

Practical Training Health Hazards among Secondary Technical Nursing Students

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Abstract:

Background: Health hazards are a neglected public health issue among nursing students in developing countries. This has exposed nursing students in developing countries to various forms of hazards which had negative consequences on their wellbeing and performance at work. **Aim of study:** Was to assess practical training health hazards among secondary technical nursing students.

Research design: A descriptive design was used to carry out this study. **Setting:** This study was conducted at two secondary Technical Nursing Schools in Benha City. **Sample:** Convenient sample included 222 nursing students. **Tools:** Two tools were used in this study, **Tool I:** A structured interviewing questionnaire to assess nursing students socio demographic characteristics, practical training health hazards facing nursing students, health problems that acquired after joining with secondary technical nursing schools and nursing students knowledge regarding practical training health hazards and protective measures **Tool II:** Observational checklist to assess nursing students practices toward protective measures. **Results:** 67.6% of studied nursing students exposed to stress as psychological hazards, 64.4% of them exposed to noise as physical hazards in addition to, 53.6% of them exposed to chemical hazards as latex powder that found in the gloves and 44.1% of them exposed to ergonomic hazards as carrying tools and supplies. 87.4% of them had back pain and neck pain, 45.5% & 42.8% had stress and skin allergy respectively. 26.1% of them had good knowledge regarding practical training health hazards and protective measures. 77.9% of them had satisfactory practices. **Conclusion:** There were highly statistical significance relation between total knowledge level and total practices level. **Recommendation:** Develop and implementing health education and training programs to upgrade the nursing students' knowledge and practice toward health hazards associated with practical training.

Key words: Health Hazards, Nursing Students, Practical Training

Introduction

Nursing is the protection, promotion, and optimization of health and abilities, prevention of illness and injury, facilitation of healing, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, groups, communities, and populations (Alligood, 2020).

The curriculum of nursing students comprises two basic components theoretical content; and training in competencies, abilities and technical skills. Practical training which covers an important part of education is an intensive part of the contemporary nursing curriculum and is an essential element of nursing education. This training is conducted

in a variety of clinical settings that provide the basis for the continuous development of students' critical thinking and decision-making skills; it also improves professional practice competence (Zhang & Cui, 2018).

Practical training is an important part of the nursing curriculum, in which students apply the knowledge acquired at nursing schools in clinical setting. Practice training requires students to adapt to a complex and changing environment in which nursing students must interact with multiple professionals. Professional nurses are essential for the appropriate training and adaptation of the students. Professional nurses teach, guide and monitor, as well as facilitate integration of trainees into the clinical setting. The clinical settings consist of highly health hazards and risky environments with human resources from different qualities and quantities, complicated work processes, and intense use of technology (Hvalič-Touzery et al., 2017).

Health hazard is defined as the "potential risk to the health of a person emerging from an unhealthy environment" which is a significant public health issue. It can also be referred to as any activity, materials, processes or situation that is likely to cause an accident or disease at the work place. The health hazards in Health Care Settings are classified into physical such as (ionizing and non-ionizing radiation, noise, high temperature, illumination and electrical injuries), biological such as [blood born infection as (Human Immunodeficiency Virus (HIV), Hepatitis B virus (HBV) and Hepatitis C virus (HCV) and air born infection], ergonomic such as (back pain and neck pain), chemical such as (allergic reactions to latex materials, spills from chemicals), and psycho-social such as (distress, feeling unsafe and nervous, irritability, sadness, burn-out, Stress,

and depression) hazards (Braeckman et al., 2017).

The factors that contribute to illnesses and injuries for nursing students in health care settings include their underdeveloped abilities, lack of knowledge, negligence, carelessness, lack of adequate protective aids and equipment, excessive workload, and failure to observe basic safety and hygiene guidelines, and inadequate operational knowledge of modern healthcare equipment (Lavina et al., 2021).

Community Health Nurses (CHNs) work to prevent and investigate work place health hazards. CHNs assess workplaces to identify possible health hazards. These nurses also educate nursing students on how to prevent accidents and injuries. CHNs may suggest changes in procedures or develop other ways to make workplaces safer. CHNs advise nursing students to compliance with specific protection includes protective measures that prevent hazards, diseases or injuries. Examples include immunizations against infectious diseases such as (HBV, HCV and corona virus), hazard protection, environmental sanitation, and personal protective equipment. Treating nursing students that get hurt or ill due to workplace hazards is another important responsibility of CHNs (Higgins & Simons, 2019).

Significance of the study:

Hospitals have many unique hazards that can potentially affect the health of employees and nursing students. Exposures to hazards throughout hospital departments are highly variable. Nursing students are prone to health hazards, and injury in the course of their practical training activities, and their day to day activities in the health care settings (Chhabra, 2019).

In Egypt the physical hazards were at the first rank level of hazards which more than

two fifth of nursing students were exposed to physical hazards as perceived by them, followed by psychological hazards which slightly more than one quarter of them, while chemical hazards was at the last rank level of hazards which lowest percentage of nursing students were exposed to (**Rayan et al., 2021**). Nursing students are more vulnerable during training and skill acquisition to many health hazards. This makes them a group of interest that requires close monitoring for practical training health hazards.

Aim of the study

The aim of the study was to assess practical training health hazards among secondary technical nursing students.

Research question

1. What are practical training health hazards facing secondary technical nursing students?
2. What are acquired health problems after joining secondary technical nursing school?
3. What is secondary technical nursing students' knowledge regarding practical training health hazards?
4. What are protective measures used by secondary technical nursing students regarding practical training?
5. Is there relation between nursing students' knowledge about practical training health hazards and the use of personal protective equipment?

Subject and Methods

Research design:

A descriptive research design was utilized in this study.

Research settings:

The current study was conducted at two secondary technical nursing schools in Benha city. Secondary technical nursing school for girls affiliated to health insurance

and Secondary technical nursing school for girls affiliated to teaching hospital.

Sample:

Convenient sample was taken from previously mentioned setting (total number 222).

Tools of data collection: Data collection was gathered by using the following two tools:-

Tool (I):- A structured interviewing questionnaire:

It was developed by the investigator based on reviewing related literatures, and it was written in simple clear Arabic language: It comprised of four main parts:

Part I: It was concerned with socio demographic characteristics of secondary technical nursing students: - included five items: (school grade, age, sex, residence and family income)

Part II: It was concerned with practical training health hazards facing secondary technical nursing students such as (biological hazards, physical hazards, chemical hazards, mechanical hazards, ergonomic hazards and psychological hazards).

Part III: It was concerned with health problems that acquired after joining with secondary technical nursing schools. It included one question about (health problems acquired after joining secondary technical nursing school).

Part IV: It was concerned with knowledge of nursing students about practical training health hazards and protective measures during practical training which consisted of 14 MCQ questions.

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Knowledge scoring system:

The scoring system for nursing students knowledge was calculated as follow (2) score for correct and complete answer while (1) score for correct and incomplete answer and (0) for don't know answer.

The total score of knowledge = 28

The total knowledge score was considered good if the score of total knowledge >75% (> 21 points), while considered average if it equals 50% - 75% (14- 21 points) and considered poor if it is <50% (<14 points).

Tool II: Observational check list it was adopted from (Potter et al., 2014 ; Berman et al., 2015) to observe secondary technical nursing students practices such as (hand washing, body mechanics, management contaminated equipment, wear and remove gloves, wear and remove gown, wear and remove mask & wear and remove apron) it consisted of 7 items categorized under the following:

A: Observation the students' practices for hand washing technique: it contained 19 steps.

B: Observation the students' practices for body mechanics technique: It contained 34 steps.

C: Observation the students' practices for management contaminated materials: it contained 11 steps.

D: Observation students' practices for wearing and removing gloves: It contained 17 steps.

E: Observation students' practices for wearing and removing gown: It contained 10 steps.

F: Observation students' practices for applying and removing face mask: It contained 8 steps.

G: Observation students' practices for applying and removing an apron: It contained 9 steps.

Scoring system for nursing students' practices: Each items scored (1) if done and scored (zero) if not done. The score for the total observations:

> 80% (> 88 points) is considered satisfactory.

< 80% (< 88 points) is considered unsatisfactory.

Validity of the tool:

The validity of the tool was done by 5 experts of Community Health Nursing department Faculty of Nursing staff, who review the tool content validity. Also they were asked to judge the items for completeness, clarity, relevance, simplicity, accuracy, applicability and suggestion were considered.

Reliability of the tool:

Reliability of tools was done by Crombach Alpha test. Crombach Alpha for knowledge was 0.74% and 0.71% for practices.

Ethical considerations:

All relevant ethical aspects were considered before starting the study for ensuring the nursing students privacy and confidentiality of the collected data throughout the study. The purpose of the study was explain before participate in the study; oral consent to participate in the current study was taken after the purpose of study was explained. Each nursing students have right to refuse and withdrawal at any time without explain.

Pilot study:

The pilot study was carried out on (22) nursing students which represented 10% of the sample size 222 nursing students. The pilot study was done to assess the tool feasibility, applicability and time needed to fill each sheet consumed about 30- 40 minutes. No modification was done, so the

pilot study sample was included to the total sample.

Field of work:

The actual field of work was carried out within 5 months from beginning of October 2021 to the end of February 2022. The investigator visited the secondary technical nursing school affiliated to health insurance and the secondary technical nursing school affiliated to teaching hospital from 9 am to 1 pm, two day per week (Thursday and Wednesday) to collect data and to assess their knowledge and practices. The average time needed to fill the sheet was around 30- 40 minutes, the average number interviewed at each secondary technical nursing school (4-6) secondary technical nursing students/ day depending on their responses.

Statistical Analysis:

All data collected were organized, analyzed, tabulate by using statistical package for social science (SPSS version 20), which was applied to calculate frequencies and percentages as well as test statistical significance and association by using chi square test and spear correlation test to detect the relation between the variables for (P value).

The observations and associations were considered as the following.

- Highly significant (HS) P <0.001
- Significant (S) P < 0.05
- No significant (NS) P > 0.05

Results:

Table (1): Shows that, 43.7 % of studied students were in the third year and 45.9% of them were 18 years old with mean age 17.18 ± 0.839 . In addition, 100% of them were females, 70.3% of them were living in rural areas. Moreover, 64.4% of them had just enough family income.

Table (2.a): Shows that, 64.4% of the studied students exposed to noise as physical hazards, 38.3% of them exposed to mechanical hazard as strong collision with any object and 44.1% of them exposed to ergonomic hazards as carrying tools or supplies.

Table (2.b): Shows that, 67.6% of the studied students exposed to stress as psychological hazards, 51.8% of them didn't exposed to biological hazard and 53.6% of them exposed to chemical hazards as latex powder that found in the gloves, which leads to dermatitis.

Table (3): Shows that, 45.5% & 42.8% of the studied students had health problem as stress and skin allergy respectively. In addition, 87.4% of them had back and neck pain as muscular system dysfunction after their joining to secondary technical nursing schools.

Figure (1) this figure illustrates that, 56.8 % of the studied students had average total knowledge level and 26.1% of them had good total knowledge level, while only 17.1% of them had poor total knowledge level regarding practical training health hazards and the protective measures.

Figure (2) this figure illustrates that, 77.9% of the studied students had satisfactory total practices level, while 22.1% of them had unsatisfactory total practices level.

Table (4): Clarifies that, there was a highly statistically significant relation between total knowledge level for the studied students and their total practices level ($P < 0.001$).

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Table (1): Frequency distribution of studied students regarding their socio demographic characteristics (n=222).

Socio demographic data	No	%
School grade		
1 st year	57	25.7
2 nd year	68	30.6
3 rd year	97	43.7
Age		
16	61	27.5
17	59	26.6
18	102	45.9
Mean ±SD	17.18±0.839	
Sex		
Female	222	100
Residence		
Rural	156	70.3
Urban	66	29.7
Family income		
Enough and saved	36	16.2
Just enough	143	64.4
Not enough	43	19.4

Table (2.a): Frequency distribution of studied students regarding their exposure to practical training health hazards (n=222).

Exposure to practical training health hazards	No	%
*Physical hazards		
Ventilation (bad ventilation)	102	45.9
Exposure to noise	143	64.4
lack of lighting	61	27.5
lighting glow	16	7.2
Cold stress (low temperature)	4	1.8
Heat stress (high temperature)	80	36.0
Electric shock	33	14.9
Radiation such as X-rays and ionizing rays	14	6.3
Not exposed	53	23.9
*Mechanical hazards		
Strong collision with any object	85	38.3
Entanglement with any object	74	33.3
Tripping and slipping due to slippery or wet surfaces	52	23.4
Falling from a height such as a ladder or a chair	26	11.7
Falling on pointed things	44	19.8
Not exposed	40	18.0
*Ergonomic hazards		
Carrying tools or supplies	98	44.1
Moving the patient	97	43.7
Moving devices	11	5.0
Access to tools and supplies that are either:		
On hand	33	14.9
lowest reach	59	26.6
Highest reach	35	15.8
Dealing with screens like a monitor screen	48	21.6
Increased workload	67	30.2
Not exposed	22.0	9.9

***Not mutually exclusive**

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Table (2.b): Frequency distribution of studied students regarding their exposure to practical training health hazards (n=222).

Exposure to practical training health hazards	No	%
*Psychological hazards		
Stress	150	67.6
Violence from inside the hospital or inside the place of practical training	67	30.2
Internal conflict as a result of constant thinking about the assignments that should be done	109	49.1
Inability to control oneself	71	32.0
Lack of self-confidence	42	18.9
Anger	58	26.1
Not exposed	18	8.1
*Biological hazards		
Hepatitis C virus	7	3.2
Pneumonia	13	5.9
Corona Virus	36	16.2
Wounds and cuts in the skin	58	26.1
Not exposed	115	51.8
*Chemical hazards		
Disinfectant such as cidex, which is used to sterilize equipment	56	25.2
Chemotherapy for cancer patients	93	41.9
Latex powder that found in the gloves, which leads to dermatitis	119	53.6
Disinfectants for hygiene such as flash and chlorine	74	33.3
Metals: such as mercury	11	5.0
Fires and explosions	49	22.1
Not exposed	25	11.3

*Not mutually exclusive.

Table (3): Frequency distribution of studied students regarding acquired health problems after joining with secondary technical nursing schools (n=222).

Items	No	%
Health problem		
Skin allergy	95	42.8
Dermatitis	56	25.2
Burns of the skin	7	3.2
Injuries and cuts in the skin	42	18.9
Eye infections	42	18.9
Menstrual cycle disorders	30	13.5
Hernia	0	0.0
Tuberculosis	0.0	0.0
Pneumonia	2.0	0.9
Hepatitis B virus	0	0.0
Hepatitis C virus	0	0.0
Nausea and vomiting	73	32.9
Vertigo	70	31.5
Electric shock	2	0.9
Depression	42	18.9
Stress	101	45.5
Muscular system dysfunction		
Back and neck pain	194	87.4
Tendon dysfunction	2	0.9
Nerve dysfunction	12	5.4
Muscle dysfunction	13	5.9

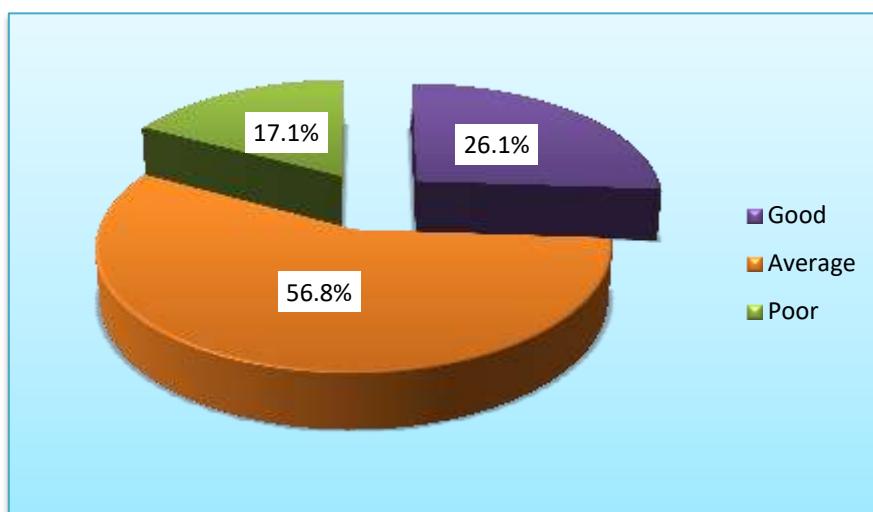


Figure (1): Percentage distribution of studied students regarding their total knowledge level about practical training health hazards and protective measures (n=222).

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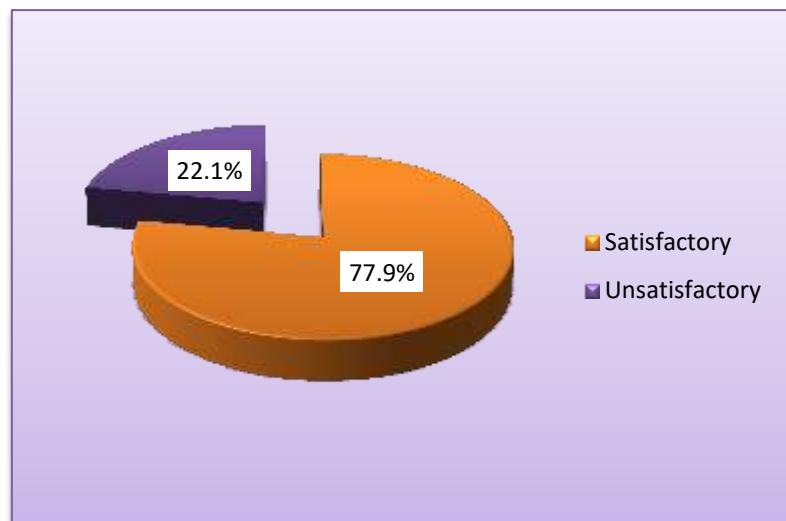


Figure (2): Percentage distribution of studied students regarding their total practices level regarding the protective measures (n=222).

Table (4): Relation between total practices level of studied nursing students regarding use of the protective measures and total knowledge level regarding practical training health hazards and protective measures (n=222).

Items	Unsatisfactory (n=49)		Satisfactory (n=173)		χ^2	p-value
	No	%	No	%		
Poor knowledge (n=38)	18	36.7	20	11.5		
Average knowledge =126	20	40.8	106	61.3	17.27	0.000**
Good knowledge (n=58)	11	22.5	47	27.2		

A statistical significance relation (p=<0.05*)

A highly statistical

significance relation (p=<0.001**)

Discussion:-

Nursing students who are educated in outpatient clinics and who are future health care workers, are also exposed to various health hazards during the practical training. The less hand skills maturation of nursing students during practical training and the low level of clinical experience may lead to many health hazards. Nursing students on the other hand are more vulnerable during training and skill acquisition. This makes the nursing students a group of interest that requires close monitoring and repeated evaluation of their competence (Balami et al., 2017).

This study aimed to assess practical training health hazards among secondary technical nursing students. It was discussed under four main sections; socio demographic characteristics of nursing students, practical training health hazards that face nursing students during the practical training, knowledge of nursing students regarding practical training health hazards and protective measures, and health problems acquired after joining the secondary technical nursing school.

Concerning socio demographic characteristics of nursing students, the current study revealed that less than half of studied students were in the third year, their age was

18 years old with mean age 17.18 ± 0.839 , all of them were females, also less than three quarters of them were live in rural areas and slightly less than two thirds of them had just enough family income. These findings were inconsistent with **Nabil et al. (2018)**, who studied "Occupational health hazards among faculty of nursing students in zigzag university, Egypt", ($n= 458$), and reported that the mean age of the nursing students was 21 ± 1.131 years, three quarters (75.5%) of students were females and less than half (46.9%) of them belonged to high social class. This might be due to the nursing schools accept students after the third preparatory grad and there is no secondary technical nursing schools for males in Benha City.

Regarding exposure to practical training health hazards, the present study showed that less than two thirds exposed to noise as physical hazards. This finding agreed with **Amare et al. (2021)**, who studied "Exposure to occupational health hazards among nursing and midwifery students during practical training, Addis Ababa", ($n= 151$), and reported that two third (66.2%) of students exposed to physical hazards. However, this finding disagreed with **Abo-elwafa et al. (2017)**, who studied "Work profile and associated health hazards among nursing students at Mansoura University, Egypt", ($n= 1846$), and reported that the subjective noise and temperature extremes were the most frequently reported physical hazards by working students (84.4% and 80.5%; respectively). This finding might be due to overcrowding the outpatient clinics with the nurses, doctors, patients and workers.

Also the present study revealed that more than two fifths exposed to ergonomic hazards as carrying tool or supplies. This finding disagreed with **Nabil et al. (2018)**,

who found that the majority (88.8%) of nursing students exposed to ergonomic hazards. This might be due to improper lifting technique, and engineering control devices during patient movement and handling.

Also the present study showed that more than two thirds exposed to stress as psychological hazards. This finding was in the same line with **Huang et al. (2016)**, who studied "Occupational exposure among Chinese nursing students: current status, risk factors and preventive intervention, China", ($n= 342$), and reported that the most common occupational hazards are nursing students work related stress. However, this finding disagreed with **Hopkins et al. (2014)**, who studied "Prevalence and characteristics of aggression and violence experienced by Western Australian nursing students during clinical practice, Australia", ($n= 153$), and stated that over more than half (57%) of nursing students experienced nonphysical violence in the clinical setting . Also found that more than 33% of second year students experienced some from physical violence such as being punched, kicked or slapped and the perpetrator had been a patient, colleague or registered nurse. This might be due to the nursing students face change in some procedure / technique compared with what they learn in the school also they loaded with tasks in the practice field (hospital) beside the nature of nursing profession which requires dealing with intense emotional situation or bereaved family and caring with unconscious, irritable and dying patient,

Also the present study revealed that more than one half didn't expose to biological hazards. This finding disagreed with **Lin et al. (2020)**, who studied "Nursing students' occupational hazards status between china

and Sweden, China", and reported that the majority (81.6%) of chines nursing students exposed to biological hazards. Also, this finding was incongruent with **Eyi & Eyi. (2020)**, who studied "Nursing Students' Occupational health and safety problems in surgical clinical practice, Turkey ", (n= 140), and reported that the most (90.7%) of the studied students came into contact with blood and body fluid. This finding might due to use of PPE to avoid needle stick injuries and infectious diseases.

Concerning acquired health problems after joining with secondary technical nursing school, the present study revealed that the majority of nursing students acquired health problems as back pain and neck pain as muscular system dysfunction. This finding agreed with **Amare et al. (2021)**, who found that more than half (57.6%) of students had got back pain. Also, this finding in the same line with **Abou-elwafa et al. (2017)**, who found that three quarters (74%)of the working students had musculoskeletal complaints mostly in the legs/feet (55.8%) and back (46.7%). This finding might be due to long standing the nursing students during the training, patient lifting devices and use improper technique while performing nursing care plan to the patients.

However, this finding in the opposite with **Besey & Zengen, (2019)** who studied "Assessing health threatening problems among nursing or midwifery students during the clinical education course, Turkey", (n=1719), and found that the most frequent health problem of the students is sleeplessness (3.57 ± 1.2).

Regarding nursing students' total knowledge regarding practical training health hazards and protective measures, the present

study revealed that more than half of studied students had average total knowledge level, and more than one quarter of them had good total knowledge level while less than one fifth had poor total knowledge level. These findings disagreed with **Amare et al. (2021)**, who found that the overall knowledge having good knowledge, fair knowledge and poor knowledge about occupational hazards at the clinical practice was 29.8%, 32.5%, and 37.7%, respectively. Also, these findings incongruent with **Masih et al. (2021)**,who studied "Knowledge Assessment on Hospital Related Occupational Hazard among Student Nurses of Selected College in Delhi, India", (n= 85), and found that more than half (59%) had moderate knowledge, more than one quarter (26%) had poor knowledge and less than one fifth (15%) had good knowledge. This finding might be due to nursing students more interest to identify more nursing knowledge.

Concerning the total practices level for nursing students regarding protective measures, the present study revealed that more than three quarters of studied students had satisfactory practices regarding protective measures. This finding agreed with **Bouchoucha et al. (2021)**, who studied "An investigation into nursing students' application infection prevention and control precautions, Australia", (n= 321), and reported that the majority (over 80%) of nursing students had compliance with strategies of infection control. However, this finding disagree with **Rayan et al. (2021)**, who studied "Effect of training program regarding occupational health hazards on nurse interns' knowledge and practice, Egypt" (n= 91), and stated that minority of nurse interns had satisfactory practice level regarding occupational health hazards at preprogram phase. This finding might be due

to stringent monitoring done by the school relative to protective measures practices during clinical rotation and due to limited number of students compared to number of faculty, they were able to monitor and follow up closely their student during the performance of protective measures practices.

Concerning relation between total practices level and total knowledge level, the present study revealed that there was highly statistical significant relation between total knowledge level of studied students and their total practices level. This finding agreed with **Sabita et al. (2018)**, who found that there was significant association between practice and knowledge. Also, this finding consistent with **Ramadan et al. (2019)**, who found that statistically significant positive relation among new graduate bachelor nurses knowledge scores and safety measures.

Conclusion:-

More than two thirds of studied nursing students were exposed to stress as psychological hazards, less than two thirds of them were exposed to noise as physical hazards and more than half of them were exposed to chemical hazards as latex powder that found in the gloves which lead to dermatitis while more than two fifth of them were exposed to ergonomic hazards as carrying tools or supplies. The majority of studied nursing students had back and neck pain as muscular system dysfunction after joining to secondary technical nursing school. In addition to more than one quarter of them had good knowledge regarding practical training health hazards and protective

measures. Also more than three quarters of studied nursing students had satisfactory total practices level regarding use of protective measures. Moreover there were highly statistically significant relation between total knowledge level for studied nursing students and their total practices level.

Recommendation:-

1- Guidelines, sufficient booklets and posters regarding health hazards and protective measures should be provided and distributed to all the unites/ departments periodically, so that all nursing students will be able to read and follow it

2- Develop and implement health education and training program to upgrade the nursing students' knowledge and practice toward health hazards associated with practical training.

3- Periodic and regular checkup for nursing students to identify practical training health hazards that occurred to them to early treatments.

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المخاطر الصحية الناتجة عن التدريب العملي بين طلاب المدارس الثانوية الفنية للتمريض

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يواجه طلاب التمريض العديد من المخاطر الصحية أثناء عملهم مثل الممرضات المؤهلات اثناء عملهم. على وجه الخصوص قد يعاني طلاب التمريض من التوتر والقلق وي تعرضون للمخاطر الصحية بسبب قدراتهم المحدودة ونقص المعرفة. طلاب التمريض مثل الممرضات المؤهلات يتعرض للعنف من العنف اللفظي / غير اللفظي إلى العنف الجسيمي من قبل زملائهم الطلاب أو أعضاء هيئة التدريس أو طاقم المستشفى والمرضى وأقارب المرضى في البيئات السريرية الجراحية. لذلك هدفت هذه الدراسة إلى تقييم المخاطر الصحية الناتجة عن التدريب العملي بين طلاب المدارس الثانوية الفنية للتمريض. وأجريت هذه الدراسة في مدرستين ثانويتين فنيتين للتمريض في مدينة بنها وتم اخذ جميع الطلاب المتاحين في هذه الدراسة وكان العدد الإجمالي للعينة ٢٢٢ طالب. حيث اسفرت نتائج الدراسة ان حوالي أكثر من ثلثي طلاب التمريض تعرضوا للتوتر كمخاطر نفسية و اغلبهم اكتسب الام بالظهر والرقبه بعد الالتحاق بالمدرسه وأكثر من ربعهم لديهم معلومات جيدة و ثلاثة اربعائهم لديهم ممارسات مرضيه و توجد علاقه ذات دلالة احصائيه عاليه بين مستوى المعرفه الكلى ومستوى الممارسات.