

Awareness of medical students about standard isolation precautions In Sulaimani City

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Abstract

The objectives of this study are to assess knowledge, Attitude and practice of medical students about standard isolation precautions and different college students and to identify those who vaccinated with HBV vaccine. A cross-sectional study was conducted from 27th of February 2019 till 1st of March 2019 in Sulaimani University among medical students .A convenient sample of 401 students were participated. Data was collected via online, entered by excel program and analyzed by SPSS program version 21. Chi-square test used to get the association, P value which is equal or less than 0.05 was regarded statistically significant. Majority of medical students had accepted knowledge (67 %), their attitude was positive (70 %), and had low practice (35 %). Most of the students answered wrongly regarding gloves should be worn if they attached to mucous membrane or non-intact skin and the highest percentage was among nursing college (85.3%), there was a significant association regarding P value (0.035).Most of the students believed that all health providers are at risk of occupational infections (75.6%), and the highest percentage was among nursing college

(94.1%) and there was a significant association regarding P value (0.006). The percentage of the students that have taken a vaccine for Hepatitis B is (56.4%). Most of students had good knowledge regarding all aspects of Isolation Precaution, they had appropriate attitude toward it, high rate of medical students were lacking practice regarding the subject, in average college of Nursing had highest rate of all correct answers, About half of medical students have taken a vaccine for Hepatitis B.

Keywords: Standard isolation precautions, Medical students, Sulaimani

1. INTRODUCTION

Minimizing pathogens transmission risk from recognized and unrecognized sources is known as standard precautions, they are the basic level of infection control precautions which are to be used, as a minimum, in the care of all patients¹. Medical staff and medical students are at risk of getting infection through occupational exposure. The infection can also transmitted from health workers to the patients and other office workers². The risk of transmission of HIV to the health care worker when accidentally exposed to the needle stick or other sharps injury is %5³. General precautions comprise of (hand hygiene, the use of PPE, respiratory hygiene/cough etiquette, environmental cleaning, prevention of needle stick injuries and safe waste management)⁴. Through adherence to standard precautions, risk reduction must be undertaken for all blood borne pathogens by appropriate use of safety devices, using personal protective equipment, and providing a needle disposal system in work place⁵. A percentage of these risks can be prevented through a strict adherence by health staff to standard precaution⁶. Medical students before their initial training period at hospital should have adequate knowledge which is a pre-requisite for compliance. In addition to that a health care student must be trained a specialized training before undertakes any patient procedure involving sharp devices⁷ a few studies have reported on medical student knowledge of standard precaution and isolation noted that lack of adequate of information in standard isolation and precaution⁸. The observance of hygiene recommendations by students is reported as being weak, medical students rarely wash their hands after examining patients⁹. All the staff with potential exposure to blood and blood products must be educated regarding transmission mechanisms and preventive measures of the infectious diseases¹⁰. Knowledge, attitude, and practice of medical students towards standard isolation precautions were not appropriate these were found in several studies on the efficacy of this concept have been published. In Iran there are limited studies in relation to Iranian medical students towards standard isolation precautions.

Objectives:

- 1- To identify the awareness of the medical students about standard isolation precautions.
- 2- To find out the associations between different medical colleges students regarding knowledge, Attitude and practice about standard isolation precautions.
- 3- To identify difference between collages regarding receiving hepatitis B vaccine.

2. METHODOLOGY

Study design: Cross-sectional study.

Study duration: For five days, study began in 27th February 2019 and ended in 1st March 2019.

Study setting: The study was conducted in Sulaimani University, Faculty of Medical Science (Colleges of Medicine, Dentistry, Pharmacy and Nursing).

Sampling method and Sample size: A convenient sampling type was conducted. According to responses from online Google forms, 401 medical students from all colleges that were included have filled the form and returned back online. A self-administrative questionnaire was used to collect the information which was composed of four sections: Socio-demographic information: It included (Age, Gender, Marital states, Residency, Economic state, College) of the participants. Evaluation of students' knowledge: It includes 10 questions to determine their knowledge about isolation precautions. Evaluation of students' attitude: It includes 10 questions to estimate thoughts and attitude of students regarding the topic. Evaluation of students' practice: It includes 9 questions to evaluate practical activities of students in the practice sections. Data was collected via online questionnaire then entered to Google form screen sheet, transmitted into Microsoft Excel version 2016, after that into SPSS Version 21. And two approaches had been made: I. Descriptive approach, to calculate Frequency, Percentage, Mean, Standard Deviation, and Diagrams. II. Analytical approach, to find association between variables using Chi-square (with P-value less than or equal to 0.05 as statistically significant).

Ethical consideration: A permission was taken from department of Family and community medicine/college of medicine /Sulaimani University. It was protected legally by informed consent, and participants were informed that they are free to fill the form.

3. RESULTS

Mean age/ year of participants was (21.33±1.89SD)

Table (1) shows the highest frequency of participation was among females which was (50.4%) which is too close to male participation (49.6%), and among college of medicine which was (60.8%), Regarding to residency participation among once live inside city was higher which was (53.9%), (89.3%) of participants were single ,while (78.3%) had a moderate economic state.

Table 1: distribution of medical students according to their socio-demographic states

Socio-demographic		Frequency	Percentage (%)
Gender	Female	202	50.4
	Male	199	49.6
Marital states	Divorced	9	2.2
	Married	34	8.5

	Single	358	89.3
Residency	Inside city	216	53.9
	Outside city	185	46.1
Economic state	High	42	10.5
	Low	45	11.2
	Moderate	314	78.3
College	Dentistry	79	19.7
	Medicine	244	60.8
	Nursery	34	8.5
	Pharmacy	44	11.0
Total		401	100.0

Table (2) shows the associations between deferent colleges regarding their Knowledge about prevention of standard precautions, by asking about after any contact with secretions, contaminated item, blood and bloody fluid hands should be washed, 80.5% said yes with a high proportion among medicine which 82.4% of them answered yes with statistically not significant p value (0.687), And regarding touching mucous membranes or non-intact skin, wearing of gloves should be done 79.3% said yes with a high proportion in college of nursing that 85.3% of them said yes and with a significant p value (0.035), About 68.1% said they should wear protective eyeglasses to protect mucous membranes of the eyes and among them 85.3% from nursing with non-significant p value (0.263) , Regarding the surgical mask 79.6% said yes to protect the mouth and nose from invasive procedures and activities surgical mask should be worn, which among them highest percentage was in collage of nursing 85.3% with statistically not significant p value (0.725), by asking Cleaning And disinfect-ting should be applied for any common equipment between patients who are on contact precautions 76.3 of participants said yes which among them highest percentage was in college of pharmacy 86.4% with statistically not significant p value (0.389), regarding Wearing gown is necessary when entering patient's room on contact precautions if you anticipate contact with patient or environment.

Table 2: associations between deferent colleges regarding their Knowledge about prevention of standard precautions

Knowledge about Prevention		College				Total	P. Value
		Medicine	Nursery	Dentistry	Pharmacy		
		Number (%)					
1. Should hands be washed after accidental contact with blood bloody fluid, secretions	I don't know	8(3.3)	1(2.9)	6(7.6)	3(6.8)	18(4.5)	0.687
	No	35(14.3)	6(17.6)	13(16.5)	6(13.6)	60(15.0)	
	Yes	201(82.4)	27(79.4)	60(75.9)	35(79.5)	323(80.5)	

contaminated item?	Total	244(100)	34(100)	79(100)	44(100)	401(100)	
2. should gloves be worn when touching mucous membranes or non-intact skin?	I don't know	19(7.8)	2(5.9)	5(6.3)	6(13.6)	32(8.0)	0.035
	No	25(10.2)	3(8.8)	19(24.1)	4(9.1)	51(12.7)	
	Yes	200(82.0)	29(85.3)	55(69.6)	34(77.3)	318(79.3)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	
3. Goggles (Protective eyeglasses) should be worn to protect mucous membranes of the eyes	I don't know	34(13.9)	3(8.8)	13(16.5)	10(22.7)	60(15.0)	0.263
	No	44(18.0)	2(5.9)	14(17.7)	8(18.2)	68(17.0)	
	Yes	166(68.0)	29(85.3)	52(65.8)	26(59.1)	273(68.1)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	
4. A surgical mask should be worn to protect the nose and mouth from invasive procedures and activities	I don't know	19(7.8)	3(8.8)	5(6.3)	4(9.1)	31(7.7)	0.725
	No	29(11.9)	2(5.9)	14(17.7)	6(13.6)	51(12.7)	
	Yes	196(80.3)	29(85.3)	60(75.9)	34(77.3)	319(79.6)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	
5. Cleaning And disinfect-ting should be applied for any common equipment between patients who are on contact precautions	I don't know	25(10.2)	6(17.6)	9(11.4)	3(6.8)	43(10.7)	0.389
	No	30(12.3)	6(17.6)	13(16.5)	3(6.8)	52(13.0)	
	Yes	189(77.5)	22(64.7)	57(72.2)	38(86.4)	306(76.3)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	
6. Wearing gown is necessary when entering patient's room on Contact precautions if you anticipate contact with patient or Environment.	I don't know	44(18.0)	4(11.8)	10(12.7)	9(20.5)	67(16.7)	0.844
	No	39(16.0)	7(20.6)	13(16.5)	6(13.6)	65(16.2)	
	Yes	161(66.0)	23(67.6)	56(70.9)	29(65.9)	269(67.1)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	

Table (3) shows the associations between deferent colleges regarding their Knowledge about general information of standard precautions, about health providers include radiologists 57.1% said yes they are with highest risk of exposure to tuberculosis and the highest percentage was in college of pharmacy 65.9% with not-significant p. value (0.387), regarding needles should be bent before disposal 48.1% of them said yes with highest percentage in college of medicine which 51.6% with not-significant p value (0.152). Only 29.7% of participants said no regarding routine immunization for healthcare providers include Rabies, HIV and Rubella in which the highest percentage was in collage of dentistry 31.6 % with not-significant p value (0.951).

Table 3: associations between deferent colleges regarding their Knowledge about general information of standard precautions

Knowledge about general information		College				Total	P. Value
		Medicine	Nursery	Dentistry	Pharmacy		
		Number (%)					
1. Health providers with highest risk of exposure to tuberculosis include radiologists.	I don't know	69(28.3)	6(17.6)	14(17.7)	9(20.5)	98(24.4)	0.387
	No	44(18.0)	7(20.6)	17(21.5)	6(13.6)	74(18.5)	
	Yes	131(53.7)	21(61.8)	48(60.8)	29(65.9)	229(57.1)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	
2. needle should be bent before disposal	I don't know	58(23.8)	14(41.2)	18(22.8)	9(20.5)	99(24.7)	0.152
	No	60(24.6)	7(20.6)	27(34.2)	15(34.1)	109(27.2)	
	Yes	126(51.6)	13(38.2)	34(43.0)	20(45.5)	193(48.1)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	
3. Routine immunizations for healthcare providers include HIV, rubella and rabies	I don't know	49(20.1)	9(26.5)	14(17.7)	9(20.3)	81(20.2)	0.951
	No	74(30.3)	8(23.5)	25(31.6)	12(27.3)	119(29.7)	
	Yes	121(49.6)	17(50.0)	40(50.6)	23(52.3)	201(50.1)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	

Fig (1) About 56.9% of participants said all patients can be regarded as sources of infection whatever are their diagnosis and 33.2% said no only 10.0% said I don't know and the highest proportion was in college of nursing which 76.5% of students said yes and lowest in college of medicine which 51.2% of them said yes with not-significant p value (0.113).

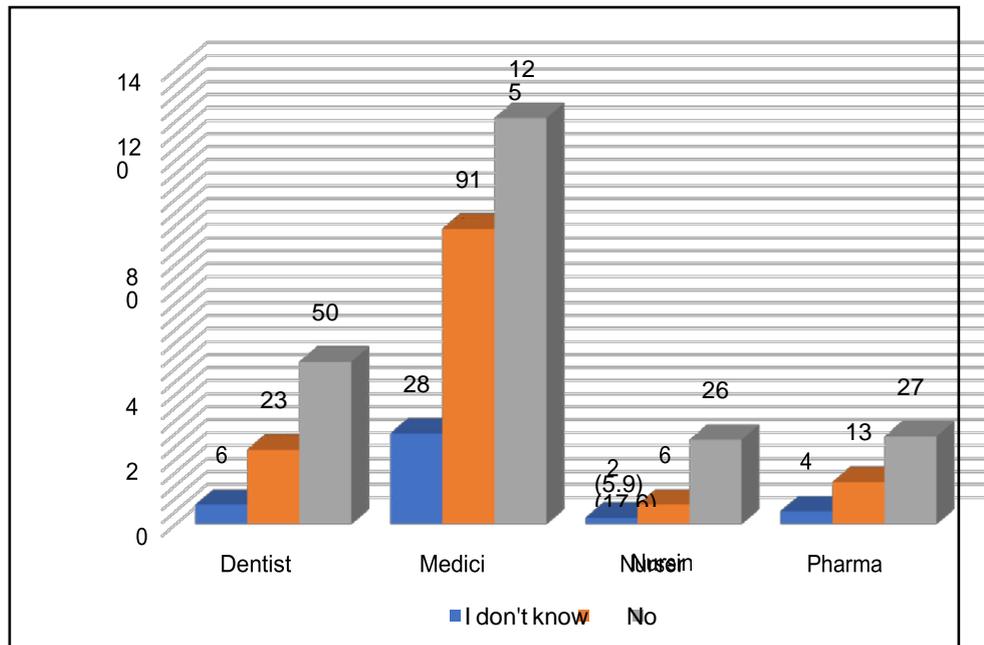


Figure 1: Showing the difference between students in different colleges regarding answering that all patients are sources of infection regardless their diagnosis.

Table (4) shows the associations between deferent colleges regarding their attitude of standard precautions, 75.6% believe that all healthcare workers are at risk of infections during their work and among them highest percentage was in collage of Nursing 94.1% with statistically high significant p value (0.006), by asking do they think hand washing can be replaced by using of gloves 52.4% said yes while among them highest percentage was in collage of pharmacy 72.7% of them said yes with significant p value (0.023), by asking do they believe Health- care providers should be tested annually by tuberculin skin test 72.3% said yes and among them highest percentage was in collage of pharmacy 79.5% of them said yes with non-significant p value (0.223), when we ask did they think Health-care providers should receive annual influenza vaccine 75.3% said yes which among them highest percentage was in collage of medicine 77.5% of them said yes with non-significant p value (0.539), and by asking do they think masks which composed of cotton are most protective 67.3% said yes and among them highest percentage was in collage of nursing 79.4% and statistically non-significant p value (0.261), by asking do they think on the same patient between different procedures gloves should be changed 75.1% said yes which among them the highest percentage was in collage of medicine 79.5% with a statistically non-significant p value (0.19),by asking, do they think Gloves and masks after proper cleaning can be re-used 51.4% said no and among them the highest percentage was in collage of dentistry 57.0% and statistically non-significant p value (0.53), when we asked do they think only sweat not regarded as source of infection 75.6% of participants said yes and among them highest percentage was in collage of nursing 82.4% with non-significant p value (0.742),and by asking do they think Patients with a disease that needs contact precautions must be kept in a private room 77.8% of participants said yes which among them highest percentage was in collage of nursing 91.2% and statistically non-significant p value (0.165).

Table 4: associations between deferent colleges regarding their attitude of standard precautions

Attitude		College				Total	P. Value
		Medicine	Nursery	Dentistry	Pharmacy		
		Number (%)					
1. Do you believe All health providers are at risk of occupational infections?	No	55(22.5)	2(5.9)	28(35.4)	13(29.5)	98(24.4)	0.006
	Yes	189(77.5)	32(94.1)	51(64.6)	31(70.5)	303(75.6)	
	Total	244(100.0)	34(100)	79(100.0)	44(100.0)	401(100.0)	
2. Do you think use of gloves replaces the need for hand washing?	No	126(51.6)	14(41.2)	39(49.4)	12(27.3)	191(47.6)	0.023
	Yes	118(48.4)	20(58.8)	40(50.6)	32(72.7)	210(52.4)	
	Total	244(100.0)	34(100)	79(100.0)	44(100.0)	401(100.0)	
3. Do you believe tuberculin skin test Should be done annually for Health- care providers ?	No	67(27.5)	7(20.6)	28(35.4)	9(20.5)	111(27.7)	0.223
	Yes	177(72.5)	27(79.4)	51(64.6)	35(79.5)	290(72.3)	
	Total	244(100.0)	34(100)	79(100.0)	44(100.0)	401(100.0)	
4. Do you think influenza vaccine should be received annually by health-care providers?	No	55(22.5)	8(23.5)	24(30.4)	12(27.3)	99(24.7)	0.539
	Yes	189(77.5)	26(76.5)	55(69.6)	32(72.7)	302(75.3)	
	Total	244(100.0)	34(100)	79(100.0)	44(100.0)	401(100.0)	
5. Do you think Masks are more protective if it is composed of cotton or gauze?	No	80(32.8)	7(20.6)	31(39.2)	13(29.5)	131(32.7)	0.261
	Yes	164(67.2)	27(79.4)	48(60.8)	31(70.5)	270(67.3)	
	Total	244(100.0)	34(100)	79(100.0)	44(100.0)	401(100.0)	
6. Do you think between different procedures on the same patient gloves should be changed	No	50(20.5)	8(23.5)	30(38.0)	12(27.3)	100(24.9)	0.19
	Yes	194(79.5)	26(76.5)	49(62.0)	32(72.7)	301(75.1)	
	Total	244(100.0)	34(100)	79(100.0)	44(100.0)	401(100.0)	
7. Do you think after proper cleaning of	Yes	116(47.5)	24(70.6)	34(43.0)	21(47.7)	195(48.6)	0.053
	No	128(52.5)	10(29.4)	45(57.0)	23(52.3)	206(51.4)	

masks and gloves we can re-use them	Total	244(100.0)	34(100)	79(100.0)	44(100.0)	401(100.0)	
8. Do you think that only sweat shouldn't be regarded as sources of infection?	No	59(24.2)	6(17.6)	21(26.6)	12(27.3)	98(24.4)	0.742
	Yes	185(75.8)	28(82.4)	58(73.4)	32(72.7)	303(75.6)	
	Total	244(100.0)	34(100)	79(100.0)	44(100.0)	401(100.0)	

Fig. (2) by asking did they think Hand washing reduces the incidence of healthcare-related infections 81.2% of them said yes, which among them highest percentage was in collage of medicine which's 86.5% and statistically highly significant p value (0.008).

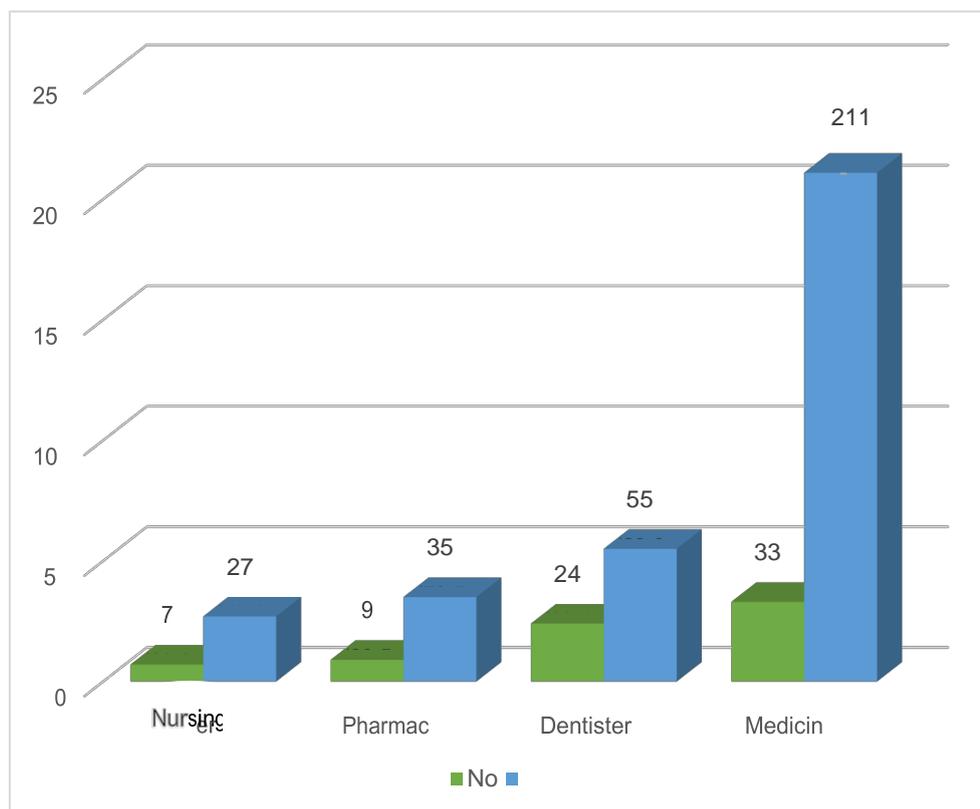


Figure 2: The difference between students in different collages regarding thinking about of healthcare-related infections can be decreased by hands washing

Table (5) shows the associations between deferent colleges regarding their practice of standard precautions, by asking do they wash their hands before and after each patient care 53.1% of participants said always and among colleges the highest percentage was in college of nursing 58.8% of them wash their hands every time they care a patient with statistically not significant p-value (0.433), and about 47.6% of participants on the same patient between tasks and procedures sometimes wash their hand and the highest percentage was in college of dentistry 51.9% and statistically non-significant p value (0.607),by asking do they wash their hands before and after using gloves 47.6% said sometimes which among them the highest percentage was in college of medicine 50.4% of them said sometimes and statistically non-significant p value (0.43), regarding dealing with the same patient they re-use the masks and gloves 41.9% said sometimes ,among them the highest percentage was in college of nursing 50.0% with statistically not significant p value (0.376), when we asked do they recap the sharp needle before final disposal 44.6% said always which among them the highest percentage was in college of nursing 61.8% of them said always and statistically significant p value (0.046),by asking do they use antibiotic after exposure to a patient with flu 39.7% of participants said sometimes and among them the highest percentage was in college of nursing 47.1% said sometimes with statistically significant p value (0.008), by asking do they eat food directly after finishing their practice 46.9% said sometimes and among them the highest percentage was in college of nursing 50.0% of them said sometimes and statistically non-significant p value (0.655).

Table 5: Associations between deferent colleges regarding their practice of standard precautions

Practice		College				Total	P. Value
		Medicine	Nursery	Dentistry	Pharmacy		
		Number (%)					
1. Do you wash your hands before and after each patient care?	Always	137(56.1)	20(58.8)	36(45.6)	20(45.5)	213(53.1)	0.433
	Never	7(2.9)	2(5.9)	4(5.1)	3(6.8)	16(4.0)	
	Sometimes	100(41.0)	12(35.3)	39(49.4)	21(47.7)	172(42.9)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	
2. Do you wash your hand between tasks and procedures on the same patient?	Always	94(38.5)	14(41.2)	26(32.9)	13(29.5)	147(36.7)	0.607
	Never	35(14.3)	5(14.7)	12(15.2)	11(25.0)	63(15.7)	
	Sometimes	115(47.1)	15(44.1)	41(51.9)	20(45.5)	191(47.6)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	

3. Do you wash your hands before and after using gloves?	Always	92(37.7)	18(52.9)	29(36.7)	16(36.4)	155(38.7)	0.43
	Never	29(11.9)	4(11.8)	12(15.2)	9(20.5)	54(13.5)	
	Sometimes	123(50.4)	12(35.3)	38(48.1)	19(43.2)	192(47.9)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	
4. Do you re-use the masks and gloves while dealing with the same patient?	Always	71(29.1)	10(29.4)	17(21.5)	13(29.5)	111(27.7)	0.376
	Never	74(30.3)	7(20.6)	31(39.2)	10(22.7)	122(30.4)	
	Sometimes	99(40.6)	17(50.0)	31(39.2)	21(47.7)	168(41.9)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	
5. Do you recap the sharp needle before final disposal?	Always	99(40.6)	21(61.8)	44(55.7)	15(34.1)	179(44.6)	0.046
	Never	51(20.9)	5(14.7)	9(11.4)	11(25.0)	76(19.0)	
	Sometimes	94(38.5)	8(23.5)	26(32.9)	18(40.9)	146(36.4)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	

6. Do you use antibiotic after exposure to a patient with flu?	Always	66(27.0)	14(41.2)	35(44.3)	15(34.1)	130(32.4)	0.008
	Never	84(34.4)	4(11.8)	14(17.7)	10(22.7)	112(27.9)	
	Sometimes	94(38.5)	16(47.1)	30(38.0)	19(43.2)	159(39.7)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	
7. Do you eat food directly after finishing your practice?	Always	69(28.3)	12(35.3)	24(30.4)	16(36.4)	121(30.2)	0.655
	Never	59(24.2)	5(14.7)	16(20.3)	12(27.3)	92(22.9)	
	Sometimes	116(47.5)	17(50.0)	39(49.4)	16(36.4)	188(46.9)	
	Total	244(100)	34(100)	79(100)	44(100)	401(100)	

Fig(3) by asking do they use gloves while doing physical examination 17.2% said never and 38.9% of them said always which among them the highest percentage was in college of dentistry 54.4% of them said always and in college of nursing 47.1% said always and statistically significant p value (0.016).

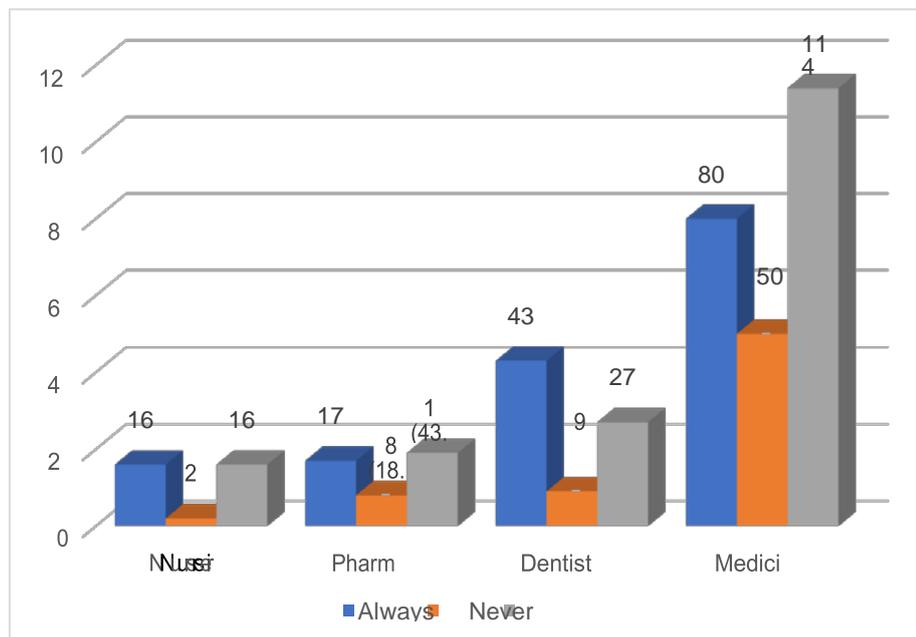


Figure 3: The difference between students in different collages regarding using gloves while doing physical examination

Fig. (4) by asking have they ever taken any vaccine for hepatitis (B) 43.6% said no and 56.4% of participants said yes which among them the highest percentage was in college of medicine 58.8% of them said yes and statistically non-significant p value (0.343).

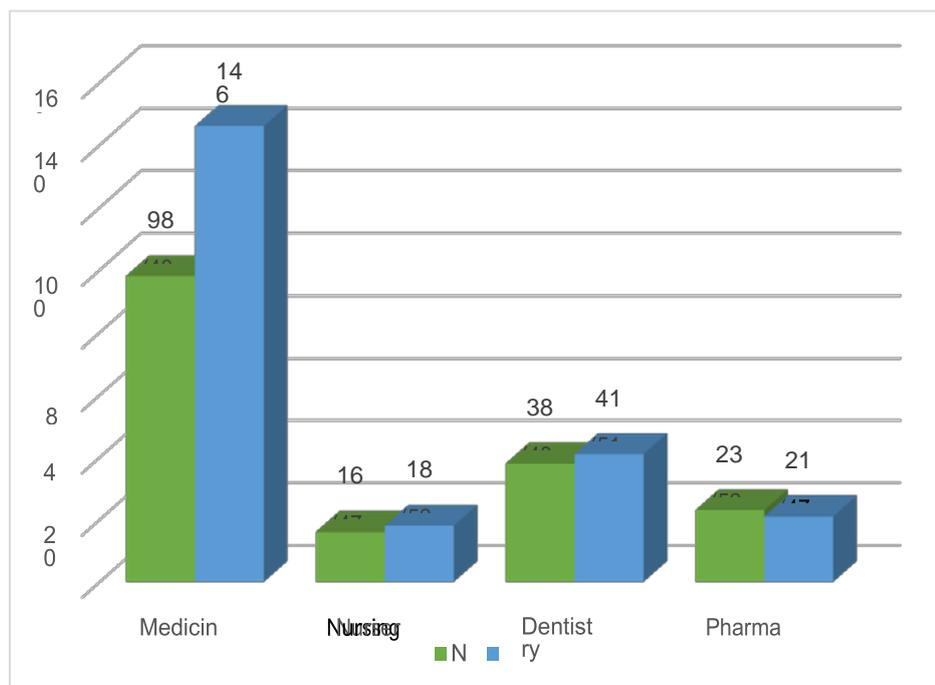


Figure 4: The difference between students in different colleges regarding taking vaccine for hepatitis B

4. DISCUSSION

In this study the number of the participant was 401 and the mean age was (21.33 ± 1.898) , in a comparison with a study done among medical students in Shiraz, Iran¹¹. the main age of the participants in this study was lesser than their which's (24.92 ± 2.88) it may be due to the difference for acceptance in university of Sulaimani and Shirzad, Regarding the Gender 50.4% of the participants was female this goes with a study done in shiraz-Iran in which 38.1% of their participants was female¹², this difference could be due to that females in this study were more cooperative. Regarding Knowledge of the participants 80.4% of students thought after any contact with blood hands should be washed and this goes with a research in medical student in Iran¹¹ in which 100% thought so this is may be due to in here first and second stages have more time to fill the forms and they don't know about precaution yet , In this study 79.3% of the students said in touching mucous membrane gloves should be worn and 90.5% of medical students in Iran¹¹ research said so, in this study 68.1% of students

thought to protect eyes, protective glasses should be worn but 91.2% of students in Iran¹¹ research said protective glasses should be worn may be because students in this study look at their senior doctors and they don't wear it so they think that it is not important. In this study 67.1% students said gown is necessary when entering room patient and this goes with Iranian research¹¹ which 71.6% students said same, 48.1% of students thought needles must be bent before disposal and 62.4% in Iran¹¹ research said same this difference due to students don't read the form carefully but they fill it without reading the questions. In this study 75.6% said all health providers are at risk for infection and this goes with a study in Saudi¹³ in which 75.3% of the students thought so, regarding students believes 75.6% of students believed all body fluids except sweat are sources of infection but in a Saudi research¹³ in which 31.9% said the same, about 24.7% of the students in this study believed health care provider should receive influenza while in Saudi research 42.2% believed the same, regarding tuberculin test 27.3% of participants believed health providers should be tested by tuberculin test and this goes with Saudi research in which 31.5% believed the same and the same results which were found in two studies in India^{14, 15}, in this study 36.7% of students said hands should be washed after procedures on the same patient and in Saudi research 47.4% said so¹³. For the immunization 20.2% of participants thought routine immunization for HIV and rubella is necessary to all health provider and 24.7% of participants of Saudi¹⁶ research thought so, and about 56.4% in this study thought whatever the diagnosis is all patients can be sources of infection this goes with a Saudi research¹⁶ in which 41.8% thought the same. In this research 53.1% of students before and after each patient examination they always wash their hands and this goes with a research in Saudi Arabia¹⁶ in which 68.6% always wash their hands this is may be due to that these students were more educated, in this study 37.7% always wash their hand before and after wearing gloves and 44.6% always recap needles before final disposal this goes in contrast with a study in Saudi¹⁶ in which 17.4% of students always recap needles and goes with a study in UK¹⁷. About 32.4% always receive antibiotic after exposure to a patient with flu and in a study of Saudi Arabia 20.4% only receive antibiotic¹⁶. Regarding change their gloves between different tasks on the same patient about 47.6% of the participants answered yes this goes with a Saudi research¹⁶ in which 47.4% of their students change their gloves, About the Hepatitis B Vaccine 56.4% of the participants were vaccinated with hepatitis B vaccine and this goes with a study done in Saudi Arabia that 52.2% of participants were vaccinated¹⁸, this compares with the zero to 22.4% observed in other studies in Nigeria among health workers, but contrasts sharply with the over 95% seen in Australian medical and dental students, 86% in German medical students, 42.2% medical students in Pakistan¹⁹⁻²⁵. this may be due to lack of information about HBV vaccination advantage among the students in this study.

5. CONCLUSIONS

Most of students knew that after any contact with secretions, contaminated item, blood and bloody fluid hands should be washed, and when touching mucous membranes or non-intact skin gloves should be worn with highest percentage from college of nursing. Nearly half of the students aware about bending of needle before disposal. Majority thought that all patients can transmit infections whatever their diagnosis are, believed that all healthcare workers are at risk of infections during their work and healthcare-related infection can be decreased by hand washing. Most of the students believed that no need for hand washing if they use gloves, Only sweat shouldn't be regarded as sources of infection, before and after each patient care always wash their hands and have taken a vaccine for Hepatitis B. During tasks and procedures on the same patient less than half of students wash their hands, and before final disposal of the sharp needles they always recap them, always use gloves while doing physical examination. Less than quarter of students never eat food directly after finishing their practice.

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