

Assessment of Nurse Interns' Knowledge and Practice & Attitude regarding Occupational Health Hazards

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Abstract

Background: The occupational hazards and injuries in the nursing are higher than average compared with all occupations. In the medical profession, nurses constitute the largest group of healthcare workers, and experience a higher rate of workplace hazards exposure than other health care workers. **The aim of this study:** was to assess nurse interns' knowledge and practice & attitude regarding occupational health hazards. **Design:** A descriptive research design. **Setting:** The study was conducted at four hospitals affiliated to Ain Shams University. **Subject:** The subjects of this study included 91 nurse interns. **Tools of data collection:** Data were collected by using three tools namely: Self-administered Questionnaire, Observation Checklist, and attitude scale. **Results:** Physical hazards were at a first rank level of hazards which more than two fifths of nurse interns were exposed to physical hazards as perceived by them, while chemical hazards were at the last rank level of hazards which lowest percentage of nurse interns were exposed to. Minority of nurse interns had satisfactory practice level regarding occupational health hazards. Score of nurse interns' attitude towards protection from hazards was generally low. **Conclusion:** There was a positive statistically significant correlation between total practice score and total attitude score regarding occupational health hazards among nurse interns. **Recommendations:** providing training program about occupational hazards and especially about protective measures, perform regularly routine check-ups of nurse interns to ensure occupational health, and further future must be made to investigate the relation between perception of occupational hazards and nurses' safety practices.

Keywords: Attitude, Nurse interns, practice, occupational health hazards.

Introduction

Nursing is a uniquely hazardous occupation; nurses and health care personnel are on the frontline of numerous occupational hazards and are most vulnerable to occupational health hazards in the work place. In the nursing profession, the types of health hazards encountered are varied. Some have existed since the birth of the nursing industry, but due recognition has only been accorded them recently. Other health hazards are new, mostly a consequence of the rapid advancement in the health care field in recent times (Salehi and Garner 2015).

Occupational hazards can be defined as degree or risk posed by activities and programs engaged upon at workplace. In this regard, occupational hazards refer to all activities in the workplace that have the ability to promote the risk of infections and injury (Rajan, 2014; Aluko et al., 2016).

Identifying factors relating to occupational hazards among HCWs is essential in formulating occupational health safety policy and system that will improve the productivity and overall wellbeing of HCWs (Osungbemi et al., 2016). Safety in the hospital care setting means the presence of measures that minimize the risk of physical, biological, chemical and

psychological harm. These can be achieved for example; safe patient handling and mobility practices and shift duration (**Zolot, 2017**)

The factors that contribute to hazards and risks may include lack of time and knowledge, forgetfulness, lack of means, negative influence of the equipment on nursing skills, uncomfortable equipment, lack of training, conflict between the need to provide care and self-protection and distance to vital /essential supply, equipment or facility increased hazards chance occur, the hazards might results from poor supervision, insufficient experience on the job (**Aliyu and Auwal, 2015**).

Use of personal protective equipment is the most important measures to safeguard nurses that constantly in contact with patients that make them liable to from exposure to occupational hazards, particularly in developing countries where occupational safety control rules and principles remain a challenge to implement. Use of personal protective equipment is ordered by the occupational safety and health administration for healthcare workers to prevent infection with blood borne disease such as human immunodeficiency (**Assefa et al., 2016**).

Nurse interns are newly graduated nursing students, require to be trained, and to be supervised by experienced nurses through different units to function independently and competently. Nurse interns should spend an internship year in teaching hospitals, but those hospitals face serious shortage and cost reduction issues. Thus Nurse Interns are obligated to function as professional nurses, while they still lacking skills and experience. Ensuring Nurse Interns competency and safety is crucial as they are considered the future nursing staff (**Dorgahm, Obied, 2016**)

The nurse intern is responsible for assisting in the delivery of both direct and indirect patient care under the direction and supervision of a registered nurse. Occupational vulnerability of health care providers may threaten the quality of health care delivery in developing countries, especially among physicians, nurses and nurses interns, nurses' aids (**Bazeyo et al., 2015; Aluko et al., 2016**).

The most of absenteeism days / sick leave of nursing interns at their clinical practice areas are mostly due to their exposure to occupational hazards such as ergonomic and physical hazard (**Elewa and El Banan, 2016**). For that, internship program is important to increases newly graduate confidence in knowledge and assessment skills, improves clinical skills and decisionmaking (**El Sharkawy et al., 2019**).

Significance of the study:

Occupational health hazards are very common in developing countries where work place hazards are more severe. Still occupational diseases and accident are the most important causes of injuries and death among workers each year as the number of deaths of about two million people each year among all workers in the world (**Occupational Safety and Health Situation in the Arab Region, 2013**).

The annual international issued show that, 110 million workers are exposed to various injuries, including 180 thousand afflicted lead to death and injuries work at a rate of 4 seconds and a serious accident every 3 minutes (**Higher Education in the Kingdom of Bahrain, 2014**). It is estimated that each case of death has get 500 to 2000 work- related injuries. Rate of deaths and injuries is high in areas like the Middle East about 19,000 and more than 14 million deaths, injuries and work-related accident, respectively in each year (**Occupational Safety and Health Situation in the Arab Region, 2013**).

Aim of the study:

This study aimed at assessing nurse interns' knowledge, practice and attitude regarding occupational health hazards.

Research question:

Is there a relationship between knowledge, practice and attitude regarding occupational health hazards.

Subjects and Methods

Research design: A descriptive study design will be used to carry out this study.

Setting:

The study was conducted at four hospitals affiliated to Ain Shams University where the nurse interns having their training, namely: Ain Shams University Hospital including (6 units) which was Cardiac Care Unit (CCU), Neurological ICU, Stroke ICU, Endemic ICU, and Kidney Dialysis Units, and Neonatal ICU, Medical ICU, Surgical Also, Academic Institution of Cardiac Surgery including (3 units) which was Adult ICU, CCU, Post Catheter Care Unit, Cardiac Catheter OR. El-demerdash Hospital including (3 units) which was Operating room (21 rooms) and Intensive care unit and Emergency operating rooms (5 rooms). Pediatric Hospital including (4 units) which was Minor OR (1 room) ICU.

Study Subjects:

All nurse interns having their training in the aforementioned settings during the data collection period (academic year 2018-2019). The study sample was (91) nurse interns, 57 females and 34 males, distributed as follows: Ain Shams University Hospital (30) nurse interns, El-Demerdash Hospital (31) nurse interns, Pediatric Hospital (15) nurse interns, The Academic Institution of Cardiac Surgery (15) nurse interns.

Tools of data collection:

The data were collected using three tools namely: Self - administered

Questionnaire, Observation Checklist, and attitude scale.

1- Self - administered knowledge Questionnaire: This tool was aimed to assess knowledge of nurse interns regarding hazards facing them during internship training and the different methods of protection from these hazards. This tool adopted from (Abd El Aziz, 2010). The questionnaire sheet consisted of the following two parts:

Part I: Demographic data of the study subjects such as: age, department, gender, marital status, and attendance of training courses about occupational hazards.

Part II: Medical and work data related to occupational hazard exposure used to assess nurse interns' actual exposures to various types of hazards during internship training, including (physical, chemical, biological, psychological, and social hazards). Through thirty four items. These items were grouped under five questions and nurse interns select the answer (yes or No).

❖ Scoring system:

Items were scored (1) for the correct answer and (zero) for the incorrect answer. The scores of the items were summed up and the total divided by the number of the items giving mean score of the part. These scores were converted into a percent score.

2-Observation Checklist: used to assess the actual nurse interns' practice related to safety standards, precautions. This tool adopted from (Abd El Aziz, 2010). This tool was consisted of the following part:

The observation checklist was consisted of 64 items. These items were grouped under nine categories: hand washing 15 items, gloving 10 items, eye protection 1 items, masking 2 items, personal hygiene 7 items, cleaning instruments 6 items, sharp box use

8 items, proper lifting 9 items, Safe waste disposal 6 items.

3-Attitude scale: This tool aimed to assess nurse interns' attitude towards protection from hazards facing them during internship training. This tool developed by (Abd El Aziz, 2010). The tool consisted of one part: It consisted of 12 positive and negative statements covering various types of hazards, in addition to the universal precautions, for example (I try to avoid infectious patients to avoid infection).

II. Operational design: The operational design for this study included three phases namely preparatory phase, pilot study, and the fieldwork.

a- Preparatory phase: This phase started from January 2018 until April 2018. It includes review of the current and past literature, national and international related literature, journals concerning the various aspects of the study, using textbooks, articles, magazines, and thesis based on this review.

Tools validity and reliability: Tools validity: aimed at testing the validity of the assessment tools and its components. Two types of validity tests were used: face and content validity. Face validity aimed at verifying that the tool gives the appearance of measuring the concepts of occupational health hazards. Content validity was conducted to determine the appropriateness of each item to be included in the tools. The tools validity developed by (Abd El Aziz, 2010).

Tools reliability:

The reliability test was done to assure the consistency, determine how strongly the attributes were related to each other and to the composite score. The reliability test was used in this stage for tools for data collection using Cronbach's Alpha test. Cronbach's alphas were ($r = 0.917$ and 0.705) for Occupational health hazards practice observation checklist, and Attitude scale respectively.

Pilot study:

The pilot study was carried out on 10% of the study sample (9 nurse interns). These nine nurse interns were included in the main study sample. Data obtained from the pilot study was analyzed, and no modifications were done. The time consumed for fulfilling the study tools was 35 minutes.

Field work:

The fieldwork of the study lasted for seven months from beginning of February to the end of March 2019. The field work was done through the following phases.

III. Administrative Design:

An official permission to conduct the study was obtained from hospital directors through letters from the Dean of the Faculty of Nursing Ain Shams University. The letter included the aim of the study and photocopy from data collection tools in order to get the permission and help for collecting data. Then the researcher met each director of the four hospitals, and explained the purpose of the study to obtain their cooperation and help during the study.

Ethical consideration:

The research approval was obtained from a scientific research ethics committee of the faculty of the nursing Ain Shams University. The aim and purpose of the study were explained to each director of the four hospitals, as well as the nurse interns who were included in the study, and oral consent was obtained from each participant prior to the study conduction. Also, it assured maintaining anonymity and confidentiality of the subject data. Nurse interns were informed that they were allowed to choose to participate or not in the study and that they had the right to withdraw from the study at any time.

IV. Statistical Design:

Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative

variables, and means \pm standard deviations for quantitative variables. Qualitative variables were compared using chi-square test. T-test was used for comparisons between two-independent quantitative variables. Pearson correlation co-efficient (r) was used for assessment of the inter-relationship among quantitative variables. The confidence level chosen for the study was 95%. Statistical significance was considered at p value <0.05 .

Results:

Table (1): demonstrates the demographic characteristics of study subject. As regard to age, 80.2% of nurse intern's age ranged (22-23y), with mean age of 22.67 ± 0.83 . Moreover, (62.6%) of them were female, (35.2%) of them had an internship training in OR in different hospitals. Also, (66.7%) of them who had attend the courses was its duration was one day, and (83.4%) attend courses at time ranged (1-5 months).

Figure (1): shows that, the majority (80.2%) of nurse interns was not attending any of training courses.

Table (2): illustrates that, about two fifth of (41.8%) of nurse interns had suffered from back pain after internship joining, and slightly less than half (45.1) of them suffered from recurrent pain in different areas of the body as neck, legs after internship joining , and majority (91.1%) of them often occurrence of recurrent pains 2-4 /weeks in of them. Moreover, approximately three fifths (60.0%) of nurse interns had recurrent pain due to both walking and standing for long time.

Table (3): clarifies that, physical hazards were at a first rank level of hazards which more than two fifth (44.0%) of nurse interns were exposed to physical hazards as perceived by them, followed by psychosocial hazards which slightly more than one quarter (29.7%) of them, while chemical hazards was at the last rank level of hazards which lowest percentage (9.9%) of nurse interns were exposed to.

Table (4): shows that, more than half of nurse interns (53.8%) had satisfactory practice regarding gloving while 19.8% of them had unsatisfactory practice regarding Instruments /Equipment processing (Cleaning).

Figure (2): shows that, minority (33%) of nurse internshad total satisfactory practice level regarding occupational health hazards

Table (5): clarifies that, the highest score of nurse interns' attitude towards protection from hazards was 1.10 ± 0.75 regarding (I believe in good housekeeping as an important to avoid accidents) while the lowest score was 0.70 ± 0.79 regarding (I try to avoid infectious patients to avoid infection).

Figure (3): shows that, the total attitude towards protection from hazards was low among nurse interns.

Table (6): illustrates that, there was a positive highly statistically significance correlation between total practice score regarding occupational health hazards and total attitude regarding occupational health hazards among nurse interns.

Table (1): Demographic characteristics of Nurse Interns (n= 91).

Items	Nurse interns (91)	
	Frequency	Percent
Age (in Years)		
22- <24	73	80.2
24-25	18	19.8
Mean ± SD	22.67±0.83	
Range	22-25	
Gender		
Male	34	37.4
Female	57	62.6
Department		
CCU and post catheter	16	17.6
kidney dialysis	13	14.3
Neuro and stroke ICU	6	6.6
Endemic ICU	2	2.2
ICU	16	17.6
Neonatal ICU	4	4.3
OR	32	35.2
Emergency department	2	2.2
Name of Attending training courses(N=18)		
Infection control	16	88.9
Control of fire	2	11.1
Duration of the courses(N=18)		
Lecture	5	27.8
One day	12	66.7
3weeks	1	5.5
Time attendance of courses(N=18)		
< One month	2	11.1
1-5 months	15	83.4
> 5 months	1	5.5

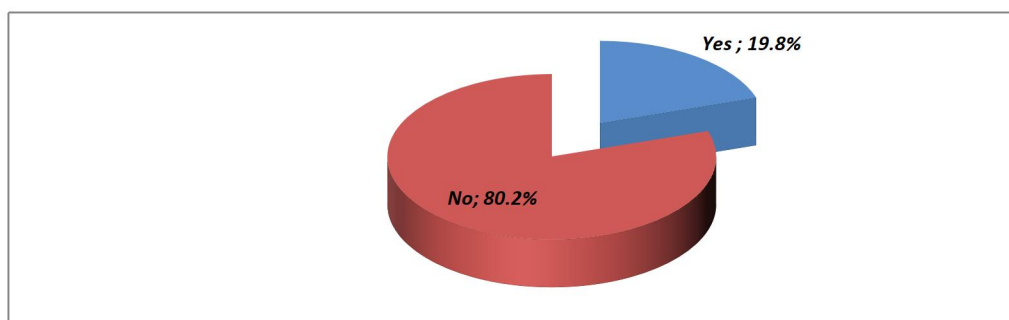
**Figure (1):** Distribution of nurse interns according to training (n= 91).

Table (2): Distribution of nurse interns' according medical characteristic (n= 91).

Items	Nurse interns (91)	
	Frequency	Percent
Suffer from low back pain		
Before internship joining	7	7.7
After internship joining	38	41.8
No	46	50.5
Suffer from varicose veins		
Before internship joining	2	2.2
After internship joining	13	14.3
No	76	83.5
Suffer from recurrent pains (back , neck , legs, shoulder ,wrists)		
Before internship joining	4	4.4
After internship joining	41	45.1
No	46	50.5
Often occurrence of recurrent pains (n=45)		
< 2 weeks	1	2.2
2-4 weeks	41	91.1
> 4weeks	3	6.7
Causes of recurrent pains (n=45)		
Walking	3	6.7
Standing	15	33.3
Walking and standing	27	60.0

Table (3): Distribution of nurse interns according to hazard exposures (n= 91).

Hazard exposures	Nurse interns (91)			
	Yes		No	
	Frequency	Percent	Frequency	Percent
<i>Physical</i>	40	44.0	51	56.0
<i>Chemical</i>	9	9.9	82	90.1
<i>Biological</i>	12	13.2	79	86.8
<i>Psychosocial</i>	27	29.7	64	70.3
<i>Social</i>	16	17.6	75	82.4

Table (4): Distribution of nurse interns' total practice regarding occupational health hazards (n= 91).

Satisfactory practice 60%+	NO	Percent
Hand washing	26	28.6%
Gloving	49	53.8%
Eye protection	0	0.00%
Masking	19	20.9%
personal protective equipment (PPE) in health care setting	45	49.5%
personal hygiene	47	51.6%
Instruments /Equipment processing (Cleaning)	18	19.8%
Use sharp container	47	51.6%
Body mechanics (when lifting)	35	38.5%
Safe waste disposal	45	49.5%
Total occupational health hazards practice	30	33.0%

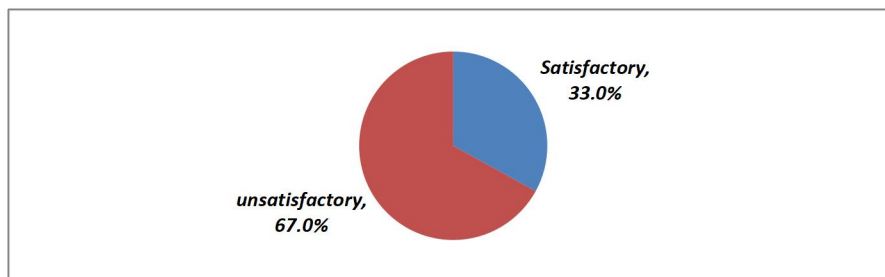


Figure (2): Distribution of nurse interns' total practice regarding occupational health hazards (n= 91).

Table (5): Score of nurse interns' attitude towards protection from hazards.

Items	Mean±SD
I try to avoid infectious patients to avoid infection	0.70±0.79
I do not care about washing hands before gloving: the more important is washing after gloving	0.87±0.84
When I suspect having an infection, I prefer use an antibiotic immediately.	0.98±0.81
I emphasis on taking all the vaccines that protect from diseases to which I am exposed	0.78±0.85
I avoid using disinfectants for fear of their hazards.	0.81±0.44
I care about re-capping the needles to avoid pricks.	0.70±0.90
I frequently wash my hands to ensure cleanliness.	0.85±0.81
8. I do not be afraid from infections since there are completely protective measures.	0.80±0.77
I do not care about back pain for the sake of providing service to patients.	0.77±0.80
I always try resolving conflicts among peers.	0.95±0.77
I try to get enough sleep hours to avoid fatigue and errors.	0.79±0.78
I believe in good housekeeping as an important to avoid accidents.	1.10±0.75
Total attitude towards protection from hazards	10.10±4.29

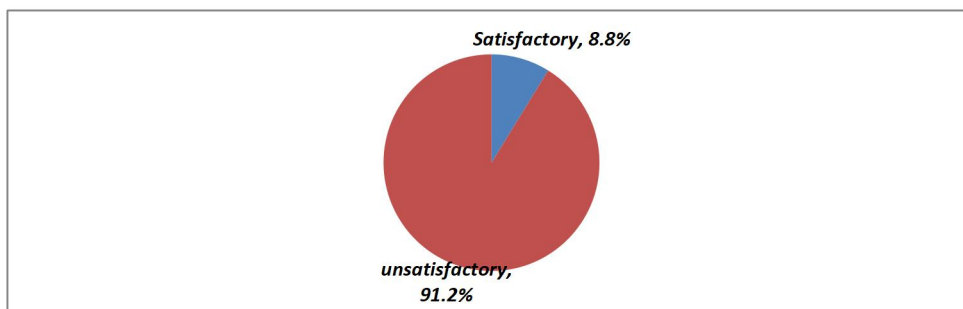


Figure (3): Distribution of nurse interns' total attitude regarding occupational health hazards (n= 91).

Table (6): Correlations between total practice score regarding occupational health hazards and total attitude score regarding occupational health hazards among nurse interns.

Parameter	Total practice score regarding occupational health hazards	
	R	P-value
Total attitude score regarding occupational health hazards	0.358	<0.01**

Discussion

Nursing is one of the hazardous occupations, in which the risks are four times higher than those in other professions (**Abdi Zarrini, et al., 2018**). Nurses are exposed to many occupational hazards that may threaten their health and safety (**El-Sallamy et al., 2018**). The present study aimed at assessing the effect of occupational health hazards on nurse interns' knowledge, practice and attitude.

The results of the present study revealed that, slightly more than two fifth of nurse interns were suffered from back pain after internship joining, and slightly less than half of them suffered from recurrent pain in different areas of the body as neck, legs after internship joining.

This finding may be due to long standing of nursing interns because most of units suffer from shortage of nursing which leads to depend on nursing interns in patient lifting, transferring patients from beds to stretchers, and turning patients around on the bed and changing patients' clothes and bed sheets because of the problem of nursing shortage.

The finding of the present study is in congruence with **Orme et al., (2015)** reported that, the physical hazards, particularly muscle pains, were the most frequent occupational health hazards occurs for nurse interns and other health care workers in hospitals. Based on **Ghahremani et al., (2018)** most of the hazards occurring for nurses were ergonomic hazards, such as skeletal and muscular disorders, and physical hazards,

for instance, workplace poor ventilation and noise pollution.

In the present study, the highest percentage of nurse interns exposed to occupational hazards was related to physical hazards. This finding may be due to poor design of work setting and jobs also, it could be due to deficits in the nurse interns' knowledge, low social culture, and lack in training about how to protect themselves from exposure to physical hazards.

The present study result is in accordance with a study carried out by **Nekoi Moghaddam et al., (2013)** demonstrated that, almost all of nurses had frequency physical damages. Moreover, **Ahmed, (2014)** who concluded that, majority of nurses had exposed to physical hazards.

Based on the results of the present study, it was indicated that psychological hazards were at a second level of hazards. This finding may be due to nature of nursing profession which requires spending long time with people who are suffering, working with unconscious clients and caring for dying patients. This in same line with a study carried out by **Badrizadeh et al., (2013)** mentioned that psychosocial risks were reported by more than half of the study sample.

The finding of the present study revealed that, minority of nurse interns exposed to social hazards. This result may be attributed to that shortage of nursing staff make nurses interns are overwhelming

by hard work and caring for critical patient and patients with terminal illness and dying patient which in turn influencing on nurses interns' social and emotional state. In agreements **Elbilgahy et al., (2019)** reported that, social and emotional hazards level were tolerable.

The result of the present study revealed that, minority of nurse interns exposed to biological hazards as data demonstrated in the present study. The result of the study could be attributed to the awareness of infection control rules that guided nurse interns to how to protect themselves from exposure to biological hazards and closed and continuous supervision by infection control team.

This study finding is relevant and consistence with **Al-Khatib et al., (2015)** and **Eljedi, (2015)** found out that, the majority of nursing admitted that they used standard methods when they deal with medical wastes and other workplace hazards. The present study finding is contradicted with **Ghahremani et al., (2018)** the biological hazards were at the third level of occupational hazards among nurses.

Also, the findings of present study revealed that, chemical hazards were at the last rank level of hazards. The study finding may be attributed to continuous training programs and closed instructors' supervision to use PPE by the nurse interns to protect themselves from exposure to chemicals in the workplace, which can cause acute or long-term detrimental health effects.

This finding is in congruence with a study carried out by **Arab et al., (2015)** who reported that chemical hazards had the lowest mean value of occupational damages. The finding of the present study is contradicted with **Adeoye et al., (2014)** showed that, most of respondents had skin allergy from using chemicals to clean.

The present study finding discovered that, the hand washing practice techniques had low satisfactory practice level among nurse interns. This finding could be interpreted by lack of knowledge, absence of training programs hand washing practice techniques.

In agreements with the present study findings **Phan, et al., (2018)** who mentioned that, the hand hygiene compliance was low in both groups before the intervention. This finding consistent with **Farbakhsh et al., (2012); Mostafazadeh et al., (2016)** reported that, the rate and compliance of hand hygiene was low.

The findings of the present study revealed that, majority of nurse interns were reported hand gloves as the most frequent daily use of available personal protective equipment in their job. The present study finding may be due to the fact that, nurse interns received instructions about the importance of wearing gloves before and after dealing with the patient and any procedure, and also washing hands after removing the gloves.

The findings of the present study is in congruence with studies **Tesfay and Habtewold, (2014)** carried out in Ethiopia which reported that, wearing of hand gloves was prominent among healthcare workers and is a crucial occupational safety practice in preventing transmission of infection.

Furthermore, the present study showed that, none of nurse interns wear eye cover. This finding may be due none availability of eye cover or absence of role model from superiors, or high workload. In contrary **Eljedi (2015)** who mentioned that, more than three quarter of students wear personal protective equipment such as gloves, gowns, laboratory coats, face shields or masks, and eye protection when

potentially exposed to blood borne pathogens.

The present study showed that, the total practice regarding masking was low. This finding may be due to lack of proper training and on safety measures and lack of adequate personal protective equipment. This result is supported by **Ahmed, (2014)** showed that, mask is not available in patient care areas in half of the observed operation this is due to shortage of supplies given.

The results of present study revealed that, slightly less than half of nurse interns had satisfactory practice level regarding total personal protective equipment (PPE) in health care setting, which is considered low. This could be related to lack of nurses' knowledge regarding the importance of personal protective equipment (PPE) in health care setting and infection control measures.

However, all nurse interns did not carry out certain procedures such as wearing eye protection as they did not find these facilities in the hospital. In agreements with the study finding **Bayoumi and Mahmoud, (2017)** who reported that, majority of nurses' practice was inadequate as regards the maximal sterile barrier precautions, such as hand washing, wearing mask, goggles, sterile gown, and gloves, use of disinfection.

Concerning nurse interns' practice regarding personal hygiene, the study result showed that, slightly more than half of nurse interns had satisfactory practice level regarding total personal hygiene which is considered low. This could be related to lack of nurse interns' knowledge. This is congruent with the finding by **Browall and Walfridsson, (2014)** mentioned that, compliance to hygiene routines was low at their hospital because of a lack of knowledge among staff.

Concerning nurse interns' practice regarding Instruments /Equipment processing (Cleaning), the present study finding showed that, nurse interns' total practice regarding instruments /equipment processing (Cleaning) was low. This finding may be due lack adequate knowledge, which may possibly hinder interns' practice regarding instruments /equipment processing (Cleaning). In agreements with the study finding **Sahledengle, (2018)** mentioned that, health care worker instrument processing practice was not safe enough.

Regarding nurse interns' practice regarding use sharp container the study result showed that, slightly more than half had satisfactory practice level regarding total use sharp container, which is considered low. This result could be attributed to the absence of awareness of infection control rules that guided them to how to protect themselves from exposure to biological hazards. In agreements **Ahmed, (2014)** concluded that, absence of awareness of infection control rules to protect from exposure to biological hazards.

Furthermore, the results of present study revealed that, slightly more than one third of nurse interns had satisfactory practice level regarding total body mechanics (when lifting), which is considered low. Shortage of nurses and unavailability of nurses' aides, work overload, standing for long period of time and patient lifting devices and lack of lifting tools for patients' transportation were considered the main predisposing factors for low body mechanics practice (when lifting) at preprogram.

Similarly, **Elbilgahy et al., (2019)** confirmed that, the factors and barriers that influenced safety practice measures and that interfere with the safe practice of care was the high work load. Moreover, **Abd El-Rasol et al., (2018)** indicated that, the majority of the nurses had unsatisfactory

levels of total body mechanics and ergonomics practices.

Concerning nurse interns' practice regarding safe waste disposal the present result showed that, slightly less than half had satisfactory practice level safe waste disposal, which is considered low. This finding may be related to bad habits nurse interns and ineffective supervision on nurse interns' practice regarding safe waste disposal. In same respect **Mohamed et al., (2014)** reported that, wastes management after cannula procedure, was low.

The findings of the present study showed that, the practices score of nurse interns was low in most areas of waste disposal before the implementation of the intervention program. This finding could be explained by the fact that unavailability of instructional handouts, inadequate supplies, and do not think waste disposal as an important prerequisite for a good patient care service, also may felt that this is not their duty.

In the same line **Elsayed and Rashad, (2014)** mentioned that, low practice scores were done in relation to all items of waste management of healthcare before implementation of the program.

In addition, the present study finding showed that, minority of nurse interns had satisfactory practice level regarding occupational health hazards at preprogram phase. This finding may be due to lack of effective enforcement system, lack of information and accurate records of occupational diseases and accidents, and lack of basic professional training in occupational health and safety.

The present study result is congruence with a study conducted at Nigeria by **Arooj et al., (2017)** who revealed that, almost half of nurses had bad practices regarding safety practices about occupational health hazards. In agreements

Abd El Aziz, (2010) mentioned that, inadequate practice regarding hazards at work

The present study result revealed that, score of nurse interns' attitude towards protection from hazards was generally low. This could be due to the lack of training program which advance nurse interns' knowledge and practice skills and as a result of that not enhance nurse intern's satisfactory attitude level.

This is congruent with the finding by **Abd El Aziz, (2010)** mentioned that, most nurse interns had very negative attitudes regarding hazards at work in the pre-test. **Tung et al., (2014)** reported that, low attitudes level about the prevention of occupational hazards. In contrary **Aluko et al., (2016)** showed that, most respondents had positive attitude towards safety practices and prevention of occupational hazards.

Also there was highly statistically significance correlation between total attitude score and total practice score regarding occupational health hazards among nurse interns. This finding supported the research question of the study. This finding may be due to training programs regarding occupational hazards, promote high knowledge, and this translated to positive practice, and subsequently good behavior attitude.

In this regard, **Aluko et al., (2016)** the study compared the distribution of respondents by performance on composite knowledge, attitude and practice, participant had positive highly statistically significance correlation between total attitude score and total practice score.

This is congruent with the finding by **Abd El Aziz, (2010)** concluded that, there was highly statistically significance correlation between total attitude score and

total practice score regarding occupational health hazards regarding.

Conclusion

The present study findings concluded that, the physical hazards were at a first rank level of hazards which more than two fifth of nurse interns were exposed to physical hazards as perceived by them, followed by psychosocial hazards which slightly more than one quarter of them, while chemical hazards was at the last rank level of hazards which lowest percentage of nurse interns were exposed to, minority of nurse interns had satisfactory practice level regarding occupational health hazards, nurse interns' attitude level towards protection from hazards was generally low.

-There was a positive statistically significance correlations between total practice score and total attitude regarding occupational health hazards among nurse interns.

Recommendation:

Based on the findings of the present study the following was recommended: The workplace settings should exert more efforts in the provision of efficient safety measure for nurse interns, with training in their use as well as close supervision, the knowledge of the nurse interns regarding work related and occupational hazards needs improvement. This would be through on-the-job training, workshops and seminars, and other continuing education activities, the nurse intern's safety practices need to be ameliorated through training as well as close supervision of their application, developing curriculums for occupational health and safety management program for nurse interns educations, motivating the workers to use personal protective measures to protect their health, further research is suggested to investigate the impact of improving workplace safety measures on nurse interns' knowledge of work related hazards and their compliance to safety practices.

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