

Measurement Knowledge, Attitude and Practice of Medical Students and applied medicine toward occupational health hazard in Jazan region, KSA.

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Abstract— the health aspect of the important aspects of the elements of progress and development of societies, Moreover, the number of workers in the health field has gone up dramatically, and has increased the urge for a greater number as well. Therefore, maintaining the level of awareness and safety among the members of this staff is an important condition for continued progress in the field of health services.
Our research's aim is to measure the percentage of students' awareness in Jazan University (medical students and applied medicine) of more reluctant danger on the health staff.
A community-based A cross-sectional survey has been done to measure the level of awareness toward occupational health hazard among medical student and applied medicine at Jazan university .

Index Terms—occupational health, health hazard, knowledge, attitude and practice, jazan, KSA.

1 INTRODUCTION

For as long as the health aspect of the important aspects of the elements of progress and development of societies, so we find that all countries consider this aspect much attention, so the Government of the Custodian of the Two Holy Mosques - may God protect him - has given the health field the first priority resulting in building more and more medical cities, hospitals, clinics, infirmaries & medical centers.

And as a natural result of that, the number of workers in the health field has gone up dramatically, and has increased the urge for a greater number as well, so that, the medical staff is an important part of health organization in the kingdom.

The health practitioner whatever his major is human & a wealth himself must be preserved from the patients & coincides with the multiplicity and renewal of diseases, and the development of medical means and the attendant damage, violence & assault, in addition of course to the psychological and physical pressures that are formed on a daily basis.

Actually, the hospital or any health public environment exposes workers to various occupational health and safety hazards like musculoskeletal diseases, needlestick injuries, carcinogenic agents, latex allergies, violence and stress. [1]

In 1994, many of programs have been implemented by many publics to increase the level of awareness of occupational safety and health even among healthcare workers. [1]

From here, our research's aim is to measure the percentage of students' awareness in Jazan University (medical students and applied medicine) of more reluctant danger on the health staff.

Hoping that to contribute to the protection and assistance to

all medical staff from all harms may fall ill - God forbid - and build a strong base to help him continue and give everything he has without fear of obstacles.

Finally, we chose our research topic because occupational health hazard mostly depend on awareness of medical staff, so we measured the prevalence of awareness among medical students and applied medicine.

Depending on the result and, we suggest to do some procedure and activities to decrease the risk of occupational health hazard, such as: provide vaccination to those who never had, Do some educational lecture about occupational health hazard, Add course about health safety.

2 Research Objective

- 1-To assess the prevalence of awareness to occupational health hazard of medical students and applied medicine at Jazan university .
- 2- To measure the knowledge, attitude and practice of medical students in Jazan university occupational health hazard .
- 3- To measure the knowledge, attitude and practice of applied medicine in Jazan university toward occupational health hazard .
- 4-To compare between medical student and applied medicine in awareness.
- 5-To compare a finding from present study with other study .

3 Literature review

When we want to study the healthcare hazardous among medical students, we should focus on level of awareness of medical students toward this problem, this awareness plays an importance role to prevent and

control of these medical hazardous. In 1994, many of programs have been implemented by many public to increase the level of awareness of occupational safety and health even among healthcare workers.[1] the awareness of occupational safety and health relatively poor and need to promote in healthcare worker[1] doctors show good knowledge in comparison with other health worker regarding occupational safety and health [1]

The desire to work in a safe and healthy environment it is the right to every worker ,but statistically the International Labour Organisation has reported that over 160 million workers fall ill due to workplace hazards and exposures, while more than 1 million workers have died as a result of occupational diseases and accidents.[1]

however the hospitals and others health public were considered to be the safer place to work in and the healthcare worker considered as professionals who are capable of maintaining their health without assistance.[1]

Actually , the hospital or any health public environment exposes workers to various occupational health and safety hazards like musculoskeletal diseases, needlestick injuries, carcinogenic agents, latex allergies, violence and stress.[1]

Over last decade , the rate of occupational injury among healthcare staff has been increasing . Sepkowitz and Eisenberg have estimated that 17–57 deaths per one million healthcare workers in the United States may have been a result of occupational events, including infection.[2]

A recent survey completed by 385 medical students and junior house staff at a New York City medical centre on occupational exposure to patients' blood and body fluids found that 32% (122/385) of the respondents experienced hazardous exposures during the 6 months preceding the survey. Only 29% (35/122) of those respondents reported the exposure to the medical centre's occupational health office, in accordance with the institution's policy[3].

Similar surveys conducted in American teaching hospitals of medical house staff, residents and medical students report exposure rates to patients' blood and body fluids anywhere between 19% and 71%.[3]

In **British Journal of Industrial Medicine** they said, the main hazards which health workers will face :

(1)infection, (2) accident, (3) radiation, (4) exposure to noxious chemicals, [4]

First : Risk of infection:

The most common risk present in health care facility and research centers Especially, in area such as :

- 1-Laboratories (which contain infectious sample).
- 2-Infectious disease ward (due to cases).
- 3-Pediatric department .
- 4- Also during some procedures as "bronchoscopy" . [5]

And also noted that the most serious threat overall is hepatitis B, the risk of contracting the disease is particularly great during the first few years of medical practice and in those departments in which there is frequent contact with blood (hemodialysis units, operating theatres and anesthetic rooms, blood banks, and laboratories). [4]

The bacterial diseases likely to be linked to health workers as a result of their professional activity is pulmonary tuberculosis. [4]

The study that quantitative estimate of the risk of catching this disease was made in 1957 by Reid, who, in a prospective study of 345 English laboratories between 1940 and 1953, found that the risk of contracting tuberculosis was several times higher among **pathologists** than among a same sample of postmen. [4]

Second : Accidents :

The accidents hazard which may face the health profession are included :

- 1- Fires,
- 2- Explosions,
- 3- Electrocutation,
- 4- Gas leaks.
- 5- Micro- waves, lasers, and vibration.
- 6- Cuts, bruises, and fractures
- 7- Burns;
- 8- The effects of noise. [4]

Third : Radiation :

Serious hazards are faced to health workers by the medical use of ionising radiation.

The radiation to which hospital staff may be exposed includes :

- 1- photonic radiation (x rays and y rays)
- 2- charged particle radiation (a and ,B rays) . [4]

Fourth : exposure to noxious chemicals :

Occupational allergic eczema is more common among (nurses - surgical assistants - and other auxiliaries) than among doctors because of their continuous contacts with drugs, anaesthetics, and anti-septics. [6]

from the best way handling of sharps through simple interventions as vaccination, education and providing containers for sharp instruments.[7] Unsafe practices, including the re-use of unsterile needles and syringes. [8]

Hand hygiene is the main measure for preventing the spread of antimicrobial resistance and decrease healthcare-associated infections (HCAIs), but medical students compliance with optimal practices remains low in most settings[9]

medical staff had bad awareness regarding risks of HBV, that affect the taken of vaccine against HBV.[10]

Gloves protect the hands from contacting blood, droplets, body fluids and other body tissue of the infected, or pathogen-contaminated objects and can avoid infection when touching the eyes, mouth or nose after wards. Gloves can also protect open wounds from contamination by pathogen.[11]

The more to be far from radiation , less to get exposure .[12]

From the best solution to dealing with heavy metals as administrative procedure is decreasing purchase of heavy metals containing material.[13]

Finally :

There a many research done on same subject, but here in our study we want to assess the knowledge , attitude and practice of medical students toward healthcare safety .

As demonstrated in this document, the numbering for sections upper case Arabic numerals, then upper case Arabic numerals, separated by periods. Initial paragraphs after the section title are not indented. Only the initial, introductory paragraph has

4SUBJECTS AND METHODS

Study design:

A community-based A cross-sectional survey has been done to measure the level of awareness toward occupational health hazard among medical student and applied medicine at Jazan university .

Cross section Aims to measure the Knowledge, attitude and practice of studied groups .

Study setting and population:

This study consider as a first study done in jazan university about occupational health hazard .

There are more than one study conduct in this field throughout the world as in:

Training of occupational safety and health :(knowledge among healthcare professionals in Malaysia).

The status of occupational safety among health service providers in hospitals in Tanzania .

Occupational health and safety of personnel handling chemotherapeutic agents in Greek hospitals

The target population of the present study was medical student and applied medicine in jazan university .

Sampling:

The sample size was 420 student from medical and applied medical college i.e. 156 (37.1%)out of total was medical student and 264(62.9%) was from applied medical student .

The sample had been chosen by simple random technique.

Criteria of inclusion were; student in both medical and applied medical college who pass the preparatory year and willing to participate in the study.

Assessment of knowledge, attitude and practice (KAP) were done .

Data collection plan:

The data was collected using : "Self-administered questionnaire"

Self-administered questionnaire was constructed to collect the following data:

Personal_data.

Socio-demographicdata._data

•Knowledge, Attitude and Practice (KAP) of the studied sample towards occupational health hazard in the survey study.

A pre-designed structured interview questionnaire was used to collect the following data (Appendix I):

- Socio-demographic characteristics: age, college and level of study .
- Question to measure KAP of student toward occupational health hazard .

The pretested questionnaire help us to improve the modified questionnaire to be more clear and make it easy to understand .

Also , we add more choice to our knowledge question and we correct some mistake in writing , also we remove some question .

Modified Questionnaire :

Is a 25-items self-administered questionnaire , the first 3 question about **General characteristics** , which include (Age , college and level of study) .

Other 21 question made to assess the knowledge, attitude and practice of sample groups to occupational health hazard .

The **knowledge** was assessed by 5 questions; each question followed by choices which include one right answer, wrong answers.

The right answer was graded by (1), the wrong answers was graded by (0).

We defined knowledge as :

Poor knowledge who answer less than 3 questions from 5 questions, and score range from 0 to 2 .

Good knowledge who answer 3 questions or more from 5 questions, and score range from 3 -5

The **attitude** was assessed by 7 items; each item was presented in 3 choices on a scale graded from 0 to 1; the grade of the unfavorable attitude = 0, indifferent attitude = 0, and favorable attitude = 1.

We defined attitude as :

Unfavorable attitude who answer by "agree" less than 5 questions from 7 questions.

Favorable attitude who answer by "agree" 5 questions or more from 7 questions.

The **practice** was assessed by 10 items; 5 item was presented in 2 choices: Yes or No and 5 question presented in 3choice. The grade of the right practice =1 and the grade of the wrong practice = 0.

We defined practice as :

poor practice who answer correctly less than 6 questions from 10 questions.

good practice which answer correctly 6 questions or more from 10 questions.

5 Results

This table represent distribution of students in both collage who participate in this study

Collage		Frequency	Valid Percent
1	medicine	156	37.1 %
2-	applied medicine	264	62.9 %
3-	Total	420	100.0 %

Table (1)

Our sample was 420 , out of them 156 was medical student with 37.1 % from total percent, and 264 was applied medical students with 62.9% .

Knowledge

This table represent distribution of students according to Degree of **Awareness** of studied samples as a regard of occupational health hazard

Level of awareness		Frequency	Valid Percent
Valid	Poor awareness	324	79 %
	Good awareness	86	21 %
	Total	410	100.0 %
Missing		10	

ATTITUDE

This table represent distribution of students according to degree of **attitude** of medical students as a regard of occupational health hazard

Level of Attitude		Frequency	Valid Percent
Valid	Unfavorable Attitude	28	18.3 %
	favorable Attitude	125	81.7 %
	Total	153	100 %
Missing		3	
Total		156	

Table (3)

The medical students was 156 and we found the following:

- 1- 28 students with (18.3%) their results show .
- 2- 125 students with (81.7%) their result show good Attitude.
- 3- 3 students was missing.

PRACTICE

This table represent distribution of students according to degree of **practice** of medical students as a regard of occupational health hazard .

Level of Practice		Frequency	Valid Percent
Valid	Poor Practice	14	14.1 %
	Good Practice	85	85.9 %
	Total	99	100 %
Missing		57	
Total		156	

Table (4)

The medical students was 156 and we found the following:

- 1- 14 students with (14.1%) their results show poor practice.
- 2- 85 students with (54%) their result show good practice.
- 3- 57 students was missing.

KNOWLEDGE :

This table represent distribution of students according to degree of Knowledge of applied medical students as a regard of occupational health hazard

Level of knowledge		Frequency	Valid Percent
Valid	Poor knowledge	216	83.4 %
	Good knowledge	43	16.6 %
	Total	259	100 %
Missing		5	
Total		264	

Level of Attitude		Frequency	Valid Percent
Valid	Unfavorable attitude	49	18.8 %
	favorable attitude	211	81.2 %
	Total	260	100 %
Missing		4	
Total		264	

Table (8)

Table (7)

The applied medical students was 264 and we found the following:

- 1- 216 students with (83.4%) their results show poor knowledge.
- 2- 43 students with (16.6%) their result show good knowledge.
- 3- 5 students was missing.

ATTITUDE

This table represent distribution of students according to degree of attitude of applied medical students as a regard of occupational health hazard

The applied medical students was 264 and we found the following:

- 1- 49 students with (18.8%) their results show poor Attitude.
- 2- 211 students with (81.2%) their result show good Attitude.
- 3- 4 students was missing.

PRACTICE

This table represent distribution of students according to degree of practice of applied medical students as a regard of occupational health hazard

Level of Practice		Fre- quency	Valid Percent
Valid	Bad practice	39	19.8 %
	Good prac- tice	158	80.2 %
	Total	197	100 %
Missing		67	
Total		264	

Table (9)

The applied medical students was 264 and we found the following:

- 1- 39 students with (19.8%) their results show poor practice.
- 2- 158 students with (80.2%) their result show good practice.
- 3- 67 students was missing.

The distribution of students according to Degree of Awareness of medical students in comparison with applied medical student as a regard of occupational health hazard show 108 of medical student reported poor awareness (71.5) and 43 of there have good awareness (28.5) totally 156 report and mission were 5 .

Regarding applied medicine 216 of student have poor awareness (84.4) and 43 have good awreness (16.6)

We found that the awareness among medical students (28.5%) higher than in applied medicine students(16.6 %).

This table represent distribution of students according to Degree of agreement for using gloves during using sharp:

Choice	Frequency	Valid Percent
agree	407	96.9 %
not sure	8	1.9 %
disagree	5	1.2 %
Total	420	100.0

Table (11)

Table show a high rate(96.9%) of agreement for using gloves during use sharp to prevent occurrence of infectious disease .

This table represent distribution of students according to answering the question about dealing with used sharp :

choice		Frequency	Valid Percent
Valid	Do not use it	69	15.3
	Put it in healthy trush	152	36.3
	Autoclaving	25	6.0
	All truth	169	46.3
	No one truth	9	2.1
	Total	419	100
	Missin	misson	1
Total		420	

Table (12)

40.3% of students go with correct choice .

discussion

This study was conduct to assess the awareness of medical and applied medical students regarding occupational safety and health by knowledge ,attitude and practice .

Our finding and results are categorize as follow :the prevalence of awareness to occupational health hazard of medical students and applied medicine in Jazan university ,awareness in medical student higher than applied medicine, what is the best way to handling sharps instrument , high agreement with using gloves to reduce health risks ,comparison which clear to us that the medical students were taken him vaccination more than applied medical students .

Good practice with hand hygiene firstly, the awareness to occupational health hazard of medical students and applied medicine in Jazan university were relatively poor.

From table (3) in results ,We found that 324 students with (79%) their result show poor awareness ,but only few 86 students with (21%) their result show good awareness .there are other study done in Malaysia in 1994 was said that:, the awareness of occupational safety and health relatively poor and need to promote in healthcare worker [1] there, awareness in medical student higher than applied medicine, in the present study we found from table(10) that:the awareness among medical student (28.5%) higher than in applied medicine(16.6 %).

The same study was done in Malaysia support our findig by that: they said doctors show good knowledge in comparison with other health worker regarding occupational safety and health [1]

What is the best way to handling sharps instrument, at this knowledge question most of our studied population go with correct choice.

From table(12) we see that (40.3%) choice all truth that mean(don not repeat use it ,autoclaving ,put it in trash) .

There are some studies support and agree with our finding , one of these studies were done by(Mariusz Goniewicz, Anna Włoszczak-Szubzda, Marcin Niemcewicz, Magdalena Witt, Anna Marciniak-Niemcewicz, Mirosław Jerzy Jarosz) under title (Injuries caused by sharp instruments among healthcare workers--international and Polish perspectives)[11] said that:

from the best way handling of sharps through simple interventions as vaccination, education and providing containers for sharp instruments.

Other studies were done by(Michelle Kermod) under title(Healthcare worker safety is a pre-requisite for injection safety in developing countries)[12]suggestion that : Unsafe practices, including the re-use of unsterile needles and syringes which mean don not repeat use it.

At our finding we found high agreement with using gloves to reduce health risks, around (96%) agree with gloves using .

And this result fit with other study conducted by occupational safety and health council (china united center) [13] which said that : Gloves protect the hands from contacting blood, droplets, body fluids and other body tissue of the infected, or pathogen-contaminated objects and can avoid infection when touching the eyes, mouth or nose after wards.

Gloves can also protect open wounds from contamination by pathogen.

The comparison which clear to us that the medical students were taken him vaccination more than applied medical students from table (13) our finding say :(64.2%) from medical students take them vaccination but if we look at applied medical students said there are(59.5%) of them not vaccinated at least not all vaccines .

Anyway , this support that the applied medical students have poor awareness comparing with medical students or(doctors) .

Finally, good practice with hand hygiene from table(14) there is interesting finding (65.5) they use the sterilizer when enter or exit from the patient room or laprotary but, it is relatively low .

Hand hygiene is the main measure for preventing the spread of antimicrobial resistance and decrease healthcare-associated infections (HCAIs), but medical students compliance with optimal practices remains low in most settings .

study done by(B Allegranzi, D Pittet)

Conclusion

Degree of **attitude** of medical students as a regard of occupational health hazard were :

28 students with (18.3%) their results show .

125 students with (81.7%) their result show good Attitude.

3 students was missing.

Degree of **practice** of medical students as a regard of occupational health hazard were :

14 students with (14.1%) their results show poor practice.

85 students with (54%) their result show good practice.

57 students was missing.

Degree of **Knowledge** of applied medical students as a regard of occupational health hazard were :

216 students with (83.4%) their results show poor knowledge.

43 students with (16.6%) their result show good knowledge.

5 students was missing

Degree of **attitude** of applied medical students as a regard of occupational health hazard were :

49 students with (18.8%) their results show poor Attitude.

211 students with (81.2%) their result show good Attitude.

4 students was missing.

Degree of **practice** of applied medical students as a regard of occupational health hazard were :

39 students with (19.8%) their results show poor practice.

158 students with (80.2%) their result show good practice.

67 students was missing.

Degree of Awareness of medical students **in comparison** with applied medical students as a regard of occupational health hazard was :

Awareness among medical student (28.5%) higher than in ap-

plied medicine(16.6 %) .

(96.9%) of sampled student answer by agree for using gloves during use sharp to prevent occurrence of infectious disease.

In one question about how can we get red from used sharps 40.3% of student go with correct choice .

Medical students have higher percentage (64.2%) than applied medical students (40.5%) in vaccination .

Recommendation

Based on the results of the present study, the following can be recommended:

1- Because of awareness was poor , we recommend to do some activities help to increases the awareness such as :

A-Educational courses for proper dealing with health hazard .

B-Add course in medical college curriculums in early years about health safety .

C- Educational campaign to increase level of awareness .

2-Do some vaccination such as (hepatitis b and c virus , TB vaccine and chemoprophylaxis if necessary) .

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