males having a poorer behavior than females. The prevalence of HBV infection amongst the students of the University of Buea stood at 7.7%. These findings motivate the initiation and enhancement of educative programmes on HBV infection as well as intensive sensitization against risky sexual behaviors among university students and Cameroonian youths. Hepatitis B Vaccination and prevention programmes need to be incorporated into the national public health prevention package, especially as preventive measures for HBV are not different and should not be separated from HIV/AIDS control programmes. Sensitization campaigns geared towards enhancing basic comprehensive knowledge on HBV, HIV and STDs should be incorporated in school syllabi through the initiative of the Ministries of Education and Public Health.

Limitations

Due to the highly sensitive nature of sexual matters in Cameroonian communities in general, respondents might not have been honest enough, and gave responses that geared toward social desirability.

There is possibility that mostly individuals with high sexual risks participated in the laboratory phase of the study. Recall bias could have resulted in over reporting or underreporting of some of the response variables.

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Competing interests

The authors declare that they have no competing interests.

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