

## **A Cross-Sectional Study for the Evaluation of Attitude, Awareness and Knowledge among Female Dental Undergraduates of Karachi about Hepatitis B and Human Immunodeficiency Viral Infections**

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### **Abstract**

Present study aims to evaluate the perception of female dental students in terms of attitude, awareness and knowledge on viral infections i.e. Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV). Overall 264 female dental students were enrolled initially whereas, 220 female successfully completed the study protocol. The response rate for the present cross-sectional study was 83%. Analyses of data were done through using Microsoft Excel and SPSS v.16. Frequency count with percent distribution was used to represent respondents' scores. Total rate of return of questionnaire was 71% in female dental undergraduates. Majority (73.6%) of female were in age group of 19 - 22 years of age. Most of female (38.6%) students were from second year of their studies. Evaluation of attitude, awareness and knowledge status of female dental students about human immunodeficiency and hepatitis B viral infections showed satisfactory status. Present study showed that the extent of knowledge, information, comprehension and familiarity in female (dental) undergraduates of Karachi towards HBV and HIV diseases are up to reasonable level.

**Keywords:** Attitude; Awareness; Female; Hepatitis B; Human Immunodeficiency Virus; Knowledge

### **Introduction**

Amid taking regular safety measures, incidence of infectious diseases is ubiquitous among health professionals who are dealing with dental care [1]. Absolute avoidance of body fluid handling is not practically possible in clinical settings related to the oral health, and this predisposes dental care professionals towards the risk of acquiring serious contagious diseases [2]. One of the foremost factors is the usage of invasive instruments and techniques, that too in relatively compact working areas [3]. Acquired immunodeficiency syndrome (AIDS) and Hepatitis B are amongst the most threatening conditions in such cases, being caused by the Human Immunodeficiency virus (HIV) and Hepatitis B virus (HBV), respectively [4,5]. Infection caused by HBV is a considerably huge healthcare challenge worldwide, globally affecting around 2 billion patients [4]. Hepatitis B is characteristically termed as the "silent infection" affecting dental care providers and professionals [6]. The risk of contracting a chronic Hepatitis B disease in dental care professionals is 10 folds higher than the general population, indicating a frighteningly soaring potential of HBV communication among dental care professionals [1,3,7]. Since body fluids including nasopharyngeal secretions, salivary secretions and blood carry HBV, the risk of Hepatitis B disease incidence in dental care professionals is 50 - 100 times higher than the risk of acquiring AIDS [8]. Nonetheless, in oral healthcare settings, blood is thought to be the most crucial fluid for the transmission of HBV pathogen [1].

HIV is thought to have infected humans race since 1980s. And the prevalence of AIDS is still escalating [9]. Emergence of new cases of HIV infection is reported to have increased by 35% in Middle Eastern and North African population since 2001 [10]. Reports of HIV infection have been drastically increasing during the period ranging from 1990 to 2001. A total of 1,040 cases were reported from 2001 to 2005, and these figures later increased to an elevated value of 1,663 cases [10]. According to World Health Organization (WHO), prevalence of chronic infectious diseases is quite high in Pakistan as compared to the rest of the world [7]. Nearly 5% of population of Pakistan, that approximates around 9 million people, is thought to be carrying HBV pathogen. This indicates serious nature of HBV endemic in the region [7]. According to reports, out of roughly around 100,000 individuals who get infected with the HBV every year, many face lethal consequences due to complications of the disease [8,11].

Cooperative behavior of dental care practitioners and enthusiastic approach is credited to be associated with their knowledge based competency. Formerly, WHO mandated dental care professionals to provide necessary care to the HIV infected people? [12] Oral health-care practitioners who treat with confidence and enthusiasm are those who have a sound knowledge of essential precautionary measures while handling infected individuals [13]. It can be concluded that training should be incorporated to enhance proficiency of dental care professionals related to the AIDS and Hepatitis B diseases including understanding of disease pathogenesis, oral symptoms and means of disease transmission.

### **Objective of the Study**

The objective of this cross-sectional study was to evaluate attitude, awareness and knowledge among female dental undergraduates of Karachi about hepatitis B and human immunodeficiency viral infections.

### **Study Methods**

Study design was cross-sectional. The data were collected through a questionnaire based interview from dental students of first year to the fourth year and house officers, at teaching clinics of Karachi, Pakistan. Present study was conducted in 2017. Before the start of this research, approval from the concerned authorities of teaching concerned teaching clinics was taken. Prospect of present work was briefed to all female students prior to the start of this study. Beside this, informed verbal consent was also obtained from participants before handing over the survey instrument. Assurance of confidentiality of all their shared information as well as their personal identity was also provided [14].

Sample size was calculated through online Raosoft sample size calculator. The minimum sample size for this study was equivalent to 264 female participants which was computed by adjusting the margin of error (d) at 6%, confidence level on 95%, considering the recommended population size (20000) with at least 50% response distribution [14].

In order to evaluate the attitude, knowledge and assessment on HIV and HBV, pretested questions on these variables were taken from the recently published study by Bindal, *et al.* [3], Iqbal, *et al.* [14] and improved further. This self-administered questionnaire consists of a total of sixteen [16] variables/questions along with socio-demographic characteristics (age, gender, qualification years) were administered. The questionnaire was divided into three (03) parts, in which, part 1 was on Attitude, part 2 was on knowledge and part 3 was on awareness assessment. The first and second part contains six (06) variables each, however, the third part contain only four (04) variables. Responses to all questions were equally scored on 5 points Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree) with the statement mentioned in all three parts [14]. A total of 264 female dental students were selected and approached. Only Two hundred and twenty two (220) students through interview completed the questionnaire. An approximate of 83% was the total rate of return of present study questionnaire. Data were entered in Microsoft 2010 Excel Workbook and statistical analyses were performed using Statistical Package for Social Scientist (SPSS version 16.0). Frequency and percent distribution was computed for each variable.

### **Results**

#### **Profile of female dental students**

Among 220 female students 28 were from 1<sup>st</sup> year. 85 students were from 2<sup>nd</sup> year. 33, 39 and 35 were from 3<sup>rd</sup>, 4<sup>th</sup> and house officer category, respectively. The percent frequency analysis of female students' reveals that highest percentages i.e. 38.6% were from 2<sup>nd</sup> year class, while least percent count i.e. 12.7% was from 1<sup>st</sup> year class. Students from 3<sup>rd</sup> year, 4th year and house officer category shared almost equivalent load of between 15 to 17%, respectively.

Similarly age range of ≤ 18 years has only 20 female with percent count of 9.1%. Maximum age range group was between 19 - 22 years which has 162 female with percent count of 73.63%. Age range between 23 - 24 years showed the female count of 34 with 15.45%. Whereas, only 4 females with percent count of 1.81% was in group of age ≥ 25 years of age.

Variable	Frequency (%)
<b>Dental school year</b>	
1 <sup>st</sup> years	28 (12.7)
2 <sup>nd</sup> years	85 (38.6)
3 <sup>rd</sup> years	33 (15)
4 <sup>th</sup> years	39 (17.7)
House officers	35 (15.9)
<b>Age in years</b>	
≤ 18 years	20 (9.1)
19 - 22 years	162 (73.63)
23 - 24 years	34 (15.45)
≥ 25 years	4 (1.81)

**Table 1:** Profile of Female students.

**Attitude status of students about human immunodeficiency and hepatitis B viral infections**

Analysis of attitude status of female dental students consisted of six (06) variables. Majority of female dental students i.e. 109 with percent count of 49.5% were strongly agreed and 79 with percent count of 35.9% agreed that supporting HIV/AIDS patients improves community health. Similarly, majority of female dental students i.e. 126 with percent count of 57.3% were strongly agreed and 76 with percent count of 34.5% agreed that for HIV/HBV patients all procedures and treatment should be done in separate clinics/ward. Contrary to this, 86 female students with percent count of 39.1% disagreed and 27 females with percent count of 12.3% were strongly disagreed that dental specialists ought to have the chance to decline to treat patients with HIV or hepatitis. Interestingly for this variable a count of 56 females with percent count of 25.5% was neutral in opinion and only 40 female were agreed and 11 were strongly agreed to this. Maximum females of count 76 with percent count of 34.5% were agreed and same count i.e. 78 females with percent count of 35% were neutral when they were inquired that if you know about the status of your patient regarding HIV/HBV infection, in your practice, will you be comfortable treating such a patient? Only females with count of 50 with percent count of 22.7% were disagreed and 9 females with percent count of 4.1% were strongly disagreed. 115 females with percent count of 52.3% agreed and 56 females with percent count of 25.5% when they were inquired that in your opinion treating HIV/Hepatitis B+ patients with close (clinical) supervision would give you more confidence in treating such patients later on?. Finally when they were inquired with questions that would you offer to deliver care/ services to HBV/HIV specialist centre? 45 females with percent count of 20.5% and 91 females with percent count of 41.4% were strongly agreed and agreed, respectively.

Variable	Frequency (%)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Supporting HIV/HBV patients improves community health	109 (49.5)	79 (35.9)	29 (13.2)	1 (0.5)	2 (0.9)
For HIV/HBV patients all procedures and treatment should be done in separate clinics/ward	126 (57.3)	76 (34.5)	13 (5.9)	3 (1.4)	2 (0.9)
Dental specialists ought to have the chance to decline to treat patients with HIV or hepatitis.	11 (5)	40 (18.2)	56 (25.5)	86 (39.1)	27 (12.3)
If you know about the status of your patient regarding HIV/HBV infection, in your practice, will you be comfortable treating such a patient?	7 (3.2)	76 (34.5)	78 (35.5)	50 (22.7)	9 (4.1)
In your opinion treating HIV/Hepatitis B+ patients with close (clinical) supervision would give you more confidence in treating such patients later on?	56 (25.5)	115 (52.3)	38 (17.3)	11 (5)	-
Would you offer to deliver care/services to HBV/HIV specialist centre?	45 (20.5)	91 (41.4)	52 (23.6)	32 (14.5)	-

**Table 2:** Evaluation of attitude status of Female dental students about human immunodeficiency and hepatitis B viral infections.

**Knowledge status of students about human immunodeficiency and hepatitis B viral infections**

Analysis of knowledge status of female dental students consisted of six (06) variables. Majority of female dental students i.e. 65 with percent count of 29.5% were strongly agreed and 116 with percent count of 52.7% agreed that a fit individual can also be infected with HIV/ HBV virus. Only 23 females with percent count of 10.5% were neutral and 16 females with percent count of 7.3% were disagreed. Similarly, majority of female dental students i.e. 112 with percent count of 50.9% were strongly agreed and 85 with percent count of 38.6% agreed that through infected person’s open sores or blood, hepatitis B is transmitted? Count of female dental students i.e. 65, 64, 53 with percent count of 29.5%, 29.1%, 24.1% were strongly agreed, agreed and neutral in opinion that transmission of hepatitis B is through saliva, respectively. Maximum strength of females i.e. 105 with percent count of 47.7% and 96 with percent count of 43.6% were strongly agreed to agree that HBV/HIV can be transmitted on to a neonate from infected mother. A mix count of females i.e. 23, 45, 66, 62, 24 with percent counts of 10.5%, 20.5%, 30%, 28.2% and 10.9% were strongly agreed to disagree that the status of HBV is more infectious as compared to HIV. 29 females with percent count of 13.2% and 84 females with percent count of 38.2% were strongly agreed and agreed that infection prevention (control) techniques or methods for HBV/HIV provide satisfactory protection against the viral transmission.

Variable	Frequency (%)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
A fit individual can also be infected with HIV/ HBV virus.	65 (29.5)	116 (52.7)	23 (10.5)	16 (7.3)	-
Through infected person’s open sores or blood, hepatitis B is transmitted?	112 (50.9)	85 (38.6)	16 (7.3)	7 (3.2)	-
Transmission of hepatitis B is through saliva	65 (29.5)	64 (29.1)	53 (24.1)	33 (15.0)	5 (2.3)
HBV/HIV can be transmitted on to a neonate from infected mother	105 (47.7)	96 (43.6)	12 (5.5)	6 (2.7)	1 (0.5)
The status of HBV is more infectious as compared to HIV	23 (10.5)	45 (20.5)	66 (30.0)	62 (28.2)	24 (10.9)
Infection prevention (control) techniques or methods for HBV/HIV provide satisfactory protection against the viral transmission	29 (13.2)	84 (38.2)	46 (20.9)	50 (22.7)	11 (5.0)

**Table 3:** Evaluation of knowledge status of Female dental students about human immunodeficiency and hepatitis B viral infections

**Awareness status of students about human immunodeficiency and hepatitis B viral infections**

Analysis of knowledge status of female dental students consisted of four (04) variables. Majority of female dental students i.e. 174 with percent count of 79.1% were strongly agreed and 43 with percent count of 19.5% agreed that patients infected with HIV+ or HBV+ should have a permissible responsibility to update their dentists about their status of disease. Similar to this, majority of female dental students i.e., 101 with percent count of 45.9% were strongly agreed and 105 with percent count of 47.7% agreed that in your opinion there is definite proportion of undiagnosed HIV/ HBV+ patient that attend the dental (wards) clinics? A mix count of females i.e. 18, 66, 85, 43, 8 with percent counts of 8.2%, 30%, 38.6%, 19.5% and 3.6% were strongly agreed to disagree in your opinion in the wards/clinics you are ready and equipped for treating such infectious patients?. Majority of females i.e. 62, 62, 47 with percent counts of 28.2%, 28.2%, and 21.4% were strongly agreed to neutral that every patients visiting to the dental wards/clinics should be possibly considered infectious?

Variables	Frequency (%)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Patients infected with HIV+ or HBV+ should have a permissible responsibility to update their dentists about their status of disease	174 (79.1)	43 (19.5)	3 (1.4)	-	-
In your opinion there is definite proportion of undiagnosed HIV/ HBV+ patient that attend the dental (wards) clinics?	101 (45.9)	105 (47.7)	13 (5.9)	1 (0.5)	-
In your opinion in the wards/ clinics you are ready and equipped for treating such infectious patients?	18 (8.2)	66 (30.0)	85 (38.6)	43 (19.5)	8 (3.6)
Every patients visiting to the dental wards/clinics should be possibly considered infectious?	62 (28.2)	62 (28.2)	47 (21.4)	40 (18.2)	9 (4.1)

**Table 4:** Evaluation of awareness status of Female dental students about human immunodeficiency and hepatitis B viral infections.

## **Discussion**

Internationally, hepatitis B and HIV are specially focused medical problems, contributing a tremendous load on the social and healthcare aspect [7,10]. In nations like Pakistan, an increasing number of people were reported with the savage of HBV and HIV. Further to this, from the last few years the increasing involvement of such patients straightforwardly sub-related in the field of healthcare services providers [3]. Karachi the metropolitan capital and major city of Pakistan, contributing the biggest piece of Pakistani populace, facing a conspicuous challenge in term of illiteracy and lack of proper training in clinical safety (for patient and physician) to properly tackle hazardous identities, even in the graduated populace. In dentistry, patients with past history of contaminated or involved with HIV/HBV may regularly visit dental clinics for getting treatments. In present work, all the set variables for the evaluation of attitude status of female dental undergraduates revealed the satisfactory comprehension about the HIV/HBV viral infections and its elaborated integration in dental field. In this way it is basic protocol for dental undergraduates, which will be the country's future, to be outfitted with finish learning of clinical safety measures and hazardous management specifically dealing the patients of HIV and HBV. Additionally courses related with the transmission, virology, all-inclusive precautionary measures, and cross disease techniques were also taught to them [14].

Information, mindfulness and demeanor assumes vital part in enhancing the wellbeing status of society as adequate measure of learning will unequivocally impact their level of certainty when dealing with such patients and affect their mentality [15]. In this study, all the set variables for the evaluation of knowledge status of female dental undergraduates revealed the satisfactory knowledge about the HIV/HBV viral infections and its particularized combination in dental field. Individuals experiencing HBV and particularly HIV are regularly denigrated and it is a prospering issue that numerous dental practitioners are unwilling to treat those kinds of patients [13]. Explanations behind their hesitance may incorporate dread of disease, impassiveness of the danger of transmission and preventive strategies. It is imperative for dental students to build up an inspirational state of mind concerning the proper set of protocols and practices of HIV or HBV so as to end unfair practices.

Appropriate learning about the transmission examples of HIV/HBV is altogether critical and still healthcare providers need information about the etiology and methods of transmission of such diseases [15]. With regards to vulnerability to such contamination, dental students are required to especially focus about gathering right practices and attribute in their daily routine involvement and abilities in order to uplift the working standard [14,16]. Similarly, all the established variables for the evaluation of awareness status of female dental undergraduates revealed the reasonable information about the HIV/HBV viral infections and its inclusive role in dental field.

Moreover, dental graduates will also be able to distinguish and treat patients with HIV or HBV, or their asymptomatic carriers, which were neglected in past, and accurately regulate the proper use of prophylactic measures [17]. Mindfulness on any logical subject remains a basic idea which speaks to the level of preparing or giving direction to individuals so as to play out their obligation, by having knowledge about the standards of good expert practices [14,18].

## **Conclusion**

Present study showed that the extent of knowledge, information and familiarity in dental undergraduates of Karachi towards HBV and HIV diseases are up to acceptable levels.

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