

Knowledge, Attitude and Practice of Clinical Dental Students of the Faculty of Medicine and Biomedical Sciences on HIV/AIDS, Hepatitis B and Hepatitis C

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ABSTRACT

Introduction: Information on HIV, HBV and HCV related attitudes among dental students aimed at developing an appropriate dental curriculum on these viruses.

General objective: To evaluate the competences on HIV/AIDS, Hepatitis B and C infections of clinical dental students of the Faculty of Medicine and Biomedical Sciences (FMBS) of the University of Yaoundé I.

Materials and methods: We ran a cross-sectional study from November 2015 through April 2016 at the FMBS. Clinical dental students from the 4th to the 7th year of study who accepted to participate were included. The statistical analyses were carried out using SPSS vs. 17.0. Correlations between variables were expressed by Spearman's rank correlation coefficient. The threshold of statistical significance was less than 0.05.

Results: 130 students accepted to participate in this study; 58 (44.6 %) were male and 72 (55.4 %) female and the average age was 24 ± 2 years. Analysis found that 56 (43.1%) students had good to average knowledge on these infections, 73.1% (95) had good to average attitude and 30 (23.1%) had good to average level of practice. Positive correlations between students' personal knowledge, attitude and practice were found ($p < 0.05$).

Conclusion: The knowledge of clinical dental students regarding HIV/AIDS, Hepatitis B and C is insufficient, which confer on them erroneous attitudes as well as inappropriate control and preventive measures towards HIV/AIDS, Hepatitis B and C during their clinical practice.

Keywords: Knowledge; Attitude; Practice; Dental students; HIV/AIDS; Hepatitis B; Hepatitis C

INTRODUCTION

Significant efforts have been made by researchers and clinicians to increase knowledge on viral infections, effective prevention and treatment of viruses [1]. Since 1980s, HIV has caused million deaths and has generated profound demographic changes in the most heavily affected countries [2]. Moreover, Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) could evolve as serious chronic diseases that often remain clinically silent for decades with increased risk for liver cirrhosis and hepatocellular carcinoma. World Health Organization (WHO) estimates that millions of the world's populations have been infected with HBV and/or HCV [3]. According to Noah et al. (2013), Cameroon is classified

amongst the high and very high endemic zones of hepatitis B and C respectively. HIV/AIDS-related stigma and discrimination can reduce the quality of treatment and health care received [4]. HBV and HCV are a common cause of occupational disease transmitted from patients to health care workers and also to health care workers' families. The risks of infection with HIV, HBV, and HCV after a single needle-stick injury differ significantly: 0.3% for HIV, 3 % for HCV, and 30% to 50 % for HBV [1]. The most important risk factors in the exposure are health care workers skill levels and expertise and the specific hospital department environment such as buccodental health practitioners. In order to provide quality dental treatment to viral infected patients, dentists must overcome their misperceptions and feelings of anxiety and fear about

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Received: 27-Jun-2022, Manuscript No. IMR-22-18157; **Editor assigned:** 30-Jun-2022, Pre Qc No. IMR-22-18157 (PQ); **Reviewed:** 14-Jul-2022, QC No. IMR-22-18157; **Revised:** 20-Jul-2022, Manuscript No. IMR-22-18157 (R); **Published:** 29-Jul-2022, DOI: 10.35248/1745-7580.22.18.155.

Citation: Abena MEN, Voundi EV, Lowe JM, Nkeh CC, Mbede R, Nibeye Y, et al. (2022) Knowledge, Attitude and Practice of Clinical Dental Students of the Faculty of Medicine and Biomedical Sciences on HIV/AIDS, Hepatitis B and Hepatitis C. *Immunome Res* 18: 155.

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these infections. The perceived stigma of treating such patients, together with a fear that the infections are transmitted through dental treatment, are major reasons why dentists are reluctant to care for those with these viral infections. Successful resolution of these concerns is time consuming and expensive but necessary if dentists have to satisfy their professional obligations to patients with HIV/AIDS. Dentists and dental staff are the category at the highest risk of infection and transmission of HBV and HCV to their patients [3]. Information on the HIV, HBV and HCV related attitudes among dental students, provides a crucial foundation for efforts aimed at developing an appropriate dental curriculum on these viruses, and for attracting the attention of dental school educators towards the subject. Our study main objective was to evaluate the competences of clinical dental students of the Faculty of Medicine and Biomedical Sciences on HIV/AIDS, Hepatitis B and C infections.

METHODOLOGY

Study design, period and setting

It was a cross sectional study ran from November 2015 through April 2016 (6 months). The study was carried out at the Faculty of Medicine and Biomedical Sciences of the University of Yaoundé I, where we could easily get access to clinical dental students.

Study population

Clinical dental students from the 4th to the 7th year of study, without any sex or age distinctions were our target population. It was a consecutive sample size; hence the participants were recruited as the study unfolded. We included in the study, all clinical dental students who accepted to participate in the study. Were excluded in the study, all clinical dental students with incomplete filling of the questionnaire.

Procedure

Clinical dental students from the 6th to the 7th year were contacted through phone calls and text messages; they were invited to the FMBS to fill the questionnaire. This took place every Wednesday afternoons and Saturday mornings. Those in the 4th and 5th years received the questionnaires after each of their classes at the FMBS. Prior to enrollment in the study, students were well sensitized on the topic and its purpose was explained to them. A signed informed consent was obtained from each of them.

Study variables

Socio-demographic status (age, gender, religion and year of study), students' knowledge, personal attitudes towards infected patients, practices related to prevent HIV/AIDS, HBV, and HCV infection were collected.

Evaluation of knowledge, attitude and practice or risk perception

The evaluation of knowledge will be done by totalizing the number of points obtained by each participant in the second part of the questionnaire which is about knowledge. A correct answer is 1 point whereas a wrong one is 0 point. To evaluate the general knowledge, the collected data will be divided in 4 items. For the percentage of responds: Less than 50%=Poor knowledge, 50% to 65%=Weak and insufficient knowledge, 65% to 85%=Average knowledge, 85% and above=Good knowledge [5]. The same codifications will be used for attitude and practice.

Data analysis

Personal information of the participant was coded. Information collected was accessible only to the investigator and the supervisory team. The statistical analysis was carried out using SPSS (*vs.* 17.0). Associations between knowledge, attitude and practice of our study sample were assessed by the chi-square test, and analysis of variance when applicable. Correlations between variables were expressed by the Spearman's rank correlation coefficient. Values lower than 0.05 ($p < 0.05$) were considered statistically significant.

Ethical consideration

An authorization to conduct this study was obtained from the Dean of the Faculty of Medicine and Biomedical Sciences. Ethical clearance was obtained from the ethical committee of the Faculty of Medicine and Biomedical Sciences, of The University of Yaoundé I. Comprehensive information about the study was given to the participants before obtaining a signed written consent. Participants were informed they can withdraw from the study any time they wish without it affecting relationship between them and study investigator. All information obtained or used in the study was treated as confidential. Strict confidentiality and anonymity were respected by the use of codes during data collection and analysis. All information was made accessible only to members of the study team.

RESULTS

Out of a total of 149 clinical dental students, 130 students accepted to participate in our study, giving a response rate of 87.2 %. The age of male students varied between 20 years to 31 years, giving an average age of 24 years \pm 2, whereas the ages of female students varied between 20-28 years with an average age of 24 years \pm 2. Of all the students in our study population, 58 (44.6 %) were male and 72 (55.4 %) were female, giving a gender ration of 0.8. In our study sample, fifth-year students were more represented 47 (36.2%) followed by the sixth-year students 39 (30.0%). Majority of participants were single (125; 96.2%) and Christians (110; 84.6%) (Table 1).

Table 1: General characteristics of our study population.

Variables		Effective	Percentage (%)
Gender	Male	58	44.6
	Female	72	55.4
Year of student	4 th	21	16.2
	5 th	47	36.2
	6 th	39	30
	7 th	23	17.7
Matrimonial status	Single	125	96.2
	Married	5	3.8
Religion	Christian	110	84.6
	Non-Christian	20	15.4
Not mentioned	Not mentioned	Not mentioned	Not mentioned

Knowledge on HIV/AIDS, Hepatitis B and C

All the 130 (100%) of our entire participants declared HIV as the causative agent of AIDS. While a greater majority of the students 122 (93.8%) knew that hepatitis virus is the main cause of hepatitis infection. Unprotected sex, unscreened blood transfusion and unsterilized dental treatment tools (125; 96.2%), (120; 92.3%) and (87; 66.9%) respectively, were identified as principal routes of HIV transmission. Also, students in our sample confirmed saliva (121; 93.1%), unsterilized dental treatment tools (117; 90.0%), unscreened blood transfusion (76; 58.5%) and unprotected sex (96; 73.8%) as major routes of Hepatitis B and C transmission. Concerning knowledge on the complications of chronic Hepatitis B and C infection, 96 (73.8%) of students stated cancer and liver cirrhosis. Majority (97; 74.5%) of our sample recommended Hepatitis B vaccination after a post-exposure needle-stick injury. Otherwise, 116 (89.2%), 100 (76.9%) and 81 (62.3%) of our study population considered HIV/AIDS, HBV and HCV respectively as public health problems. At the end of our analysis on knowledge, 56 (43.1%) students had well to average knowledge on these infections (Table 2).

Table 2: Knowledge on HIV/AIDS, Hepatitis B and C of our study population.

Variables	Effective	Percentage (%)
HIV causes of AIDS	130	100
Cause of hepatitis		
Hepatitis virus	122	93.8
Some auto-immune diseases	67	51.5
Bacteria	45	36.6
Certain drugs	59	45.4
Routes of transmission HIV/AIDS		
Unprotected sex	125	96.2
Blood transfusion	120	92.3
Unsterilized tools	87	66.9
Saliva	29	22.3
Routes of transmission HBV and HCV		
Unprotected sex	96	73.8
Blood transfusion	76	58.5
Unsterilized tools	117	90
Saliva	121	93.1
Complications of chronic Hepatitis B and C		
Lung cancer	24	18.5
Cancer and liver cirrhosis	96	73.8
Bad mouth odour	37	28.5

There exists a vaccine against		
HIV/AIDS	0	0
HBV	102	78.5
HCV	65	50
Vaccination after a post-exposure niddle-stick injury		
HIV/AIDS	0	0
HBV	97	74.5
HCV	62	47.7
Public health problem		
HIV/AIDS	116	89.2
HBV	100	76.9
HCV	81	62.3
Knowledge evaluation		
Good	21	16.2
Average	35	26.9
Insufficient	56	43.1
Poor	8	6.2

Attitude towards patient infected with HIV/AIDS, HBV and HCV

Considering students' attitude towards patient infected with HIV/AIDS, HBV and HCV, 98 (75.4%), 114 (87.8%) and 109 (83.9%) students did not agree with the question that students shouldn't treat patients infected with HIV/AIDS, HBV and HCV respectively. Equally, another greater portion our study sample 100 (76.9%), 113 (86.9%) and 108 (83.1%) indicated that they will not stop treating their patients if they discovered that there are infected with HIV/AIDS, HBV and HCV respectively. Moreover, 96 (73.9%) of the students considered every person as potentially infectious to these infections and 102 (78.5%) indicated that frequent dental treatments on infected persons constitute a great risk of infection to the students. After analysis of attitude, 73.1% (95) of our participants had well to average attitude (Table 3).

Table 3: Attitude towards patient infected with HIV/AIDS, HBV and HCV of our study population.

Variables	Effective	Percentage (%)
Students have an obligation to treat persons infected with:		
HIV/AIDS	98	75.4
HBV	114	87.8
HCV	109	83.9
Should stop treatments if patient is infected with		
HIV/AIDS	100	76.9
HBV	113	86.9
HCV	108	83.1
Considered every person as potentially infectious	96	73.9
Frequent dental treatments to infected persons constitute a high risk to students	102	78.5
Attitude evaluation		
Good	34	26.2
Average	61	46.9
Insufficient	25	19.2
Poor	10	7.7

Practices on patients infected with HIV/AIDS, HBV and HCV

There were 107 (82.3%) who agreed that all health care workers must do screening for these infections at least once a year. Meanwhile, only 37 participants (28.5%) had been vaccinated against HBV. Only 75 (57.7%) persons in our sample accepted that protective objects (glove, face mask and eye glasses) are efficient protections against these infections. At the end of our analysis on practice, 30 (23.1%) had well to average level of practice (Table 4).

Correlations of our study population

Our study found positive correlations between students' personal knowledge, attitude and practice. Furthermore, the $p=0.016$, $p=0.006$ and $p=0.002$ values are all respectively statistically significant for the associations between knowledge-attitude, knowledge-practice and attitude-practice (Table 5).

Table 4: Practices on patients infected with HIV/AIDS, HBV and HCV of our study population.

Variables	Effective	Percentage (%)
All dental health-care workers must do screening at least once a year	107	82.3
Those vaccinated against		
HIV/AIDS	0	0
HBV	37	28.5
HCV	18	13.9
Protective objects serve as efficient protection	75	57.7
Practice evaluation		
Good	3	2.3
Average	27	20.8
Insufficient	59	45.4
Poor	31	23.8

Table 5: Correlation between knowledge, attitude and practice of students in our study sample.

	Knowledge		Attitude		Practice	
	Coefficient	p	Coefficient	p	Coefficient	P
Knowledge	1		0.212*	0,016	0.242**	0,006
Attitude	0.212*	0,016	1		0.272**	0,002
Practice	0.242**	0,006	0.272**	0,002	1	

DISCUSSION

The general objective of this study was to evaluate the competences on HIV/AIDS, Hepatitis B and C infections of clinical dental students of the Faculty of Medicine and Biomedical Sciences (FMBS) of the University of Yaoundé I. The majority of the participants of this study had good knowledge of the routes of transmission of HIV/AIDS and hepatitis, respectively 84.5% and 79%. These values are lower than the 96% and 93% respectively, published by Kadeh et al. [6] in a study conducted in Iran. This difference could be explained by the fact that the population studied by Kadeh et al. was composed of dental surgeons, while ours was still a student [6]. However, our results were similar to those of a study conducted by Vlaho et al. on dental students at the University of Zagreb School of Dentistry in Croatia, with 91.4% and 78.9% respectively [7]. Similar to Vlaho et al. there was a significant advance in knowledge of the possibility of HIV transmission through saliva, with 97.70% knowing that HIV is not transmitted through saliva, in contrast to 1999 research, in which 38.6% of the students at the Zagreb School of Dentistry thought that saliva was one of the possible routes of HIV transmission [7]. This may be explained by the time lapse between the two studies: over the years, a lot of research is being done and people are becoming more aware. Although 93.80% of the students were able to identify hepatitis viruses as the main cause of hepatitis infections, this result is far higher than those found in a joint study in the North West and Central regions of Cameroon in 2012, [8] where 40.3% of the sample located viruses as the main cause of hepatitis infections. Interestingly, more than half of our sample was unaware that certain medications and autoimmune diseases could also cause hepatitis infection. The majority (78.50%) of the participants in our study were aware of HBV vaccines, our results contrast somewhat with those of Ashgah et al. [9] in 2015 at a private medical university in Pakistan, where 67.86% of dental students were aware of the HBV vaccine. A possible explanation for this contrast is that Ashgah et al. had a small sample size corresponding to almost half of our study population.

A majority of our population (89.00%) told that all three infections were public health problems in Cameroon. One hundred and two (78.46%) reported that frequent odontostomatological management of infected individuals is a high risk for students. In addition, 73.85% considered each patient (of unknown serological status) to be potentially infectious. These results are in stark contrast to those of Vlaho et al. where less than half (40%) of their participants thought that frequent dental treatment of infected individuals constituted a high risk to students and only 61% considered each patient potentially infectious [7]. This disparity in results could be explained by the level of education of the majority of participants in their pre-clinical sample. As such, awareness of this topic was lower, with courses on infectious diseases in their school starting in the third grade [7]. Compared to our sample, all students were clinicians who had encountered most cases in their clinical trials. We had an average of 82.31% of our population who indicated that students are required to treat those infected with HIV/AIDS, HBV and HCV. Curiously, this same average disagreed that students should stop treatment if they discover that their former patient is infected with one of these infections. In the report by Kadeh et al. (67%) of the respondents stated that they had a professional and ethical duty to the treatment of HIV, HBV, and HCV positive patients [6]. Our value was high compared with that of Kadeh et al. Despite the fact that their study sample was composed of dentists, a larger majority of our population was

Christian and, therefore, they had a good moral responsibility. In some previous studies conducted in Canada by McCarthy et al. it has been shown that a sense of moral responsibility is important for accepting infectious patients [10].

More than 8 to 10 of our participants believed that all oral health professionals should be screened at least once a year in order to know their status and to protect themselves and the entire community. 57.70% of the students considered protective equipment (gloves, mask, glasses, etc.) as an effective protection against these infections. In addition, the vaccination coverage against hepatitis B and C in our population is low, 28.50% and 13.85% respectively. These results would indicate a certain negligence and lack of personal interest on the part of our sample, which is really dangerous because they are currently the most vulnerable population to hepatitis infections in the world. Considering that medical personnel are more at risk than the general population, [11] and dentists have the highest prevalence of HBV and HCV compared to other medical personnel [12-14]. This could be explained by the fact that there is no specific program to raise awareness of the high risk of occupational contamination among these students. There is therefore a great need to increase student awareness of the high risk of these infections but also of infection control protocols. This can be achieved by intensifying theoretical and practical courses on the prevention of occupational medical risks in general, and those specifically related to hepatitis B and C [11] in all oral health training institutions. This work was limited to clinical dental students of FMBS. Thus, our conclusions cannot be extended to other dental medicine institutes in Cameroon.

CONCLUSION

Dental students' knowledge of HIV/AIDS, hepatitis B, and C is insufficient, which confers on them erroneous attitudes and inappropriate control and prevention measures toward HIV/AIDS, hepatitis B, and C during their clinical practice. All of the above correlations and statistically significant p-values lead to the conclusion that knowledge plays an important role in shaping attitudes and practices towards HIV, HBV and HCV infected patients. By improving knowledge of the risks, percentages, and means of transmission, clinical dental students may become more adept at treating these patients and less prone to discriminatory attitudes and poor practices.

ACKNOWLEDGMENT

The research team would like to thank the Faculty of Medicine and Biomedical Sciences of the University of Yaoundé I and all the participants in this study.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

CONTRIBUTION OF THE AUTHORS

The authors carried out the data collection, statistical analysis, drafting of the manuscript and its critical reading. All authors gave their approval for publication.

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