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ORIGINAL ARTICLE

Students' Knowledge and Attitude towards Infection Control at Prince Sultan Military College of Health Sciences: Cross Sectional Study

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ABSTRACT

Background: Awareness and knowledge about prevention of infections are important to prevent transmission of diseases from healthcare workers to patients.
Aim: To evaluate the students' attitude towards infection control at Prince Sultan Military College of Health Sciences, Dhahran, Saudi Arabia.
Study Design: Cross sectional study.
Methodology: Present study enrolled 415 participants involving both genders from different allied health specialties at PSMCHS. A standardized, anonymous online questionnaire was utilized to gather the data necessary to assess students' attitudes through answering seven statements. Informed written consent was taken. Unwilling participants were excluded. All collected information was kept confidential. Data analyzed by SPSS 25.0. Frequency and percentage were given for gender distribution and knowledge assessment through questionnaire. Moreover, F- test was applied by keeping CI (95%) with p-value of ≤ 0.05 taken as significant**.**
Results: There was a significant difference between female and male students regarding the positive attitude towards infection control. Dental and Oral Health students scored the highest degree of agreement using Analysis of Variance (F-test). This high score was obtained because dedicates an entire course infection control while it was embedded in the other departments' courses.
Conclusion: This study concluded that a dedicated course on infection control was an effective tool in instilling positive attitude towards infection control among PSMCHS students from different specialties.
Keywords: Attitude, Awareness, Infection control and Students.

INTRODUCTION

Infection control deals with preventing nosocomial or health care-associated infections. Infection prevention and control have a strong history in controlling and preventing infections locally. The prevention of healthcare-associated infections (HAIs) has become universally significant and this has resulted in the enhancing of infection prevention and control[1,2].

The transmission of diseases from healthcare workers to patients is often associated with a lack of knowledge and/or awareness about infection control. In addition, there is also a risk of spreading or transmitting infectious diseases via care professionals' work activities and procedures to either the patients or healthcare workers[3,4].

Every healthcare student must understand the importance of infection control, because it can affect people's life and health.[5] Many diseases can be prevented by infection control Patient safety is an essential part of the medical discipline and is aimed at improving the quality of patient care and minimizing treatment mistakes[6,7].

Healthcare workers play an important role in reducing infection among home healthcare patients by complying with infection control procedures.[8] The major factor in reducing these infectious diseases is proper adherence to infection control measures[9]. People receiving healthcare in hospital or clinic are at less risk of being infected when precautions are taken to prevent infection. Death and diseases can be a result of hospital acquired infections among patients who receive healthcare[10]. The risks of hospital-acquired infections are substantial, not only for patients, but also for healthcare workers, including medical students. One of the most frequently identified occupational hazards that are met by medical students and HCWs in general is exposure to infectious diseases.[11] Nosocomial infections, which infections that are acquired in hospitals, are an international problem; these infections are increasing[10].

Based on study survey conducted at United States (U.S.), it was revealed that at any given time, one of 25 hospitalized patients at the U.S. acquires a hospital-acquired infection (HAI). This showed that each year around 650,000 patients with an HAI "At least 5% - 10% of patients were admitted to acute care hospitals acquire an infection".[11]

Healthcare workers can prevent themselves from exposure to infection by applying an infection control guidelines such as vaccinations and proper post- exposure management.[12] Students must understand that infection control is important not only for them, but also for the patients, because the patients come only to receive treatment, not to acquire infections[13].

Many diseases can be prevented by infection control. Patient safety is an essential part of the medical discipline and is aimed at improving the quality of patient care and minimising treatment mistakes[14]. The purpose of this study was to evaluate the students' attitude towards infection control at PSMCHS students. This is important because, if students do not have sufficient awareness of infection

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control, diseases can spread easily from one person to another. Consequently, neglecting in infection control will lead to spread diseases that can be prevented by infection control.

The objective of the study was to evaluate the students' attitude towards infection control at Prince Sultan Military College of Health Sciences, Dhahran, Saudi Arabia.

METHODOLOGY

Present study enrolled 415 participants involving both genders from different allied health specialties at PSMCHS. A standardized, anonymous online questionnaire was utilized to gather the data necessary to assess students' attitudes through answering seven statements. Informed written consent was taken. Unwilling participants were excluded. All collected information was kept confidential. The survey ethical approval was requested from the ethics committee of our institution at PSMCHS.

Statistical analysis: Data analyzed by SPSS 25.0. Frequency and percentage were given for gender distribution and knowledge assessment through questionnaire. Moreover, F- test was applied by keeping CI (95%) with p-value of ≤ 0.05 taken as significant**.**

RESULTS

There were 203(49.9%) males while 212(51.1%) females in present study. Most participants were from respiratory and emergency medical services specialties; 46 of the participants specialized in dental services while only 12 responders were from biomedical technology as depicted by figure-1.

Fig.1: Depicting distribution of participants among different specialties

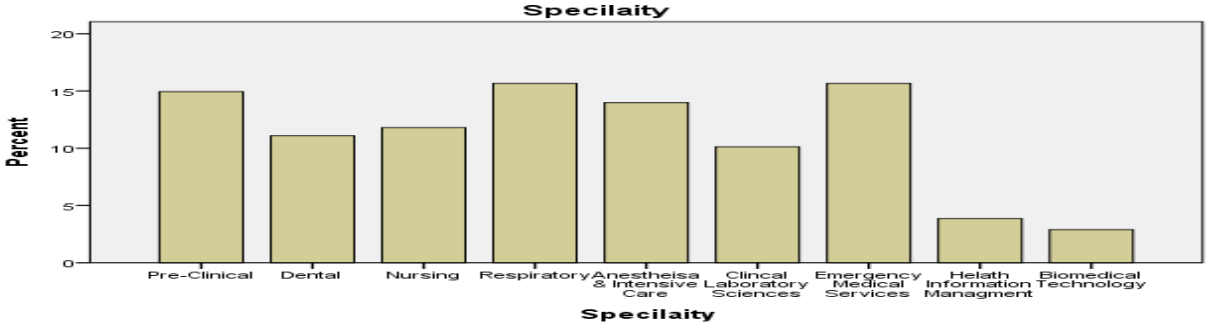

Table 1: Attitudes of students at PSMCHS about the infection control measures

Degree of agreement	Variable	Agree		Neutral		Disagree		X^2	P
		No.	%	No.	%	No.	%		
Student Speciality	Dental	42	91.3	4	8.7	0	0.0	8.836	0.012*
	Respiratory Care	44	67.7	19	29.2	2	3.1		
Student Speciality	Dental	42	91.3	4	8.7	0	0.0	8.836	0.008*
	Clinical Laboratory Sciences	29	69.0	17	31.0	0	0.0		
Student Speciality	Dental	42	91.3	4	8.7	0	0.0	9.635	0.008*
	Nursing	35	65.3	12	30.6	2	4.1		
Student Speciality	Dental	42	91.3	4	8.7	0	0.0	4.622	0.032*
	Emergency Medical Services	49	75.4	16	24.6	0	0.0		
Student Speciality	Dental	42	91.3	4	8.7	0	0.0	16.736	0.000*
	Health Information Management	7	43.8	8	50.0	1	6.3		

*Statistically significant

Table-2: Attitudes of Students at PSMCHS about the infection control measures

Degree of agreement	Agree		Neutral		Disagree	
Statement	No.	%	No.	%	No.	%
Healthcare workers should be vaccinated against HBV	356	85.8	56	13.5	3	0.7
Healthcare workers need to give prophylactic antibiotics to some patients prior to some procedures	264	63.6	116	28	35	8.4
Healthcare workers should always wear gloves while treating patients	379	91.3	33	8	3	0.7
Healthcare workers should replace gloves after receiving phone calls	336	81	65	15.7	14	3.4
Healthcare workers can treat more than one patient with the same gloves	63	15.2	30	7.2	322	77.6
Healthcare workers should always wear face mask when treating patients	272	65.5	110	26.5	33	8.0
Healthcare workers should wear eye goggles when treating patients	142	34.2	176	42.4	97	23.4

Table-3: practices towards infection control measures in dental clinics

Response	Yes		No, I do not mind		No, I am afraid		No, I am shy		No such occasion	
Practice	No.	%	No.	%	No.	%	No.	%	No.	%
Ask the doctor about the way they sterilize instruments	263	63.4	73	17.6	9	2.2	22	5.3	48	11.6
Ask the doctor to wear a face mask if not wearing it/them	265	63.9	67	16.1	10	2.4	42	10.1	31	7.5
Ask the doctor to wear a gloves if not wearing it/them	310	74.7	34	8.2	15	3.6	37	8.9	19	4.6

DISCUSSION

Healthcare-associated infections (HCAIs) are a major problem for public health. The neglect of infection control can lead to morbidity and mortality in patients.[10] Healthcare workers are also at a high risk of becoming infected by direct and indirect contact with patients; nevertheless they can protect themselves and patients from contracting infectious diseases, and also decrease the spread of contagious diseases.[15] By following infection control guidelines, healthcare workers can prevent exposure to infection[9].

All students in PSMCHS take a microbiology subject, thus they have a solid understanding of infection control. The average awareness of students at PSMCHS regarding infection control measures was similar between the genders. Most of our respondents had a high awareness of the importance being vaccinated against HBV: the result for neutral was 13.5% and the result for disagreeing was 0.7%. A high percentage of them, 85.8%, have been vaccinated against HBV; this represents a significant contrast with sixth year students from King Khalid University in Abha, KSA: a study shows that only 48.1% of them had been vaccinated.

Another result relates to the giving of prophylactic antibiotics to some patients prior to some procedures. The disagreement between PSMCHS students was lower than those in a study from King Abdul-Aziz University hospital, Jeddah, KSA, with the difference being approximately 26.7%.

In addition, in our study, 91.3% of the students saw the need for gloves, and 65.5% saw the need for masks. In comparison, the study from Sharjah in the United Arab Emirates shows that 100% of students wore gloves, and 96.4% wore masks during treating patients.

Furthermore, 15.7%t of PSMCHS students replaced their gloves after receiving phone calls, while 3.6% students in King Abdul-Aziz University hospital, Jeddah, KSA said that only neutral healthcare workers should replace their gloves. In our study, the percentage of those who treated more than one patient while wearing the same gloves was 77.6%, but the study of medical students in Tabuk, KSA, showed a better result with a higher percentage.[16] Also, wearing goggles when treating patients shows a lower percentage of disagreement: the result in our study being 23.4% compared with 57% of the students from Al-Jouf University, KSA[17].

Limitations: Present study had limitations like time frame and inability to assure that the random sample taken was a true representative of the general population. Present study did not focus on the participants' knowledge, because a pass-level grade in microbiology subject is required to graduate in PSMCHS courses including dental specialties, though only dental specialties take a course in infection control.

CONCLUSION

This study concluded that a dedicated course on infection control was an effective tool in instilling positive attitude towards infection control among PSMCHS students from different specialties. However, highest awareness among PSMCHS students was held by those in dental specialties and, for this reason, infection control courses should be integrated into all curricula of all healthcare students.

Author's contribution: MA: Overall supervision, write up and literature review. SHQ & WAB: Statistics application analysis literature review, help in write up. FSA: Literature review help in write-up.

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