Effect of Work during Study on Academic Performance and Health Hazards among Nursing Students at Helwan University

Ghada Ebrahim Abd-Elsadek[1], Afaf Salah Abd El-Mohsen[2], Ons Said El-Zayat[3]

[1] Instructor at Health Technical Institute at Directorate of Health in Cairo

[2] Professor of Community Health Nursing. Faculty of Nursing, Helwan University

[3] Assistant Professor of Community Health Nursing.Faculty of Nursing, Helwan University

Abstract

Background: Nursing students encounter occupational risks during part time working. Work of nursing students during study may effect on academic performance. ***Aim of this study:*** This study aimed to assess the effect of work during study on academic performance and health hazards among nursing students at Helwan University. ***Design:*** A descriptive research design was utilized to achieve the aim of this study. ***Setting:*** the study was conducted at Faculty of Nursing – Helwan University. ***Sample:*** A convenient sample of 299 for nursing students from second, third & fourth grades. **Tools**: Two tools were used in this study: Tool I: A Structured interviewing questionnaire which composed of; sociodemographic characteristics of nursing students, work field information and nursing students' knowledge about health hazards at work place. Tool II: Academic performance assessment. ***Results:*** The study finding indicated that, 64.9% of studied nursing students had good knowledge about health hazards, and 22.1% of them had poor knowledge about health hazards at workplace. Moreover, 67.6% of the studied nursing students had satisfaction academic performance, While, 32.4% of them had unsatisfaction in total academic performance. ***Conclusion:*** There was high statistically significant relation between total knowledge level, total knowledge level and sociodemographic characteristics of nursing students. ***Recommendations:*** Apply and implement an educational program to increase nursing student awareness about health hazards at workplace.

Keywords: *Academic Performance, Health Hazards, Nursing Students, Work during study*.

Introduction

Nursing students often have limited awareness, experience, and knowledge about handling occupational hazards in the workplace. This lack of preparedness makes them more susceptible to occupational risks, which can lead to accidents and diseases, adversely affecting their health and potentially causing serious injuries. Therefore, students must be informed about these risks to prevent occupational accidents or diseases and take suitable precautions *(Turen et al., 2022)*.

Nursing students should be equipped with the skills needed to assess clinical scenarios, navigate patient interactions, and work effectively in various healthcare settings. They receive knowledge and practical skills in faculty classes and clinical areas within hospitals, covering medical-surgical nursing, critical care and emergency nursing, obstetrics and gynecology, pediatric nursing, and psychiatric nursing and mental health *(Rudberg et al., 2022)*.

An occupational hazard refers to the short-term and long-term dangers associated with unhealthy workplace environments. Short-term risks may include physical injuries such as eye strain, back pain, and head injuries, while long-term risks could lead to chronic conditions like cancer or heart disease. Generally, adverse health effects from short-term risks are reversible, whereas those from long-term risks are irreversible. Occupational hazards encompass various types, including physical, chemical, biological (biohazards), and psychosocial hazards *(Che Huei et al., 2020)*.

Exposure to occupational hazards varies across hospital departments. Chemical exposures can result from disinfectants, cleaning compounds, hazardous drugs, mercury, and anesthetic gases. Biological hazards include viruses and bacteria causing hepatitis B and C, HIV, and tuberculosis, as well as latex allergies *(Amare et al., 2021)*.

Physical hazards in the workplace include agents that cause tissue damage, such as noise and radiation. Physical hazards cover both ionizing and non-ionizing radiation. Ergonomic injuries results from patient lifting and handling, lifting heavy equipment, causing backaches, and maintaining static postures. Additionally, psychological and work organization stressors, including shift work, burnout, and workplace violence, can impact clinical practices *(Ilo et al., 2022)*.

Academic performance is a critical aspect of education, especially for nursing students. It refers to the grades achieved through various educational instructions in the learning environment. Good grades depend on how students manage their studies, cope with different tasks assigned by teachers within the program duration, and understand the course's impact on their academic performance. Moreover, academic performance is a complex behavior where students try to remember facts and express their gained knowledge either verbally or in writing *(Akter et al., 2020)*.

Nursing students face various challenges during their years of study, which may hinder their academic performance. Occupational hazards are one of these challenges, potentially reducing academic performance by affecting students' physical, emotional, and social well-being. Conversely, academic performance can influence the exposure level of nursing students to occupational hazards. If students have good knowledge about occupational hazards, prevention methods, and minimizing harmful effects, they will gain experience and improve their academic performance *(Heuse et al., 2020)*.

Working full-time or part-time while studying can have positive or negative impacts on nursing students' academic performance. Work experience during study can affect their academic, professional, and personal lives, preparing them for the nursing profession in real situations. However, nursing students are also exposed to various occupational incidents, including biological, chemical, physical, ergonomic, and psychological hazards *(Manoochehri et al., 2022)*.

Community Health Nurses *(CHN)* play a multidisciplinary role in providing early disease detection, preventive care through healthy lifestyle guidance, nutrition, and physical activity. They promote practices like hand washing, personal hygiene, and wearing personal protective equipment to prevent infections and avoid most occupational hazards in the workplace. Additionally, they offer health education to students about health and wellness *(Zeydani et al., 2021)*.

Community health nurses may conduct workshops, presentations, and one-on-one discussions to raise awareness about various issues, including occupational health hazards, mental health, academic performance, and enhancing professional skills. These activities help students acquire basic skills, develop working relationships with professional workers, patients, and healthcare workers, and increase learning opportunities for nursing students *(World Health Organization (WHO), 2021)*

Significant of the study

Nursing students can encounter a real risk for occupational hazards, during training at the workplace. Nursing students were twice as likely to experience a sharp-related injury. For the reason that students' safety is an important issue to be considered henceforth, it is imperious for community health nurses to explore the potential occupational health hazards among nursing students **(Essa et al., 2020).**

Academic performance is an important dimension for students. The Academic success is important because it is strongly linked to positive outcome as the nursing students who are academically successful are more likely to be employed with more opportunities for promotion in future work. At the same time, many studies provided an evidence for the impact of reduced academic performance and poor presence that had a negative outcome. Low academic performance

may lead to further feeling sleepy in class, difficult to combine study, work and free time, discouragement, absenteeism and distracted during the lecture, reduce participation in social activity with family *(El-awady et al., 2022).*

Aim of study:-

This study aimed to assess the effect of work during study on academic performance and health hazards among nursing students at Helwan University. Through the following objective

1- Determining nursing students' knowledge about health hazards during working hours.

2- Determining nursing students' level of academic performance.

Research questions:

1- What is nursing students' knowledge about health hazards during working hours?

2- What is nursing students' level of academic performance?

3- Is there relation between nursing student's knowledge, academic performance and their demographic characteristics ?

2- Subjects and Methods

Research design:

A Descriptive research design was applied to achieve the aim of this study

Study Setting:

The study was conducted at Faculty of Nursing – Helwan University, which include six department, first departments medical surgical nursing, 2nd departments adult health nursing, 3rd departments obstetric and new born nursing, 4th departments pediatrics nursing, 5th departments community health nursing, 6th departments psychiatry nursing, 7th department administration and consist of four floor.

Sample:

A convenient sample of nursing student from second, third& fourth grad which working during studying through academic years 2020 –2021.

Sample size:

The sample size was calculated by the following equation**: -**

$n=N[1+N (e^2)]$ **(AL-Ali,2019)**
n=sample size
N=population size is 700
e=,05 is the level of perception
n=700[1+700 (,0025)] =299

The actual size of sample were 299 nursing student working during studying through academic year 2020-2021.

Tools of Data Collection:

Two tools of data collection were used to carry out the current study namely, A Structural interviewing questionnaire& academic performance.

Tool I: A Structured interviewing questionnaire:

This tool was developed by investigator after reviewing the national and international related literature. It consist of two parts:

First part: A) Sociodemographic characteristics of nursing students included: Age, sex, academic years, place of residence, father occupation, father education level, mother education level, mother occupation, family size, monthly income &appreciation of the previous academic year.

B) Work field information: include age of nursing students at starting work, type of work, place of work, number of working hours per day and reasons for working during studying.

Second part: Nursing students' knowledge about health hazards at work place. Include knowledge about occupational health hazards (2 items), physical hazards (4 items), biological hazards(5 items), chemical hazard(5 items), psychological hazards(5 items), social hazards(4 items),ergonomic hazards(5 items),&accident hazards(5 items).

Scoring system:-

For each knowledge items, complete correct answer scored (two), incomplete correct answer was scored (one) and incorrect and don't know was given (zero), It includes 35 items with total score equal 70 scores.

- Poor knowledge<50% (<35 scores)
- Fair knowledge 50-<75% (35 -<53 scores)
- Good ≥75% ($\geq$ 53 scores)

Tool II: Academic performance assessment questionnaire adopted by (García-Vargas etal .,2016) concerned with nursing students academic performance, include 21 items such as listen to lecture carefully, attending lectures regularly, can easily manage the amount of study material taught, actively participate in the discussion and answering exercises during lecture, study the lessons I missed if I was absent from the class, during exams or a lecture, don't preoccupied with work, perfer finishing my studies and my assignments first before working hours, do the required tasks in order of priority, can be customized time for comfort, feeling sleepy in class, study constantly, not just during exams, study harder to improve my performance when I get low score, have enough time to study at home, get good grades in every subject, don't find it difficult to combine study, work and free time, start reviewing long before taking the test, get distracted during the lecture, stick to lecture time, feel very tired as a result of the combination of studying and work, work reduce participation in social activity with family, and working while studying helped to gain new information, skills, and practice.

Scoring system:

Academic performance assessment include 21 items with total score equal 42. Each item has three responses, Always (equal 2 score), sometimes(equal 1 score) and never (equal zero score) expect items number17,19 and 20 which always (equal zero score), sometimes(equal 1 score), and never (equal 2 score). Total score are calculated and converted into percent scores as:

- **Satisfactions**≥60% (26 - 42 scores).
- **Unsatisfaction**<60% (< 26 scores).

Validity:

The revision of the tools for clarity, relevance, comprehensiveness, understanding and applicability was done by a panel of three experts from the community health nursing, Faculty of Nursing, Helwan university to measure the content validity of the tools and the necessary modification was done.

Reliability:

To assess reliability, the study tools were tested by using calculating Cranbach's Alpha which was 0.889 for Knowledge and 0.849 for academic performance of nursing student about health hazards at work place.

Ethical consideration:

An official permission to conduct the proposed study was being obtained from the Scientific Research Ethics Committee. Participation in the study was voluntary. Subjects was given complete full information about the study and their role before signing the informed consent. The ethical considerations were including explaining the purpose and nature of the study, stating the possibility to withdrawal at any time and confidentiality of the information were being guaranteed. Ethics, values, culture and beliefs were be respected.

II- Operational Item:

Preparatory phase:

A review of the past and current literature covering all aspects helpful in designing and processing of data collection tools were available books, journals, Internet and article.

Pilot study:

Pilot study has been conducted to test the clarity, applicability and understandability of the tool. It has been conducted on 10% of the sample (30 nursing students). They have been selected from Faculty of Nursing at Helwan University students. The results of the pilot helped in refining the interview questionnaire and to schedule the time framework. No modification of tool were done so the participants of the pilot were included in the main study sample.

Fieldwork:

Data was collected upon three months beginning of March 2021 to end of May 2021 through the academic year 2020-2021.

Investigator introduced herself to the student's, explained the aim of the study and informed them that information was treated confidential and used only for the purpose of the study; additionally, each participant was notified about the right to accept or refuse to participate in the study.

The study was carried out through an interviewing at the Faculty of Nursing in the classroom in break time, 2 day per week (Sunday, and Monday from 9 am to 2 pm) till the needed sample is completed. The investigator take 12 to 13 nursing students perday, The time required for each students to fill the questionnaire was 15-20 minutes. The investigator checked completed of each filled sheet after the studied nursing students completed to ensure the absence of any missing data.

III: Administrative Item:

Approval to carry out this study was obtained from the Dean of Faculty of Nursing, Helwan University. For conducting the study including the aim of the study to obtain the permission to visit the faculty and conduct the study.

IV- Statistical item:

Upon completion of data collection, data will be computed and analyzed using the computer software of Microsoft Excel Program and Statistical Package for Social Science (SPSS) version 25. Data were presented using descriptive statistics in the form of frequencies and percentages for categorical data, the arithmetic mean (X), and standard deviation (SD) for quantitative data. Qualitative variables were compared using the chi-square test (X^2). In addition, r-tests were used to identify the correlation between the study variables.

Significance of the results

- Highly statistically significant at p-value < 0.001.
- Statistically significant at P-value ≤ 0.05.
- No significant at P- value > 0.05

Results

Table (1) Shows that, 74.9% of the studied nursing students, age group were 21-< 23 years old with the mean age ±SD was 21.49±2.79. Regarding to sex, 55.2% of them were males, 69.6% of them live in rural area, 41.8% of them were in fourth academic year, 64.2% of them had general secondary school before university, Regarding to fathers educational level, 35.8% of them had university education, 56.5% of them were employee. Regarding to mothers educational level, 29.1% of them had secondary education,76.6% of them were house wife, 66.2% of studied nursing students had family size <5members. Concerning monthly income, 44.5% of them had enough monthly income.

Table (2): Shows that, 44.8% of studied nursing students starting work at age ≥18years old, 94.6% of them had type of work was paid, 79.2% of them work in hospital 75.6% of them, the number of working hours per day were more than 8 hours and 58.5% of them working for financial support for own needs.

, indicates that, 64.9% of studied nursing students had good knowledge about health hazards, 22.1% of them had poor knowledge, while 13% of them had fair knowledge about health hazards at workplace.

Figure (2): indicates that, 64.9% of studied nursing students had good knowledge about health hazards, 22.1% of them had poor knowledge, while 13% of them had fair knowledge about health hazards at workplace.

Figure (2): shows that, 67.6% of the studied nursing students had a satisfaction in total academic performance while, 32.4% of them had satisfaction in total academic performance.

Table (3): Shows that, there were highly statistically significant relation between total knowledge level of studied nursing students and age and father education (P ≤ 0. 001). Moreover, there was statistically significant relation between total knowledge level of studied sample and sex, mother education level, mother occupation and monthly income at (P <0.05).

Table (4): Shows that, there were highly statistically significant relation between total academic performance level and their age, sex, residence, academic year, father education level, mother educational (P < 0. 001). Moreover, there was statistically significant relation between total academic performance level and pre- university education and mother occupational at (P ≤ 0.05).

Table (1): Frequency distribution of studied nursing students regarding their Sociodemographic characteristics (n=299)

Sociodemographic Characteristics		No.	%
Age	19- < 21 years	75	25.1
	21-< 23 years	224	**74.9**
	Mean ±SD	21.49±2.79	
Sex	Male	165	**55.2**
	Female	134	44.8
Residence	Rural	208	**69.6**
	Urban	91	30.4
Academic year	Second year	60	20.1
	Third year	114	38.1
	Fourth year	125	**41.8**
Pre- university education	General secondary school	192	**64.2**
	Nursing technical institute	107	35.8

Father educational level	Can`t read & write	6	2.0
	Read & write	49	16.4
	Basic education	49	16.4
	Secondary school	88	29.4
	University education	107	**35.8**
Father occupation	Employee	169	**56.5**
	Craft	54	18.1
	Free business	76	25.4
Mother educational level	Can`t read & write	11	3.7
	Read & write	47	15.7
	Basic education	82	27.4
	Secondary school	87	**29.1**
	University education	72	24.1
Mother occupation	House wife	229	**76.6**
	Employee	70	23.4
Family size	< 5 members	198	**66.2**
	> 5 members	101	33.8
Monthly income	Enough and save	58	19.4
	Enough	133	**44.5**
	Not enough	108	36.1

Table (2): Frequency Distribution of studied nursing students regarding their work field information (n=299)

| Work field information		No.	%
Age at starting work	< 15 years	43	14.4
	15-<18 years	122	40.8
	≥18 years	134	**44.8**
Type of work	Paid	283	**94.6**
	Voluntary / unpaid	16	5.4
Place of work	Private clinic	34	11.4
	Hospital	237	**79.2**
	Pharmacy	22	7.4
	Store	6	2.0
Number of working hours per day	Less than 8 hours	73	24.4
	More than 8 hours	226	**75.6**
Reasons for working during studying	Financial support for own needs	175	**58.5**
	Guarantee employment opportunity	6	2.0
	Gain practical experiences	118	39.5
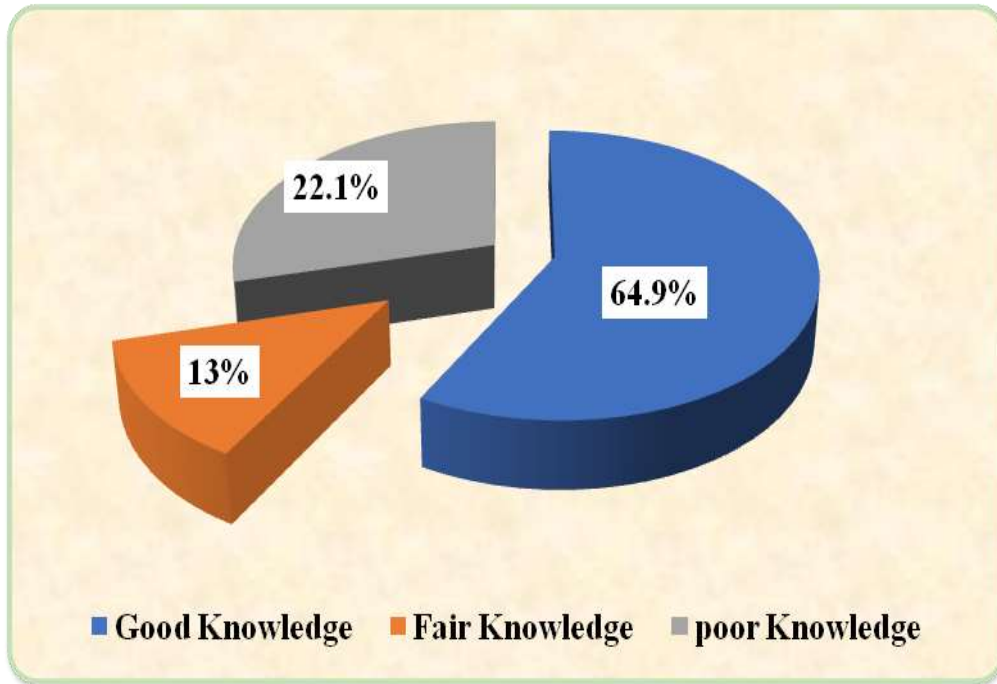
Figure (1): Total knowledge level of studied nursing students' regarding health hazards at workplace (n=299).
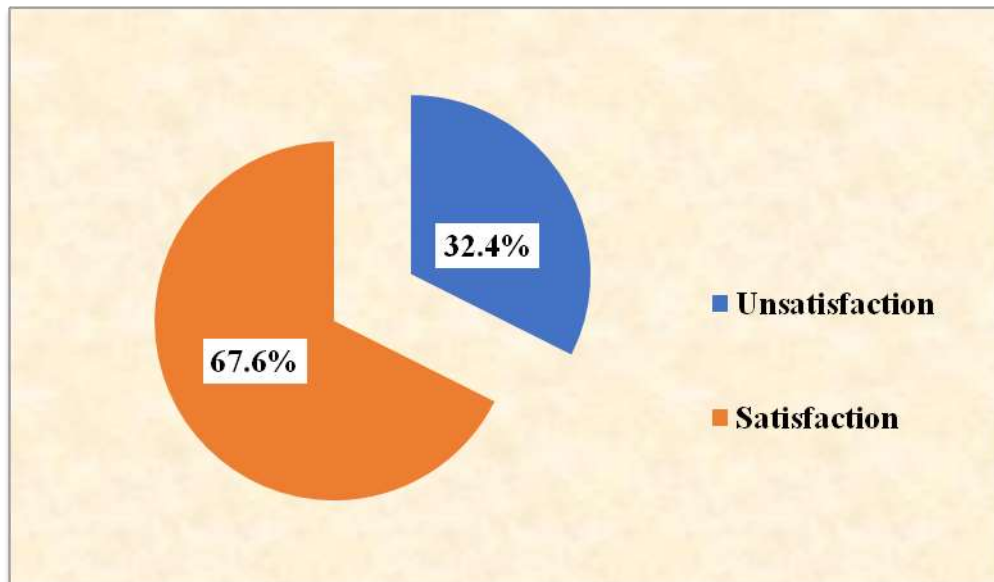

Figure (2): Total academic performance level of studied nursing students (n=299)

Table (3): Relation between total knowledge level and sociodemographic characteristics of studied nursing students (n=299)

Demographic characteristics	Total knowledge scores						X2	P
	Good(n=173)		Fair (n=39)		Poor(n=87)			
	No.	%	No.	%	No.	%		
Age								
19- < 21 years	53	30.6	12	30.8	10	11.5	12.052	**0.001****
21-< 23 years	120	69.4	27	69.2	77	88.5		
Sex								
Male	70	40.5	21	53.8	41	47.1	7.080	**0.34***
Female	103	59.5	18	46.2	46	52.9		
Residence								
Rural	116	67.1	24	61.5	68	78.2	4.734	0.094
Urban	57	32.9	15	38.5	19	21.8		
Academic year								
Second year	39	22.6	10	25.7	11	12.6	4.529	0.143
Third year	67	38.7	16	41.0	31	35.6		
Fourth year	67	.38.7	13	33.3	45	51.8		
Pre- university education								
secondary school	112	64.7	22	56.4	58	66.7	1.282	0.527
Nursing technical institute	61	35.3	17	43.6	29	33.3		
Father educational level								
Can't read & write	2	1.2	0	0.0	4	4.6	12.441	**0.001****
Read & write	27	15.6	8	20.5	14	16.1		
Basic education	35	20.2	5	12.8	9	10.3		
Secondary school	45	26.0	16	41.0	27	31.1		
University education	64	37.0	10	25.7	33	37.9		
Father occupation								
Employee	94	54.3	20	51.3	55	63.2	2.610	0.625
Craft	33	19.1	7	17.9	14	16.1		
Free business	46	26.6	12	30.8	18	20.7		
Mother educational level								
Can't read & write	6	3.5	1	2.6	4	4.6	8.759	**0.027***
Read & write	29	16.8	7	17.9	11	12.6		
Basic education	50	28.9	12	30.8	20	23.0		
Secondary school	51	29.5	11	28.2	25	28.7		
University education	37	21.3	8	20.5	27	31.1		
Mother occupation								
House wife	136	78.6	34	87.2	59	67.8	6.569	**0.036***
Employee	37	21.4	5	12.8	28	32.2		
Family size								
≤ 5 members	81	46.8	21	53.8	47	54.1	1.490	0.475
> 5 members	92	53.2	18	46.2	40	45.9		
Monthly income								
Enough and save	39	22.5	5	12.8	14	16.1	9.693	**0.046***
Enough	69	39.9	15	38.5	49	56.3		
Not Enough	65	37.6	19	48.7	24	27.6		

Table (4): Relation between total academic performance level and soicodemographic characteristics of studied nursing students (n=299)

Demographic characteristics	Total academic performance				X2	P value
	Satisfaction (n=202)		Satisfaction (n=97)			
	No.	%	No.	%		
Age						
19- < 21 years	48	23.8	27	27.8	10.382	**0.001****
21 -< 23 years	154	76.2	70	72.2		
Sex						
Male	98	48.5	67	69.1	11.198	**0.001****
Female	104	51.5	30	30.9		
Residence						
Rural	128	63.4	80	82.5	11.301	**0.000****
Urban	74	36.6	17	17.5		
Academic year						
Second year	30	14.9	30	30.9	18.276	**0.000****
Third year	72	35.6	42	43.3		
Fourth year	100	49.5	25	25.8		
Pre- university education						
secondary school	120	59.4	72	74.2	6.264	0.014*
Nursing technical institute	82	40.6	25	25.8		
Father educational level						
Can't read & write	4	2.0	2	2.1	15.558	**0.000****
Read & write	44	21.8	5	5.2		
Basic education	24	11.9	22	22.7		
Secondary school	55	27.2	33	34.0		
University education	75	37.1	35	36.0		
Father occupation						
Employee	119	58.9	50	51.5	1.486	0.476
Craft	35	17.3	19	19.6		
Free business	48	23.8	28	28.9		
Mother educational level						
Can't read & write	11	5.4	0	0.0	27.232	**0.000****
Read & write	42	20.8	5	5.2		
Basic education	60	29.7	22	22.7		
Secondary school	46	22.8	41	42.3		
University education	43	21.3	29	29.8		
Mather occupation						
House wife	160	79.2	69	71.1	8.149	**0.010***
Employee	42	20.8	28	28.9		
Family members						
≤ 5 members	100	49.5	49	50.5	0.027	0.484
> 5 members	102	50.5	48	49.5		
Monthly income						
Enough and save	46	22.8	12	12.4	4.535	0.104
Enough	86	42.6	47	48.4		
Not Enough	70	34.6	38	39.2		

Discussion

Working during studying among nursing student is increasingly found in many countries. An excessive work load on students may compromise academic progress. Less study time is associated with lower learning outcomes and a higher probability of dropping out of faculty. At the same time, nursing students may work also for positive benefits for example work may provide necessary experience which contribute to building a social network that will help find a job in the future(**Ali & Roshdy, 2020).**

Nurses are the most important members of the health care team, who provide direct care to the patient in different units. Nursing student are exposed to numerous occupational hazards, such as chemicals, infectious agents, lack of materials and ergonomic conditions, heavy working, and excessive workload. Also, they exposure to physical hazards include (needle stinging, penetrating stab injuries, musculoskeletal disorders and varicose veins), chemical hazards include (skin problems, latex allergies, eye & nose allergies), biological hazards (infectious diseases) and psychological hazards include (exposure to stress, burnout syndrome, mental health disorder and sleep disturbance) **(Amare et al., 2021).**

Regarding Sociodemographic characteristics of the studied nursing students, the current study revealed that, about three quarters of the studied nursing students their age group were 21- < 23 years old and more than half of them were male. This study was in agreement with **Amare et al., (2021)** in Ethiopia(n=200), who conducted a study titled "Exposure to occupational health hazards among nursing and midwifery students during clinical practice, Ethiopia" and found that 75.1% studied nursing students their age were between 21- 23 years. Also, this result was agreed with **Ali & Roshdy, (2020)** in Egypt (n=150),, who study entitled "Part-time work among nursing students of Sohag University, Egypt" and revealed that 54.1% of the studied nursing students were male.

The present study reported that, more than two thirds of the studied nursing students were live in rural area. This finding was similar to **Mohamed, (2022)** in Egypt (n=240), who studied titled "Factors affecting academic performance among nursing students and their relation to academic achievement" and found that 67.1% of the studied nursing students were from rural areas. Contrariwise, this study was disagree with **Eyi & Eyi, (2020)** in Turkey(n=300),. Who carry out a study entitled "Nursing students' occupational health and safety problems in surgical clinical practice" and mentioned that 69.8% of the studied nursing students were from urban areas.

The current study represented that, more than two fifths of studied nursing students were in fourth academic year and slightly less than two thirds of them had general secondary school before university education. This study on the same line with **Aksoy et al., (2022)** in Turkey (n=250), in their recent the study titled "The Effect of Clinical Learning Environment on Occupational Risk Perception of Nursing Students" and mentioned that 43% of the studied nursing student were in fourth academic year. Also, this result was in agreement with **El-awady et al.,(2022)** in Egypt (n=280), in their recent study titled "Factors affecting academic performance among nursing students and their relation to academic achievement" and reported that 65.2% of the studied nursing student had general secondary school before university education.

The present study revealed that, more than one third of the studied nursing students their fathers had university education and more than half of them were employee. This result on the same line with **Gripshi et al., (2022)** in Albania(n=200), in their recent study titled "Challenges of nursing students in relation to academic performance at technical nursing students, Albania" and mentioned that 36.2% of the studied nursing students their fathers had university education. Also, this study was agreed with **Attia et al., (2020) in Egypt** (n=400),, who conducted a study entitled "Occupational Health Hazards among Faculty of Nursing Students in Zagazig University" and represented that 64)8% of the studied nursing students fathers were employee in private and governmental sectors.

The current study reported that, more than one quarter of the studied students their mothers had secondary education and more than three quarters of them were house wife. This study was in agreement with **Sheelongo & Kadhila, (2022) in Namibia**(n=200), in who studied titled "An exploration of second-year student nurse's perceptions of stress towards substandard academic performance at University, Namibia" and revealed that 30.1% of the studied students' their mothers had secondary school education. Also, this finding was similar to **Salamonson et al., (2020) in Australasia** (n=280), who carried out a study entitled "The type and amount of paid work while studying influence academic

performance of first year nursing students: An inception cohort study, Australasia" and found that 79.4% of the studied nursing students their mothers were house wife.

The present study revealed that, about two thirds of the studied nursing students had family size are <5 members and more than two fifths of them had enough income. This result was agreed with **Oonyu, (2019) in Uganda** (n=150), who conducted a study entitled "Does part-time job affect University students' academic progress? The case of Makerere University's teacher trainee employment in greater Kampala secondary schools, Uganda" and stated that 61.5 % the studied nursing students had family members≤ 5 members. Contrariwise, this study was in disagreement with **Amare et al.,(2021)** and found that 74.2% of the studied nursing students had enough monthly income.

Concerning work field information, the current study represented that, more than two fifths of the studied nursing students were starting work at age ≥18 years old and most of them had paid works. This finding was in agreement with **Salamonson et al., (2020)** and found that 45.4% of the studied nursing students were starting work at ≥18 years old and majority of them had paid working. Contrariwise, this result was in disagreement with **Halkiv & Ziemiański, (2022)** in **Europe** (n=450), who carried out study titled "Paid work activity and entrepreneurial cognitions of students – evidence from European emerging economies" and stated that 27.8% of the studied students had paid work.

The present study reported that, more than three quarters of the studied nursing students work at hospital and number of working hours per day were more than 8 hours. This study was supported by **Wise et al.,(2022) in American** (n=250), in their recent study titled "The contribution of paid employment for students during their pre-registration nursing studies" and mentioned that 81.4% of the studied students were working in hospitals and number of working hours were more than 8 hours. Also, this finding was agreed with **Mitchell, (2020)** in **New Zealand** (n=300), who carried out a study entitled "Juggling employment and studies: Nursing students' perceptions of the influence of paid employment on their success" and represented that more than three quarters of the studied nursing students working more than 8 hours, in addition, this result was agreed with **Shafie et al.,(2021)** in **Malaysia** (n=400), carried out titled "The Effects of Part-Time Work on the Students' Academic Performance During Covid-19 Pandemic" and stated that 74.9% the studied students were work for more than 8 hours/day. Also, this study was in agreement with **Heuse et al., (2020)** in **Europe** (n=360), who conducted a study entitled "Studying and more: Part-time employment as an educational challenge" and mentioned 59.2% of the studied students working part times for financial response. From investigator point of view, this might be related to that most of the nursing students preferred working in hospitals to acquire experiences and skills, in addition cover personal needs.

Concerning total knowledge level of studied nursing students' regarding health hazards at workplace, the present study reported that, more than three fifths of the studied nursing students' had good knowledge about health hazards, while less than one qurter of them had poor knowledge. This finding was similar to **Amare et al., (2021)** and found that 63.8% the studied nursing students had good knowledge level regarding occupational health hazards. Also, this study was agree with to **John, (2021)** and stated that 61.9% of the studied nursing students had good knowledge level regarding occupational health hazards. From investigator point of view, this could be related to that the nursing students had fresh knowledge regarding occupational hazards due to college curriculum that teaching about occupational hazards in different subjects.

Regarding total academic performance level of studied nursing students, the present study reported that, more than one quarter of the studied nursing students had unsatisfaction level of academic performance while more than two thirds of them had satisfaction academic performance. This study was in the same line with **Ali & Roshdy, (2020)** who stated that 66.4% of the studied nursing students had satisfaction academic performance. Contrariwise, this result was in disagreement with **Evans, (2020)** who mentioned that 26.4% of the studied sample had satisfaction academic performance level. From investigator point of view, these results reflect the ability of the students to balance between work and studying to maintain academic performance.

Regarding relation between total knowledge level and sociodemographic characteristics of studied nursing students, the present study represented that, there were highly statistically significant relation between total knowledge level of studied nursing students and their age and father education. Moreover, there was statistically significant relation between total knowledge level of studied sample and their sex, mother education level, mother occupation and monthly income.

This study was similar to **Devi & Khongrymmai, (2022) in India** (n=150), who study titled "A descriptive study to assess the knowledge of student nurses regarding occupational health hazards in a selected nursing college of greater Noida" and reported that there was a statistically significant difference between studied students total knowledge level and their age, gender, fathers' and mothers' education' and monthly income. Also, this result was agreed with **John,(2021)** and mentioned that there was statistically significant difference between the studied nursing students knowledge and their age, gender, mothers' education, and monthly income. From the investigator point of view, this might be related to that, increase nursing students age lead to more knowledge acquired regarding occupational health hazards and parents education reflect positively on awareness of nursing students about occupational hazards.

Concerning relation between total academic performance level and soicodemographic characteristics of studied nursing students, the current study reported that, there were highly statistically significant relation between total academic performance and their age, sex, residence, academic year, father education level, mother educational. Moreover, there was statistically significant relation between total academic performance and pre- university education and mother occupation.

This study results were in accordance with **Terry & Peck, (2020) in Australia** (n=240), who study titled "Academic and clinical performance among nursing students: What's grit go to do with it? and reported that there was a statistically significant relation between the studied nursing students' academic performance and their age, gender, residence and academic year. Contrariwise, this finding was in congruence with **Fajar et al., (2019) in Pakistan** (n=180), who study titled "Factors affecting academic performance of undergraduate nursing students" who stated that there was no statistically significant difference between the studied students' academic performance and their parents' sociodemographic characteristics. Form investigator point of view, this might be related to that, the students' sociodemographic characteristics and their parents' sociodemographic characteristics can effect increase their interest in studying and achieve highly academic performance as seen in fathers education were more than one third of the studied nursing students their fathers had university education and more than half of them were employee and monthly income were enough which effect positively in academic performance.

Conclusion

Based on findings of the present study. Result and answering research questions the following can be concluded:

The present study showed that, more than three fifths of the studied nursing students had good knowledge, less than one quarter of them had poor knowledge, while minority of them had fair knowledge about health hazards at workplace. Additionally, more than two thirds of the studied nursing students had satisfaction academic performance, While, less than one third of them had unsatisfaction academic performance. Moreover, there was statistically significant positive correlation between total knowledge level and total academic performance level of studied nursing students. Also, there were highly statically significant relation between total knowledge level of studied nursing students and age and father educational. There were highly statically significant relation between total academic performance level and their age, sex, academic year, father educational level and mother educational level.

Recommendations

The important recommendations inferred from the study results were: Based on the findings of the present study, the following can be recommended:

Develop and implement an educational program to increase nursing students' awareness about health hazards.
Disseminate booklets and poster about types of health hazards encounter nursing students at workplace.
Further research on a large sample and other setting is needed.

Reference

1. **Aksoy, B., Gurdogan, E. P., & Kinici, E., (2022):** The Effect of Clinical Learning Environment on Occupational Risk Perception of Nursing Students: A Cross-Sectional Study. International Journal of Caring Sciences, 538-530 ,(1)15.

2. **Akter, K., Khatun, S., & Hossain, M. S. (2020):** Lived experience of thalassaemic children in Bangladesh. Open Journal of Nursing, 10(11), 1109-1125. doi:10.4236/ojn.2020.1011079.

3. **Al-Ali., (2019):** How to calculate the sample size n from a natural population whose size is an element.

4. **Ali, R., & Roshdy, E. (2020):** Part-time work among nursing students of Sohag University, Egypt. International Journal of Medical Science and Public Health, (0), 1. doi:10.5455/ijmsph.2020.0203115022020.

5. **Amare, T. G., Tesfaye, T. T., Girmay, B., & Gebreagziabher, T. T., (2021):** Exposure to occupational health hazards among nursing and midwifery students during clinical practice. Risk Management and Healthcare Policy, 2211-2220.

6. **Attia, N. M., Sorour, A. S., & Ahmed, F. M., (2020):** Occupational Health Hazards among Faculty of Nursing Students in Zagazig University. Zagazig Nursing Journal, 14(1), 133-145.

7. **Che Huei, L., Ya-Wen, L., Chiu Ming, Y., Li Chen, H., Jong Yi, W., & Ming Hung, L., (2020):** Occupational health and safety hazards faced by healthcare professionals in Taiwan: A systematic review of risk factors and control strategies. SAGE Open Medicine, 8, 2050312120918999.

8. **Devi, N. M., & Khongrymmai, L., (2022):** A descriptive study to assess the knowledge of student nurses regarding occupational health hazards in a selected nursing college of greater Noida. International Journal of multidisciplinary educational research , 11(4), 44-48.

9. **El-awady, H. M., Seada, A. M., & Abd-El hady, T. R., (2022):** Factors affecting academic performance among nursing students and their relation to academic achievement. Port Said Scientific Journal of Nursing , 9(1), 145-165

10. **Essa, W. A., Aref, S. M., & Thabet, M., (2020):** Educational Environment and its Relation to Nursing Student Academic Achievement. Minia Scientific Nursing Journal, 7(1), 26-33.

11. **Evans, C., (2020):** Exploiting students' part-time work to enhance learning, teaching and assessment. Industry and Higher Education, 35(1), 10-13.

12. **Eyi, S., & Eyi, İ., (2020):** Nursing students' occupational health and safety problems in surgical clinical practice. SAGE Open, 10(1), 215824402090180

13. **Fajar, S., Hussain, M., Sarwar, H., Afzal, M., & Gilani, S. A., (2019):** Factors affecting academic performance of undergraduate nursing students. International Journal of Social Sciences and Management, 6(1), 7-16.

14. **García-Vargas, M. C., Rizo-Baeza, M., & Cortés-Castell, E. (2016):** Impact of paid work on the academic performance of nursing students. *PeerJ*, *4*, e1838.

15. **Halkiv, L., & Ziemiański, P., (2022):** Paid work activity and entrepreneurial cognitions of students – evidence from European emerging economies. Journal of Entrepreneurship in Emerging Economies. doi:10.1108/jeee-07-2021-0291.

16. **Heuse, S., Dietze, C., Fodor, D., & Voltmer, E., (2020):** Studying and more: Part-time employment as an educational challenge? Journal of Medical Psychology, 22(1), 59-65.

17. **Ilo, I. J., Uchenwoke, C. I., Umeh, U. A., Nwankwo, U. N., Ede, S. S., & Nwankwo, C. E., (2022):** Knowledge and practice of preventive measures for occupational health hazards among nurses working in a teaching hospital in Enugu. *Annals of Clinical and Biomedical Research*, *3*(1).

18. **John, N., (2021):** Knowledge assessment on hospital related occupational hazard among student nurses of selected college in Delhi. International Journal of Nursing & Midwifery Research, 08(01), 18-21.

19. **Manoochehri, H., Imani, E., Atashzadeh-Shoorideh, F., & Alavi Majd, H., (2022):** Work during studying in nursing students: Review of literatures. Development Strategies in Medical Education, 6(1), 60-73.

20. **Mitchell, J., (2020):** Juggling employment and studies: Nursing students' perceptions of the influence of paid employment on their success. Nurse Education Today, 92, 104429.

21. **Mohamed, T., (2022):** Factors affecting academic performance among nursing students and their relation to academic achievement. Port Said Scientific Journal of Nursing, 9(1), 145-165

22. **Oonyu, J. C., (2020):** Does part-time job affect University students' academic progress? The case of Makerere University's teacher trainee employment in greater Kampala secondary schools, Uganda. Journal of Education and Work, 32(5), 518-535.

23. **Qaraman, A. F., Elbayoumi, m., Kakemam, E., & Albelbeisi, A. H., (2022):** Knowledge, Attitudes, and Practice towards Occupational Health and Safety among Nursing Students in Gaza Strip, Palestine. Ethiop J Health Sci, 32(5), 1007-1018.

24. **Rudberg, S. L., Westerbotn, M., Sormunen, T., Scheja, M., & Lachmann, H., (2022):** Undergraduate nursing students' experiences of becoming a professional nurse: A longitudinal study. BMC Nursing,21(1).

25. **Salamonson, Y., Roach, D., Crawford, R., McGrath, B., Christiansen, A., Wall, P., & Ramjan, L. M., (2020):** The type and amount of paid work while studying influence academic performance of first year nursing students: An inception cohort study. Nurse Education Today, .84,104213

26. **Shafie, S. N., Nafi, M. N., Aziz, N. A., Bakry, N. A., Mohamad, N. A.,Haslubis, S. F., & Amran, A., (2021):** The Effects of Part-Time Work on the Students' Academic Performance During Covid-19 Pandemic: A Logistic Regression Analysis. Journal of Mathematics and Computing Science, 7(2), 106-115.

27. **Sheelongo, F., & Kadhila, J. G., (2022):** An exploration of second-year Student nurse's perceptions of stress towards substandard academic performance at University, Windhoek, Khomas region, Namibia. doi:10.21203/rs.3.rs-2381003/v.1

28. **Terry, D., & Peck, B. (2020):** Academic and clinical performance among nursing students: What's grit go to do with it? Nurse Education Today, 88, 104371.

29. **Türen, S., Sevda, E. F. İ. L., Bülbül, E., Tuğba, Y. E. N. İ., Ayvaz, M. Y., & Yilmaz, R. A., (2022):** Occupational risk perception of nursing students, affecting factors and their association with occupational accidents: a cross sectional, multicenter study. Journal of contemporary medicine, 12(6), 923-929.

30. **Wise, M., Ossenberg, C., & Henderson, A., (2022):** The contribution of paid employment for students during their pre-registration nursing studies: An integrative review. Nurse Education Today, 111, 105296.

31. **World Health Organization., (2021):** *A framework for community health nursing education* (No. SEA-NUR-467). WHO Regional Office for South-East Asia.

32. **Zeydani, A., Atashzadeh-Shoorideh, F., Abdi, F., Hosseini, M., Zohari-Anboohi, S., & Skerrett, V., (2021):** Effect of community-based education on undergraduate nursing students' skills: a systematic review. *BMC nursing*, *20*, 1-12.