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RESEARCH ARTICLE

DETERMINATION OF HEPATITIS B VACCINATION STATUS, AND KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING HEPATITIS B,C AND HIV AMONG KING KHALID UNIVERSITY DENTAL AND MEDICAL STUDENTS IN COMPARISON WITH THEIR GENDER

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ABSTRACT

Background: Hepatitis B and C virus infections have become a serious problem of public health and a major cause of morbidity and mortality, particularly in developing countries. Globally, two billion people (about one-third of the world's population) have been infected by Hepatitis B virus (HBV)
Objective: To assess the knowledge, attitudes and risk perceptions towards HIV, HBV and HCV infected patients among KKU interns, undergraduate dental and medical students.
Methodology: A cross-sectional study was conducted, included clinical levels students and interns in medical and dental collage of King Khalid University. Convenient sampling technique was used to collect the data from all available students and interns who agreed to participate in the study using pretested questionnaire.
Results: The study included 536 medical and dental students (268 for each) with ages ranged from 20 to 26 years old and mean age of 23.3 1.3. Female students constituted 67.2% of the sample. About 47% of the students had good level of knowledge regarding HBV infection, 31.2% of them were of good level of knowledge about HCV while 29.9% had good level of knowledge regarding HIV infection.
Conclusion and Recommendation: The overall knowledge, attitude and practice of dental and medical students showed satisfactory outcomes. However, female students were more aware than males and medical students were at lower awareness area than dental students.

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INTRODUCTION

Hepatitis C is a hepatotropic viral infection caused by hepatitis C virus (HCV), which is a major cause of acute hepatitis and chronic liver disease. It is estimated that 170 million people worldwide (3% of the world population) are chronically infected with HCV and are under the risk of cirrhosis and liver cancer. Chronic HCV infection is usually slowly progressive. HCV infection leads to chronic hepatitis in 50% to 80% of individuals (Gurubacharya et al., 2003; Mansour-Ghanaei et al., 2009; Waheed et al., 2009; ŁAbedzka et al., 2002; Mastoi et al., 2010). HIV infection was first diagnosed in the United States in 1981, it remains the leading killer of humans, with 90% of all infected cases occurring in the developing world and the number of newly infected cases rising every year.

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The major causes of increasing HIV infection include unprotected sexual contact, injection drug use, contaminated blood transfusion, mother-to-child transmission (prenatal and while breastfeeding), and occupational exposure among health care workers) (Luber et al., 2002). Hepatitis B and C viruses infections have become a serious problem of public health and a major cause of morbidity and mortality, particularly in developing countries. Globally, two billion people (about one-third of the world's population) have been infected by Hepatitis B virus (HBV) (http://www.who.int/mediacentre/ factsheets/ fs204/en/.), and 300 to 420 million people are chronic carriers, affecting 5- 7% of the world's population (http://www.who. int/mediacentre/ factsheets/fs204/en/; Alter, 2006). Of these, 75% are Asians[9]. The prevalence of HBV infection varies widely, with rates ranging from 0.1% to 20% in different parts of the world[?]. In the last few years there was a decline in the prevalence of HBV and HCV infection in Saudi Arabia,

despite this, these viral diseases cause significant morbidity and mortality, and impose a great burden on the country's healthcare system. In 2007, the Saudi Ministry of Health (MOH) ranked viral hepatitis as the second most common viral disease after chickenpox, with almost 9000 new cases diagnosed in that year (52% HBV, 32% HCV, and 16% HIV). Health workers, especially physicians and medical students are always in direct contact with patients and are susceptible to being infected with these diseases. They are involved in all risky fields of acquiring the infection including blood transfusion, injections and surgical operations in their daily work. They should be aware of the risk involved in the treatment procedures and should take appropriate precautions in dealing with patients (Anjum, 2005; Nasir et al., 2000). The current study therefore was aimed to determine the vaccination status for hepatitis B and the knowledge, attitude and practice (KAP) regarding hepatitis B and C and HIV among medical and dental students and comparing this awareness according to their gender.

METHODOLOGY

This cross sectional study was conducted among all undergraduates and intern in both medical and dental colleges of King Khalid University. Convenient sampling technique was used to collect the data from all available students who agreed to participate in the study. Duration of study was from October 2017 to December 2017. Students were approached in their lectures, clinics and a verbal consent was taken. A pre-constructed, validated and pre-tested questionnaire was distributed and which was collected after it had been completed. It contained questions regarding awareness about prevention and transmission, diagnosis and treatment of hepatitis B and C. In addition, it also contained vaccination status of hepatitis B. Besides, demographic data including grade, age and gender were collected.

Data analysis

The data collected was revised, coded and fed to statistical software IBM SPSS version 22. The given graphs were constructed using Microsoft excel software. All statistical analysis was done using two tailed tests and alpha error of 0.05. P value less than or equal to 0.05 was considered to be statistically significant. Descriptive statistics was done by showing frequencies and percentages for categorical variables while mean with standard deviation were used for scale variable (age).The answers discrete scores for each items were summed together and were grouped as; low knowledge: < 50% of the maximum score = moderate knowledge; 50% up to less than 75% of the maximum score, and good knowledge; 75% of the maximum score or more. Chi-square or exact tests were used to test for association between sample characteristics and knowledge level for HBV, HCV and HIV infection.

RESULTS

Total of 536 medical and dental students (268 for each) with age range of 20 to 26 years and mean age of 23.3 1.3. Female students constituted 67.2% of the sample and 84.1% were at the undergraduate stage. More than 60% of the included students were previously immunized against HBV. About 84% of the students learning about HBV during undergraduate levels (Table 1).

Table 1. Socio-demographic characteristics of KKU interns, undergraduate dental and medical students, Abha, Saudi Arabia 2017

Characteristics		No	%
Age in years	20-	54	10.1%
	22-	219	40.9%
	24-26	263	49.1%
Mean ± SD		23.3 ± 1.3	
Gender	Male	176	32.8%
	Female	360	67.2%
Grade	Undergraduate	451	84.1%
	Intern	85	15.9%
Field	Dental	268	50.0%
	Medicine	268	50.0%
Immunization	Yes	327	61.0%
	No	209	39.0%

On reviewing students' knowledge regarding HBV infection (Table 2) shows chance for transmission after needle stick injury was the highest known item among the interviewed students (86%) followed by chance of transmission through blood transfusion (84.7%), and the high risk of infection among health care workers (83.8%). Risk of transmission from mother to child OF HBV was the least known item as 9.3% of the sample said no. Table 3 illustrates students' knowledge regarding HCV infection. More than 80% of the students studied about HCV during undergraduate levels. Knowing that HCV can be transmitted through needle injury was recorded among 80.6% of the students and 76.5% of them know that it can be transmitted through blood transfusion. Unprotected sex and being a health care work increase the chance of HCV transmission was known among more than 70% of the students. As for the knowledge regarding HIV infection, Table 4 demonstrates that 83.9% of the included students studied about HIV infection in their undergraduate levels. Also 81.7% of them know about probability of having HIV after needle stick injury and 79.1% said that it can be transmitted from infected mother to her child. Unprotected sex as a method of HIV infection was recorded among 78.5% of the students and 74.4% agreed on that heal care workers are at potential risk of acquiring HIV infection.

With regard to students' attitude towards infected patients with HBV, 76.2% of the included sample agreed on doctors' right to know their patient's infection status and 71.7% of them agree also to moral responsibility to treat – infected patient with HBV. Also 66.5% of the interviewed students were worried about being infected from their patients (Table 5). Considering attitude towards patients infected with HCV (Table 6), 75.7% of the included samples agreed on doctors' right to know their patient's infection status and 51.3% of them agree also to moral responsibility to treat – infected patient with HCV. Also 62.6% of the interviewed students were worried about being infected from their patients. Regarding attitude towards HIV infected patients. Table 7 shows that 76.7% of the included samples agreed on doctors' right to know their patients' infection status and 55.7% of them agreed also to moral responsibility to treat – infected patient with HBV. Additionally, 64.5% of the interviewed students were worried about being infected from their patients.

DISCUSSION

This study intended to determine the vaccination status, and evaluate the knowledge and attitudes towards HIV\HCV\HBV among dental students and interns in comparison to their medical counterparts at the same level.

Table 2. Descreptives of HBV knowledge items among KKU interns, undergraduate dental and medical students, Abha, Saudi Arabia 2017

Knowledge items of HBV	Yes		No		Don't know	
	No	%	No	%	No	%
Risk of transmission by hand shaking/kissing of HBV	192	35.8%	307	57.3%	37	6.9%
Risk of transmission from mother to child OF HBV	425	79.3%	50	9.3%	61	11.4%
Higher risk of infection among health care workers OF HBV	449	83.8%	38	7.1%	49	9.1%
Large amount of virus in saliva OF HBV	327	61.0%	122	22.8%	87	16.2%
Presence of oral signs and symptoms in infected patient OF HBV	205	38.2%	185	34.5%	146	27.2%
There is an effective vaccine FOR HBV	396	73.9%	62	11.6%	78	14.6%
Is there chance for transmission after needle stick injury OF HBV	461	86.0%	38	7.1%	37	6.9%
Are you familiar with the management of needle stick injury of HBV	296	55.2%	169	31.5%	71	13.2%
Is there chance for transmission through blood transfusion (HBV)	454	84.7%	47	8.8%	35	6.5%
Is there chance for transmission through un protected sex (HBV)	374	69.8%	80	14.9%	82	15.3%
High prevalence of HBV carrier in KSA	343	64.0%	69	12.9%	124	23.1%
Do health care professionals belongs to the high risk group to HBV INFECTION	414	77.2%	41	7.6%	81	15.1%
Have you studied about HBV infections at college	448	84.1%	28	5.3%	57	10.7%

Table 3. Descreptives of HCV knowledge items among KKU interns, undergraduate dental and medical students, Abha, Saudi Arabia 2017

Knowledge items of HCV	Yes		No		Don't know	
	No	%	No	%	No	%
Risk of transmission by hand shaking/kissing of HCV	156	29.1%	325	60.6%	55	10.3%
Risk of transmission from mother to child OF HCV	367	68.5%	98	18.3%	71	13.2%
Higher risk of infection among health care workers OF HCV	394	73.5%	83	15.5%	59	11.0%
Large amount of virus in saliva OF HCV	286	53.4%	141	26.3%	109	20.3%
Presence of oral signs and symptoms in infected patient OF HCV	204	38.1%	171	31.9%	161	30.0%
There is an effective vaccine FOR HCV	230	42.9%	228	42.5%	78	14.6%
Is there chance for transmission after needle stick injury OF HCV	432	80.6%	64	11.9%	40	7.5%
Are you familiar with the management of needle stick injury HCV	347	64.7%	110	20.5%	79	14.7%
Is there chance for transmission through blood transfusion (HCV)	410	76.5%	70	13.1%	56	10.4%
Is there chance for transmission through un protected sex (HCV)	394	73.5%	77	14.4%	65	12.1%
High prevalence of HCV carrier in KSA	272	50.7%	111	20.7%	153	28.5%
Do health care professionals belongs to the high risk group to HCV INFECTION	360	67.2%	64	11.9%	112	20.9%
Have you studied about HCV infections at college	453	85.0%	33	6.2%	47	8.8%

Table 4. Descreptives of HIV knowledge items among KKU interns, undergraduate dental and medical students, Abha, Saudi Arabia 2017

Knowledge items of HIV	Yes		No		Don't know	
	No	%	No	%	No	%
Risk of transmission by hand shaking/kissing OF HIV	168	31.3%	332	61.9%	36	6.7%
Risk of transmission from mother to child OF HIV	424	79.1%	52	9.7%	60	11.2%
Higher risk of infection among health care workers OF HIV	399	74.4%	77	14.4%	60	11.2%
Large amount of virus in saliva OF HIV	268	50.0%	182	34.0%	86	16.0%
Presence of oral signs and symptoms in infected patient OF HIV	297	55.4%	98	18.3%	141	26.3%
There is an effective vaccine OF HIV	158	29.5%	296	55.2%	82	15.3%
Is there chance for transmission after needle stick injury OF HIV	438	81.7%	56	10.4%	42	7.8%
Are you familiar with the management of needle stick injury HIV	345	64.4%	116	21.6%	75	14.0%
Is there chance for transmission through blood transfusion (HIV)	412	76.9%	67	12.5%	57	10.6%
Is there chance for transmission through un protected sex (HIV)	421	78.5%	48	9.0%	67	12.5%
High prevalence of HIV carrier in KSA	218	40.7%	164	30.6%	154	28.7%
Do health care professionals belongs to the high risk group to HIV INFECTION	330	61.7%	71	13.3%	134	25.0%
Have you studied about HIV infections at college	447	83.9%	36	6.8%	50	9.4%

Table 5. Descreptives of attitude items towards HBV infected patients among KKU interns, undergraduate dental and medical students, Abha, Saudi Arabia 2017

Attitude towards HBV infected patients	Yes		No		Don't know	
	No	%	No	%	No	%
I have a moral responsibility to treat – infected patient WITH HBV	382	71.7%	86	16.1%	65	12.2%
I will treat infected HBV patient	343	64.1%	112	20.9%	80	15.0%
I can safely treat HBV infected patient	314	58.7%	142	26.5%	79	14.8%
Doctors have right to know their patients infection status (HBV)	407	76.2%	91	17.0%	36	6.7%
I am worry about being infected with HBV by my patient	347	66.5%	121	23.2%	54	10.3%
Do you think that after finishing your university education you will be competent enough to treat patient with HBV infections	294	56.8%	135	26.1%	89	17.2%

Table 6. Descreptives of attitude items towards HCV infected patients among KKU interns, undergraduate dental and medical students, Abha, Saudi Arabia 2017

Attitude towards HCV infected patients	Yes		No		Don't know	
	No	%	No	%	No	%
I have a moral responsibility to treat – infected patient WITH HCV	315	59.1%	137	25.7%	81	15.2%
I will treat infected HCV patient	315	58.9%	151	28.2%	69	12.9%
I can safely treat HCV infected patient	297	55.5%	148	27.7%	90	16.8%
Doctors have right to know their patients infection status (HCV)	404	75.7%	97	18.2%	33	6.2%
I am worry about being infected with HCV by my patient	327	62.6%	132	25.3%	63	12.1%
Do you think that after finishing your university education you will be competent enough to treat patient with HCV infections	267	51.3%	149	28.7%	104	20.0%

Table 7. Descreptives of attitude items towards HIV infected patients among KKU interns, undergraduate dental and medical students, Abha, Saudi Arabia 2017

Attitude towards HIV infected patients	Yes		No		Don't know	
	No	%	No	%	No	%
I have a moral responsibility to treat – infected patient WITH HIV	297	55.7%	129	24.2%	107	20.1%
I will treat infected HIV patient	292	54.6%	143	26.7%	100	18.7%
I can safely treat HIV infected patient	283	53.0%	144	27.0%	107	20.0%
Doctors have right to know their patients infection status (HIV)	408	76.7%	85	16.0%	39	7.3%
I am worry about being infected with HIV by my patient	334	64.5%	118	22.8%	66	12.7%
Do you think that after finishing your university education you will be competent enough to treat patient with HIV infections	257	49.8%	152	29.5%	107	20.7%

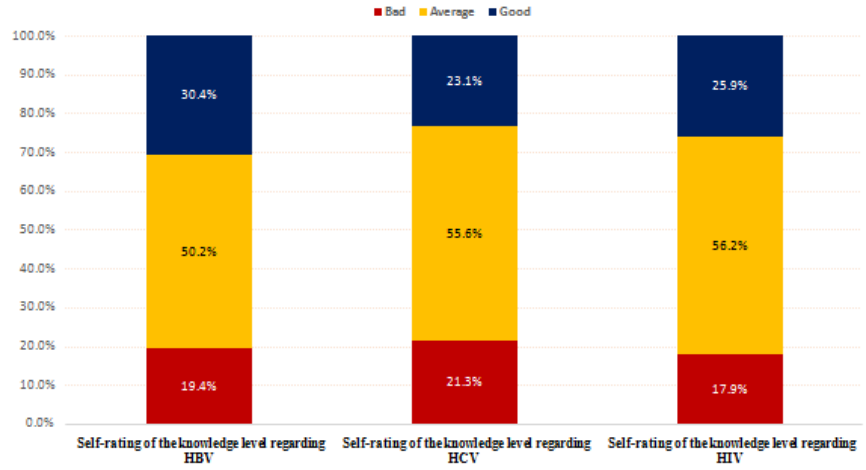

Figure 1. Self rated knowledge as recorded among KKU interns, undergraduate dental and medical students, Abha, Saudi Arabia 2017

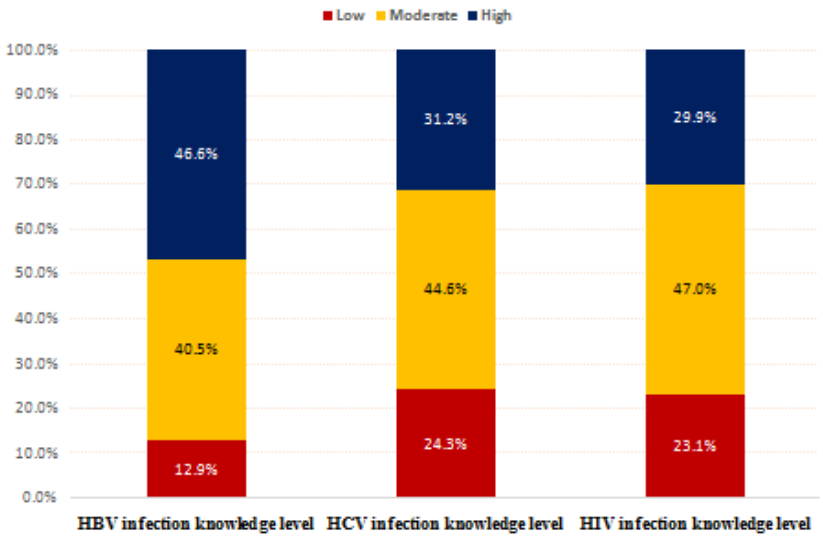

Figure 2. Viral infections knowledge level of KKU interns, undergraduate dental and medical students, Abha, Saudi Arabia 2017

Table 8. HBV knowledge level of KKU interns, undergraduate dental and medical students according to their characteristics, Abha, Saudi Arabia 2017

Characteristics		HBV infection knowledge level						P
		Low		Moderate		High		
		No	%	No	%	No	%	
Age in years	20-	6	11.1%	15	27.8%	33	61.1%	0.002*
	22-	21	9.6%	82	37.4%	116	53.0%	
	24-26	42	16.0%	120	45.6%	101	38.4%	
Gender	Male	38	21.6%	93	52.8%	45	25.6%	0.001*
	Female	31	8.6%	124	34.4%	205	56.9%	
Field	Dental	20	7.5%	93	34.7%	155	57.8%	0.001*
	Medicine	49	18.3%	124	46.3%	95	35.4%	
Grade	Undergraduate	65	14.4%	176	39.0%	210	46.6%	0.034*
	Intern	4	4.7%	41	48.2%	40	47.1%	
Immunization	Yes	35	10.7%	114	34.9%	178	54.4%	0.001*
	No	34	16.3%	103	49.3%	72	34.4%	

* P < 0.05 (significant)

Table 9. HCV knowledge level of KKU interns, undergraduate dental and medical students according to their characteristics, Abha, Saudi Arabia 2017

Characteristics		HCV infection knowledge level						P
		Low		Moderate		High		
		No	%	No	%	No	%	
Age in years	20-	12	22.2%	28	51.9%	14	25.9%	0.050*
	22-	42	19.2%	109	49.8%	68	31.1%	
	24-26	76	28.9%	102	38.8%	85	32.3%	
Gender	Male	55	31.3%	82	46.6%	39	22.2%	0.002*
	Female	75	20.8%	157	43.6%	128	35.6%	
Field	Dental	39	14.6%	125	46.6%	104	38.8%	0.001*
	Medicine	91	34.0%	114	42.5%	63	23.5%	
Grade	Undergraduate	116	25.7%	199	44.1%	136	30.2%	0.167
	Intern	14	16.5%	40	47.1%	31	36.5%	
Immunization	Yes	57	17.4%	144	44.0%	126	38.5%	0.001*
	No	73	34.9%	95	45.5%	41	19.6%	

* P ≤ 0.05 (significant)

Table 10. HIV knowledge level of KKU interns, undergraduate dental and medical students according to their characteristics, Abha, Saudi Arabia 2017

Characteristics		HIV infection knowledge level						P
		Low		Moderate		High		
		No	%	No	%	No	%	
Age in years	20-	13	24.1%	29	53.7%	12	22.2%	0.005*
	22-	34	15.5%	115	52.5%	70	32.0%	
	24-26	77	29.3%	108	41.1%	78	29.7%	
Gender	Male	59	33.5%	82	46.6%	35	19.9%	0.001*
	Female	65	18.1%	170	47.2%	125	34.7%	
Field	Dental	36	13.4%	129	48.1%	103	38.4%	0.001*
	Medicine	88	32.8%	123	45.9%	57	21.3%	
Grade	Undergraduate	112	24.8%	211	46.8%	128	28.4%	0.060
	Intern	12	14.1%	41	48.2%	32	37.6%	
Immunization	Yes	57	17.4%	146	44.6%	124	37.9%	0.001*
	No	67	32.1%	106	50.7%	36	17.2%	

* P < 0.05 (significant)

The questionnaire used in this survey has been adopted from a previous survey (Suh-Woan Hu, Hsiang-Ru Lai, and Pao-Hsin Liao, 2004). The questionnaires were distributed to all the students excluding those in preclinical levels. There were in total, around 700 responses, however, uncompleted questionnaires were excluded bringing the total complete responses to 536 medical and dental students (268 for each).Out of 536 subjects only 327 (61.0%)were vaccinated against HBV, Percentage of fully vaccinated students is questionable (2 out of each 3 were immune). This was comparable to 85.4% of Medical students at the University of Port Harcourt Teaching Hospital who received hepatitis B vaccine (Ni Paul, 2015), and 68.6% of Nigerian Dental Surgeons received the vaccination.

Lack of awareness and absent of motivation play big roll behind non-vaccinated students. The overall knowledge, attitude and practice of dental and medical students showed satisfactory outcomes. More than 80% of reviewed students showed adequate knowledge and awareness of HIV and hepatitis B, C viruses. They had better knowledge about HBV in contrast to HCV and HIV. satisfactory results comparable to same study held in Sudan and report inadequate knowledge about HIV and hepatitis B (Ammar N. Hamid Albujeer, ?). Another study reported same finding was held in Peshawar University, Pakistan (Khan H, Ishaq, 2008). Majority of the students studied about HBV in undergraduate levels. However, female students were more aware than males, and medical students were at lower awareness area than dental students.

Dental students usually contact and treat patients early before graduation, and we can consider it as a possible reason for the higher level of awareness in contrast to medical students. High level of awarenessanticipatedby female students back to high cooperation and better attention compared to the males. Moreover, the self-rated knowledge level regarding awareness of HBV, only 30.4% of them rated themselves as of good awareness level and 50.2% rated them selves as having average awareness level. The same was done regarding HCV infection and only 23.1% of them rated themselves as of good awareness level and 55.6% rated themselves as having average awareness level. As for HIV infection 25.9% of students rated themselves as of good awareness level and 56.2% rated themselves as having average awareness level.in order to self-assessment results,enhancing self-confidentiality of students by offering an elective workshops related to the same subjects is demand. Coming to student attitude towards infected patients with HBV, 76.2% of the included sample agreed on doctors' right to know their patient's infection status and 71.7% of them agree also moral responsibility to treat – infected patient with HBV. Also 66.5% of the interviewed students were worry about being infected from their patients.

KKU students represented good attitude towardHIV patients, meanwhile, same research conducted in Iraq by Ammarreported attitude of dental and medical students were not in good level (Khan H, Ishaq, 2008). Considering attitude towards patients infected with HCV, 75.7% of the included sample agreed on doctors' right to know their patient's infection status and 51.3% of them agree also moral responsibility to treat infected patient with HCV. Also 62.6% of the interviewed students were worry about being infected from their patients.The worldwide number of people get infected with HIV\HBV\HCV are increasing worldwide, the need of infected individuals for medical and dental care will increase. Dental practitioners should be required to enhance their knowledge of the disease. The dental curriculum in our institution involves theoretical classes of HIV/HBV/HCV but we need to enhance the knowledge regarding infection control. However, additional education about HIV\HBV\HCV should be implemented by the administration for the students. This could take form of conferences, workshops, seminars or continuous professional development. The possible limitations in the studyis the difficulty of understood some questions among the undergraduate levels specially in the small levels, explain the full meaning and the purpose of the study to the participant will enhance the responses in small levels of participants

Conclusions and Recommendation

The overall knowledge, attitude and practice of medical students showed satisfactory outcomes. However, female students were more aware than males and medical students were at lower awareness area than dental students. Percentage of fully vaccinated medical students is questionable (2 out of 3 were immune),however, some areas of knowledge, such as transmission of hepatitis B and C, and attitude, such as consultation with the specialist for post-exposure, need to be corrected or changed. More attention and focus on infection control guidelines is needed among the medical students as they are at potential risk and should be of higher awareness and attitude towards having these infections. Students should be well educated aboutavailability of post exposure (needle prick) management and it should be the responsibility of the university to providepost exposure counseling services.

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