

# Occupational Blood Exposure Accidents – A KAP Study Among Dental Students in Khammam

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**Abstract: Background:** Dentistry has existed since the dawn of time and has been revolutionized due to information explosion and technological advances. Though, exists the occupational exposures to blood and body fluids resulting in increased risk of transmission of infectious agents. The dental students are budding dentists, who are more vulnerable to occupational infections due to typical clinical practice and the instrumentation used in dental training. So the aim of the present study is to assess the knowledge, attitude and practices towards occupational blood exposure accidents among dental students in Khammam.

**Objective:** To assess the knowledge, attitudes and practices towards occupational blood exposure accidents among dental students.

**Materials and Methods:** A cross-sectional, self-administered questionnaire study was conducted to assess the knowledge, attitude and practices among dental students in Khammam.

**Results:** The study population consisted of 242 subjects. Among them 46 (18.3%) were males and 196 (81.7%) were females. Majority of the subjects which is 196 (81%) answered with Yes and 46 (19%) answered with No for “Do you know what an OBEA is”. It shows a significant statistical difference value of 0.001 which is less than 0.05 shows significance. The majority of the subjects that is 213 (88%) answered with Yes and 29 (12%) answered with No for “Do you use a protective eyewear”. It shows a significant statistical difference value of 0.000 which is less than 0.05 and shows more significance.

**Conclusion:** The dental students acceptable level of knowledge regarding handling and disposal of sharps and needles. Although post-graduates scored a little better, the difference between the undergraduates and post-graduates were not significant. Steps should be taken to increase awareness among the dental students. This can be done by including the topics relating to handling and disposal in their BDS curriculum and reinforcing the instructions when they are working in the clinics.

**Keywords:** Occupational, Blood exposure, Accidents, Dental students.

## 1. Introduction

According to the Center for Disease Control (CDC), occupational exposure to blood and body fluids is defined as a Percutaneous injury (e.g., a needle stick or cut with a sharp object) or a contact of mucous membrane or non-intact skin, for example, exposed skin that is abraded, or flicted with dermatitis with blood, tissue, or other body fluids are potentially infectious [1]. The causes include various factors like type and design of needle, recapping activity, collision between health care

workers (or) sharps, during clean up, passing devices (or) failure to dispose of needles in puncture proof containers [2].

The risk of these occupational incidents is due to the risk of transmission of infectious agents carried by the blood such as Human immunodeficiency virus, Hepatitis B virus and Hepatitis C virus. Through 1990's 6,00,000 and 8,00,000 needle stick injuries were noticed annually. It is estimated that the risk of H.I.V infection is approximately 0.3%, Hepatitis-b is 30% and Hepatitis-c is 3% [3]. During the last 25 years it has been noticed that a reduction in the infection by infection control measures, vaccine induced immunity better prevention and apply of a series of recommendations [4]. More than 80% needle stick injuries can be prevented through use of safety devices and effective safety program, needle stick injuries can be prevented by applying universal precautions as a safety measure [5]. This is a first study to assess the knowledge, attitude and practices of dental students regarding Occupational blood exposure accidents in Khammam.

To help dental students to be aware of blood risk exposure accidents and to remind them of the basic emergency practices, this study was conducted to assess the knowledge, attitude and practices of dental students in Khammam towards occupational blood exposure accidents.

## 2. Materials and Methods

A Cross-sectional study was conducted to assess the knowledge, attitude and practices about blood exposure accidents among final year, internship and post graduates students in Khammam. This study was scheduled from September 28th 2019 to October 15th 2019. Ethical clearance was taken from the Institutional Ethical Research Committee. Informed consent was obtained from each participant. This study contains 242 participants and convenience sampling method was used in this study. A self-administered pre tested questionnaire was used in the study. Questionnaire validity was done prior to the study. Inclusion criteria: Students of final year, interns and postgraduates are included in the study and those who were willing. Exclusion criteria: The students who were absent during the day of the survey were excluded and those who were not willing.

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### A. Statistical Analysis

The Data was entered into an excel sheet and analyzed using Statistical Package for Social Sciences software (SPSS) software version 25.0. The Pearson's chi-square test was used to measure the exposure on some variables. To compare between final year, internship and post graduates. The confidence interval of 95% was considered statistically significant  $P \leq 0.05$ .

### 3. Results

The study population consisted of 242 subjects. Among them 46 (18.3%) were males and 196 (81.7%) were females. (Fig. 1).

Fig. 2 shows that regarding the educational status 77 are final year students (31.8%), 70 are internship, students (28.9%), 95 are postgraduates (39.6%).

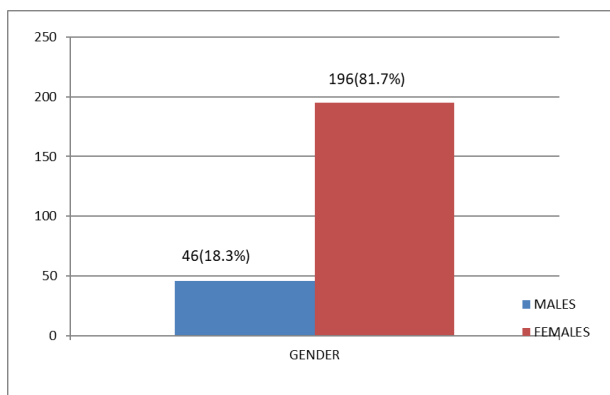


Fig. 1. Distribution of study population, according to gender

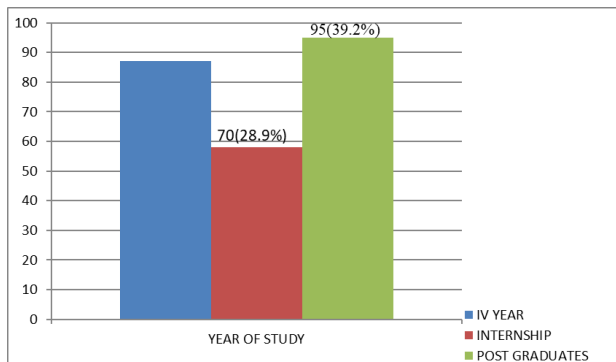


Fig. 2. Distribution of study population, according to year of study

Majority of the subjects which is 196 (81%) answered with Yes and 46 (19%) answered with No for “Do you know what an OBEA is”. It shows a significant statistical difference value of 0.001 which is less than 0.05 shows significance. (Table-1)

Table-1 shows that the majority of the subjects that is 178 (73.5%) answered with Yes and 64 (26.5%) answered with No for “Do you take a printed consent”. It shows a significant statistical difference value of 0.000 which is less than 0.005 and shows much significance.

The majority of the subjects that is 213 (88%) answered with Yes and 29 (12%) answered with No for “Do you use a protective eyewear”. It shows a significant statistical difference value of 0.000 which is less than 0.05 and shows more significance. (Table-1)

The majority of the subjects that is 134 (55.4%) answered with paper towels, 105 (43.4%) answered with tissue towels, 3 (1.2%) with both of them for “Do you dry your hands after washing them if yes, what do you use”. It shows a significant statistical difference value of 0.004 which is less than 0.05 shows significance. (Table-1)

Majority of the subjects that is 168(69.4%) answered with college/classroom/teachers,51(21%) answered with internet, 13(5.4%) answered with friends,5(2%) of them with both internet and college/classroom/teachers, 3(1.2%) of them with internet and college/classroom/teachers, 1(0.4%) of them answered with internet and friends, 1(0.4%) of them answered with internet and friends for “Did you receive any special education to deal with OBEA if so where did you get it from”. It shows a significant statistical difference value of 0.026 which is less than 0.05 and shows significance. (Table-1)

With regard to the remaining 14 items out of 19 items, there was no statistically significant difference for subjects regarding the practice for preventive measures in OBEA.

### 4. Discussion

In the present study, compliance with some precautions seems to be good; wearing protective mask 95.04%; wearing Eye wear during treatment 88% this was similar to the study conducted by Abdelhadi Hbibi et al 2018[6]. In the present study 80.9% of the dental students know about OBEA and it has shown the similar results with the previous study done by the previous study [6]. In this study majority (90.4%) of the dental students aware of occupational blood exposure accidents occurs more in oral surgery department. It corroborates the findings of previous study conducted by Abdelhadi Hbibi et al [6]. Majority of the study participants receive special education to deal with OBEA from College/classroom/Teachers is 69.4%. in the present study 95.87% of the dental students Recapping the needle after using anaesthetic syringe and it has shown similar results with the previous study conducted by Abdelhadi Hbibi et al [6].

### 5. Conclusion

The present study demonstrates that the dental students acceptable level of knowledge regarding handling and disposal of sharps and needles. Although post-graduates scored a little better, the difference between the undergraduates and post-graduates were not significant. Steps should be taken to increase awareness among the dental students. This can be done by including the topics relating to handling and disposal in their BDS curriculum and reinforcing the instructions when they are working in the clinics. Students should be motivated to report them and not to ignore or hide them. Proper work environment with clearly labelled areas for disposal of sharps should be assigned in the clinics or laboratories. Needle-stick or sharps injury can prove to be fatal, thus clear instructions regarding what should be done should be posted in the working area, and it should be a collective responsibility of faculty, students, resident and support staff to make sure that these injuries are avoided, and in case they happen, should be handled properly.

Table 1  
Knowledge, attitude and practices towards occupational blood exposure accidents

Questions	Answers	N %
<b>Knowledge:</b>		
Do you know what an OBEA is?	i) Yes ii) No	80.9% 19.1%
What are the clinical situations in which you will have OBEA?	i) Recapping needles ii) When making sutures iii) During an incision iv) All the above	6.1% 0.4% 3.3% 87.6%
Did you receive any special education to deal with OBEA if so where did you get it from?	i) Internet ii) College/classroom/teachers iii) Friends iv) Both internet and college/classroom/teachers v) College/classroom/teachers and Friends vi) Both internet and Friends	21.1% 69.4% 5.4% 2.1% 1.2% 0.4%
In which clinical department you will mostly have an OBEA?	i) Oral surgery ii) Pedodontics iii) Dental camps iv) Periodontics v) All the above	90.4% 1.6% 2% 2.8% 2.8%
What among these are preventive measures taken in OBEA?	i) Wearing Gloves, gowns ii) Using protective eyewear, face masks iii) All the above iv) None of the above	1.65% 1.65% 96.28% 0.4%
<b>Attitude:</b>		
If the patient has a general disease like AIDS, COPD etc. Do you contact his/her physician before starting the procedure?	i) Yes ii) No	91% 8.7%
Is it necessary to do further blood tests after an OBEA?	i) Yes ii) No	93.3% 6.7%
Is there a need for additional education in terms of OBEA for the students?	i) Yes ii) No	94% 6%
<b>Practices:</b>		
Do you evaluate your patient's general health before the procedure?	i) Yes ii) No	98.35% 1.65%
Do you take a printed consent?	i) Yes ii) No	73.6% 26.4%
Do you wear an apron during dental care?	i) Yes ii) No	98.76% 1.23%
Do you use a protective eyewear?	i) Yes ii) No	88% 12%
Do you use a protective mask if, yes, Do you think they are to be changed for every patient?	i) Yes ii) No	95.04% 4.95%
Do you wash your hands before examining a patient using liquid soap?	i) Yes ii) No	91% 9%
Do you dry your hands after washing them if yes, what do you use?	i) Paper towels ii) Tissue towels iii) Both	55.37% 43.39% 1.24%
After using anesthetic syringe, do you recap needle?	i) Yes ii) No	95.87% 4.13%
Basic measures taken immediately after OBEA occurs are?	i) Washing wound by water with antiseptic soap ii) Do not squeeze wound are soak it in bleach iii) Reporting to the medical team iv) All the above	13.63% 1.65% 2.90% 81.81%
Measures taken by an individual after 5 minutes of an OBEA?	i) Application of sodium hypochlorite ii) Use of Antiviral drug course iii) Reporting to the medical team iv) All the above v) None of the above	5.8% 4.54% 9.91% 79.33% 0.41%
Do you have any history of an OBEA?	i) Yes ii) No	7% 93%

Table 2  
Comparison between dental students

Questions	Year	Answers	Total	Percentage	P value
Do you know what an OBEA is?	IV Years (77)	i) Yes	53	68.8%	0.01*
		ii) No	24	31.2%	
	Interns (70)	i) Yes	56	80%	
	ii) No	14	20%		
Postgraduates (95)	i) Yes	87	91.58%		
	ii) No	8	8.42%		
Did you receive any special education to deal with an OBEA if so where did you get it from ?	IV Years (77)	i) Internet	24	31.16%	0.026*
		ii) College/classroom/teachers	49	63.64%	
		iii) Friends	3	3.9%	
		iv) Both internet and college/classroom/teachers	1	1.3%	
		v) College/classroom/teachers and Friends	0	0	
		vi) Both internet and Friends	0	0	
	Interns (70)	i) Internet	17	24.28%	
		ii) College/classroom/teachers	47	67.14%	
		iii) Friends	5	7.14%	
		iv) Both internet and college/classroom/teachers	0	0	
		v) College/classroom/teachers and Friends	0	0	
		vi) Both internet and Friends	0	0	
	Postgraduates (95)	i) Internet	10	10.5%	
		ii) College/classroom/teachers	72	75.8%	
		iii) Friends	5	5.2%	
		iv) Both internet and college/classroom/teachers	4	4.2%	
		v) College/classroom/teachers and Friends	3	3.1%	
		vi) Both internet and Friends	1	1%	
Do you take a printed consent?	IV Years (77)	i) Yes	40	52%	0.000*
		ii) No	37	48%	
	Interns (70)	i) Yes	58	83%	
		ii) No	12	17%	
	Postgraduates (95)	i) Yes	80	84.2%	
		ii) No	15	15.8%	
Do you use a protective eye wear?	IV Years (77)	i) Yes	74	96.1%	0.000*
		ii) No	3	3.9%	
	Interns (70)	i) Yes	68	97.1%	
		ii) No	2	2.9%	
	Postgraduates (95)	i) Yes	71	75%	
		ii) No	24	25%	
Do you dry your hands after washing them if yes, what do you use?	IV Years (77)	i) Paper towels	31	40%	0.004*
		ii) Tissue towels	43	56%	
		iii) Both	3	4%	
	Interns (70)	i) Paper towels	44	63%	
		ii) Tissue towels	26	37%	
		iii) Both	0	0%	
	Postgraduates (95)	i) Paper towels	59	62%	
		ii) Tissue towels	36	38%	
		iii) Both	0	0%	

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