

Perceived Stressors and Coping Patterns among Nursing Students during Covid -19 Pandemic

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Abstract

Background: Nursing students are exposed to numerous stressors during their studies and clinical training, especially during COVID-19, because of direct contact with patients, so they need to cope with the stressors. **Aim:** This study aimed to assess perceived stressors and coping patterns among nursing students during Covid -19 pandemic. **Design:** An explanatory descriptive research design was utilized in this study. **Sampling:** A convenient sample of 249 fourth-year nursing students agreed to participate in this study. **Setting:** The study was conducted at the faculty of nursing at Beni-suef University. **Tools of data collection:** Three tools were used in this study: (1) A socio-demographic interviewing questionnaire, (2) Perceived stress scale to examine nursing students' stress levels and types of stressors, (3) The coping scale to measure coping patterns among nursing students. **Results:** Findings of this study showed that more than two-thirds of nursing students had suffered from stress and could not adapt well to stressors during COVID-19. As well as less than half of nursing students used problem-focused patterns to deal with stress during the covid-19 pandemic with the highest score among coping subscales. There was a negative moderate correlation between perceived stress scale and coping scale for stressful situations among nursing students. **Conclusion:** More than two-thirds of nursing students suffered from stress during COVID-19 pandemic. There was a negative moderate correlation between perceived stress and coping with stressful situations among nursing students. **Recommendation:** Establishing student counseling centers within campus with the help of mental health professionals to provide counseling services and psychological support for nursing students.

Keywords: Coping Patterns, Covid-19 pandemic, Nursing Students.

Introduction:

Coronavirus (COVID-19) is a viral epidemic that was discovered in Wuhan, Hubei Province, China, in December 2019 and it began to spread quickly throughout China (Wang *et al.*, 2020). Consequently, it became a worldwide pandemic as declared by the World Health Organization (Roy *et al.*, 2020). COVID-19 started in Egypt at the beginning of April 2020, and on the third of May 2020, the number of announced cases climbed substantially in a month, reaching 6465 infected patients and around 430 fatalities. The tremendous increase in the infected population in this short period provoked concerns, panic, and distress among the general public and medical staff (Abdelhafiz *et al.*, 2020; *Egyptian statistics on COVID-19*).

The COVID-19 pandemic started substantially disrupting global educational systems in March 2020, and it had a significant impact on how nursing education was delivered, especially at the pre-licensure registered nurse level. Face-to-face lectures were abruptly switched to online platforms and some courses were completely canceled as stay-at-home orders were implemented because of social distance requirements. Numerous nursing school simulation and skills lab activities as well as student clinical placements were postponed or changed (Fowler & Wholeben, 2020). Nursing students are stressed in their clinical setting, and that leads to burnout, depression, and sleeping difficulties (Ma *et al.*, 2022). These changes related to the COVID-19

pandemic added more stress to the life of nursing students.

Stress is the physical and emotional adaptive response to an external situation that results in physical, psychological, and behavioral deviations (*Okoro, 2018*). Stress is a part of student life and can impact the students coping strategies by the demands of academic life. This is so because academic work is always accomplished with stressful activities. Students reported their experience of high academic stress at predictable times in each semester which results from preparing and taking exams, class ranking competitions, and mastering a huge amount of syllabus in a comparatively very small amount of time (*Sharma, 2018*).

The stressors such as stress from fear of covid-19 infection, concerns about loved ones, stress from lack of knowledge about the disease and its nature, stress from academic assignments and workloads stress from online classes and tests, financial and daily life stressors that nursing students encountered raised the possibility of psychological suffering associated with beliefs about their capacity to handle personal and academic duties (*Swift et al., 2020*). Consequently, nursing students need to develop appropriate coping patterns to deal with these stressors.

Coping is defined as the thoughts and behaviors mobilized to manage internal and external stressful situations. Coping patterns can be classified into problem-focused coping, emotion-focused coping, and avoidant coping. The problem-focused coping addresses the problem causing distress such as active coping, planning, restraint coping, and suppression of competing activities. Emotion-focused, which aims to reduce the negative emotions associated with the problem and, this style includes positive reframing, acceptance, turning to religion, and humor (*Peltier et al., 2020*). Avoidance coping is another coping pattern that may be used by nursing students. Avoidance coping involves cognitive and behavioral efforts oriented toward denying, minimizing, or otherwise avoiding dealing directly with stressful demands and is closely linked to distress and depression. (*Peltier et al., 2020*).

During COVID-19 pandemic nursing students faced many different academic or life-

related stressors, therefore managing stress effectively and using healthy coping strategies is an important skill required for students who enroll in nursing, for optimum performance in their future life.

Significance of the study:

The COVID-19 pandemic is considered a major challenge and source of stress among health team members, especially nurses (*Mohamed Mayhob& Hashim, 2021*). According to the World Health Organization (*WHO, 2022*), there were close to 619,524,913 confirmed cases of COVID-19 worldwide, with roughly 6,537,993 reported deaths. In Egypt, it was estimated that there were close to 515,645 confirmed cases of COVID-19 worldwide, with about 24,613 reported deaths.

University nursing students are the most active and widely moving age group. Suddenly, with the COVID-19 pandemic, they were directly stressed and affected by banning their attendance at the universities and staying at home as well as the fear of getting infected. A survey included a short version of Depression Anxiety Stress (DASS-21) and socio-demographic data, and they clarified that overall, 53.6% of Egyptian students had depression, anxiety, and stress, during covid-19 (*Ghazawy et al., 2021*).

Students who become overwhelmed with stress may feel hopeless powerless and leading to a feeling of low self-confidence and self-esteem and that consequently may affect the quality of patient care because nursing students often work with vulnerable patients who need strong support to assist them to manage their health. Hence these students must be prepared and ready to assume their roles and use effective coping patterns to be confident and competent with any stress.

Aim of this study:

This study aims to assess the perceived stressors and coping patterns among nursing students during Covid -19 pandemic.

Research questions:

- 1- What are the perceived stressors among nursing students during Covid -19 pandemic?
- 2- What are coping patterns among nursing students during Covid -19 pandemic?

Subjects & Methods:

Research design:

An explanatory descriptive research design was utilized to fulfill the aim of the study and answer the research questions. It helps the researcher to describe and document aspects of a situation as it naturally occurs. As well, this design helps to establish a database for future research.

Research setting:

The study was conducted at faculty of nursing Beni-suef University. The faculty is consist of six lecture halls, five labs for practical training on procedures, college library and garden.

Sample:

The A convenient sample of 340 fourth year nursing students was utilized in this study. Subjects of the present study included 249 students who agreed to participate in this study.

Tools of data collection:

Data collection was conducted by using three instruments as follow:

1- Socio demographic interview questionnaire include the following:

Socio demographic data such as (Age, sex, place of residence, department, the financial income of students and their families, education of the parents).

2- Perceived stress scale (PSS):

This instrument was developed by (*Sheu et al., 1997*) and was adapted by investigator after reviewing some stress scales such as COVID-stress scale developed by (*Taylor& Steven, et al., 2020*) to meet the aim of the study. It was classified into 3-point Likert-type scale that consists of 47items grouped into 8 subscales, labelled as follows:

1. Stress related to COVID-19 danger and contamination (7 items).
2. COVID19 traumatic stress symptoms (6 items).
3. Stress related to compulsive checking of news related to COVID-19 (6 items).
4. Stress from lack of professional knowledge and skills during COVID-19(6 items).
5. Stress from assignments and workload during COVID-19 (5 items).
6. Stress from dealing with patients during COVID-19 (3 items).
7. Stress from clinical environment during COVID-19 (5 items).
8. Stress from Social limitations and daily life during COVID-19 (10 items).

Each item is rated on a three-point Likert scale (0=never, 1= sometimes, 2= often). Usually, both total scores and individual subscale scores are measured. Higher scores indicate higher level of stress.

❖ Scoring system for Perceived Stress Scale:

Subscales	No. of items	Min-max score	Low stress	High stress
Stress related to COVID-19 danger and contamination	7	0-14	0-8	9-14
COVID-19 traumatic stress symptoms	6	0-12	0-7	8-12
stress related to compulsive checking of news related to COVID-19	6	0-12	0-7	8-12
Stress from lack of professional knowledge and skills during COVID-19	5	0-10	0-6	7-10
Stress from assignments and workload during COVID19	5	0-10	0-6	7-10
Stress from dealing with patients during COVID19	3	0-6	0-3	4-6
Stress from clinical environment during COVID19	5	0-10	0-6	7-10
Stress from Social limitations and daily life during COVID19	10	0-20	0-12	13-20
Total PSS	47	0-94	0-56	57-94

3- Coping Scale for Stressful Situations (CSSS):

The Coping Scale for Stressful Situations by Endler &Parker (1990) was used to measure

coping patterns and adapted by the researcher to meet the aim of the study. This scale is composed of 32 items with three subscales:

problem focused, emotion focused and avoidant coping, labelled as follows:

- (1) Problem focused subscale is composed of 15 items.
- (2) Emotional focused subscale is composed of 7 items.
- (3) Avoidant subscale is composed of 10 items.

The coping scale is based on at three point (Never- some time –often) the score was designed to be (zero) for not never, (1) for some time and (2) for often.

❖ Scoring system for Coping Scale for Stressful Situations:

Subscales	No. of items	Min-max score	Low adaptive	High adaptive
Problem focused Subscale to deal with stress during COVID19	15	0-30	0-18	19-30
Avoidant Subscale to deal with stress during COVID19	10	0-20	0-12	13-20
Emotion focused Subscale to deal with academic stress during COVID19	7	0-14	0-8	9-14
Total CSSS	32	0-64	0-38	39-64

Tool's validity:

The validity of the tools was tested via three experts from Faculty of Nursing - Ain shams and Benisuef Universites (3experts in psychiatric and mental health nursing), there were some modification carried out in the content and the tool was tested for accountability and applicability to meet the aim of the study.

The following modifications were carried out:

- 1- The investigator deleted the religion question at the part of sociodemographic characteristics of the nursing students , as it will not affect the results of the study and it was unethical question.
- 2- The investigator added the following questions to interviewing questionnaire sheet to achieve the aim of the study:
 - Presence of any chronic or immune disease that can be affected by stress?
 - Have you been tested positive for covid-19?
 - Has someone close to you been infected with COVID19?
 - Has a person close to you died in the course of a COVID-19 disease?

II- Operational design:

A.Preparatory phase:

It included reviewing of past, current, national and international related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to develop tools for data collection.

B. Pilot study:

A pilot study was under taken after the adaptation of the tools and before starting the data collection. It was conducted on 10% of the total study sample in order to evaluate study process to test the clarity of language, ensure the clarity of questions, applicability of the tools and the needed for filling the different tools.

C. Fieldwork:

The actual field work was carried out over 3months started from March 2022 to the end of June 2022. The interview took place at faculty of nursing – Benisuef university including various places within the college such as, inside the college library, sometimes in the lecture hall and other times in the college garden.

For data collection, each student was interviewed and assessed individually using the study tools. The researcher was available at the study setting (faculty of nursing – Benisuef University) two days weekly from 9am to 2 pm and started by introducing herself to the students then informing them about the aim of the study. Then the students were handled three questionnaires (Interview questionnaire sheet that included the Socio demographic data) took 5 minutes while perceived stress scale took 20 minutes and coping scale took 15 minutes to be filled.

Ethical considerations:

An official permission to conduct the proposed study was obtained from the Scientific

Research Ethics Committee Faculty of Nursing Ain shams University. Participation in the study was voluntary and subjects were given complete full information about the study and their role before signing the informed consent and that they had the right to refuse to participate. The ethical considerations included explaining the purpose and nature of the study, stating the possibility to withdraw at any time, confidentiality of the information where it was not accessed by any other party without taking permission of the participants. Ethics, values, culture and beliefs was respected.

III- Administrative design:

An official permission was obtained from the Dean of Faculty of Nursing, Ain shams University to the Dean of Faculty of Nursing, Benisuef University to conduct this study, the permission letter included the necessary data, the purpose and nature of the study.

IV-Statistical design:

Data were coded, scored, tabulated, and analyzed by computer using the “statistical package for the social science” (SPSS windows) version11.5. Numerical data were expressed as Mean±SD. Qualitative data were expressed as frequency and percentage. Relations between different numerical variables were tested using Pearson correlation.

Degrees of significance of results were considered as follow:

- P-value > 0.05 Not significant (NS)
- P-value ≤ 0.05 Significant (S)
- P-value ≤ 0.01 Highly Significant (HS)

Results:

Table (1): this table shows that less than two-thirds of nursing students (60.2%) were females. It also reveals that less than half of them (43.8 %) were from the urban areas while more than half of them (56.2 %) were from rural ones. In addition to this, more than two-thirds of students (69.1%) had not enough

income. notices that less than half of nursing students’ fathers and mothers had secondary education. This table also shows that more than three-quarters of them (93.6%) did not have any chronic or immune diseases that could be affected by stress. It also revealed more than the half of students (50.2%) has not close people that had tested positive for covid-19 during covid-19 pandemic.

Figure (1): this figure also reveals that more than two thirds of students had suffered from stress during covid-19 pandemic with a total percentage 70.3%.

Figure (2): reveals that more than two thirds of nursing students (65.5%) could not adapt well with stressors during covid-19 pandemic.

Table (2): clarifies that there was statistically significant relation between nursing students gender and their stress levels where ($X^2 = 5.393$ & p-value = 0.020) as $p \leq 0.05$. it also shows that there were highly statistically significant relation between students’ stress levels and the financial income of their parents where ($X^2 = 20.569$ & p-value = 0.000) as $p \leq 0.01$. Also there was highly statistically significant relation between students’ stress levels and the possibility of someone close to being infected with COVID19.

Table (3): clarifies that there was a highly statistically significant relation between nursing student’s coping patterns and their department of study (psychiatry or community) where ($X^2 = 18.454$ & p-value = 0.000) as $p \leq 0.01$.

Table (4): reveals that there was a negative moderate correlation between perceived stress scale and coping scale for stressful situations among nursing students where ($R = -0.421$) and highly statistically significant relation between them where (p-value = 0.000) as $p \leq 0.01$.

Table (1): Sociodemographic Characteristics among studied subjects. (n=249).

Item	No.	Percentage
Gender		
Male	99	39.8
Female	150	60.2
Place of residence		
Urban	109	43.8
Rural	140	56.2
Department		
Psychiatry	130	52.2
Community	119	47.8
Financial income of students		
enough	77	30.9
not enough	172	69.1
Education of the father		
Illiterate	41	16.5
Primary	48	19.3
Secondary	100	40.2
University	48	19.3
Postgraduate studies	12	4.8
Education of the mother		
Illiterate	66	26.5
Primary	64	25.7
Secondary	77	30.9
University	40	16.1
Postgraduate studies	2	0.8
Presence of any chronic or immune disease		
Diabetes	6	2.4
Hypertension	5	2.0
Allergic or inflammatory disease	3	1.2
chronic heart or renal disease	2	0.8
None	233	93.6
Have you been tested positive for COVID19?		
Yes	72	28.9
No	177	71.1
Has someone close to you been infected with COVID19?		
Yes	124	49.8
No	125	50.2
Has a person close to you died in the course of a COVID19?		
Yes	72	28.9
No	177	71.1

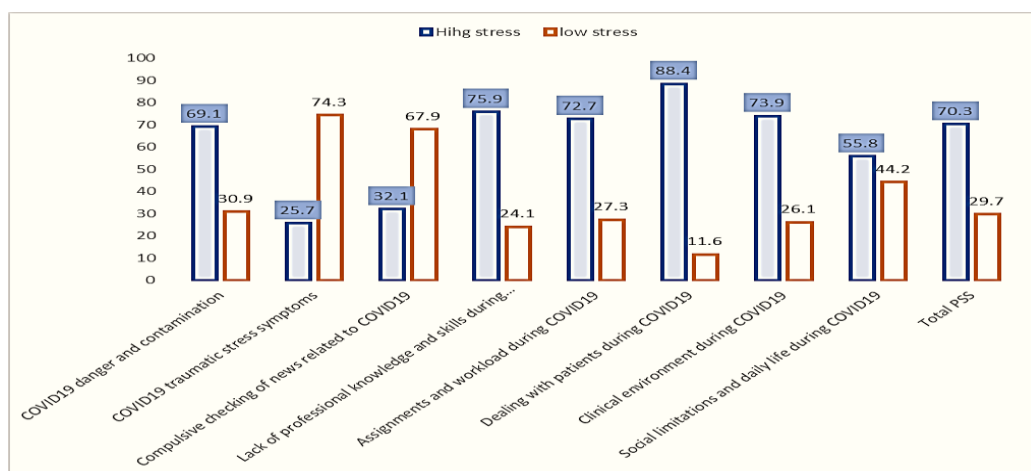


Figure (1) Total score of Perceived Stress among Studied Subjects (n=249):

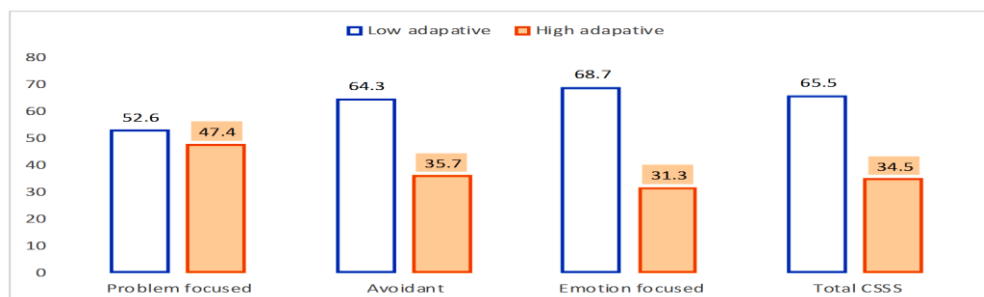


Figure (2): Total score of Coping Scale for Stressful Situations among Studied Subjects (n=249).

Table (2): Relation between sociodemographic characteristics and perceived stress Scale among Studied Subjects.

Items	No. (%)	Perceived Stress Scale				X ² Sig.
		Low stress		High stress		
		No.	%	No.	%	
Gender						
Male	99 (39.8)	70	40.0	29	39.2	5.393
Female	150 (60.2)	105	60.0	45	60.8	0.020*
Place of residence						
Urban	109 (43.8)	71	40.6	38	51.4	2.456
Rural	140 (56.2)	104	59.4	36	48.6	0.117
Department						
Psychiatry	130 (52.2)	83	47.4	47	63.5	0.014
Community	119 (47.8)	29	16.6	27	36.5	0.905
Financial income of parents						
Not enough	172 (69.1)	136	77.7	38	51.4	20.569
Enough	77 (30.9)	39	22.3	36	48.6	0.000**
Education of the father						
Illiterate	41 (16.5)	32	18.3	9	12.2	7.635 ^{FE}
Primary	48 (19.3)	34	19.4	14	18.9	0.107
Secondary education	100 (40.2)	61	34.9	39	52.7	
University	48 (19.3)	38	21.7	10	13.5	
Postgraduate studies	12 (4.8)	10	5.7	2	2.7	
Education of the mother						
Illiterate	66 (26.5)	42	24.0	24	32.4	8.194 ^{FE}
Primary	64 (25.7)	51	29.1	13	17.6	0.074
Secondary education	77 (30.9)	53	30.3	24	32.4	
University	40 (16.1)	29	16.6	11	14.9	
Postgraduate studies	2 (0.8)	0	0.0	2	2.7	
Presence of any chronic or immune disease						
Diabetes	6 (2.4)	5	2.9	1	1.4	1.247 ^{FE}
Hypertension	5 (2.0)	4	2.3	1	1.4	0.972
Allergic or inflammatory disease	3 (1.2)	2	1.1	1	1.4	
chronic heart or renal disease	2 (0.8)	2	1.1	0	0.0	
None	233 (93.6)	162	92.6	71	95.9	
Have you been tested positive for COVID19?						
Yes	72 (28.9)	53	30.3	19	25.7	0.538
No	177 (71.1)	122	69.7	55	74.3	0.463
Has someone close to you been infected with COVID19?						
Yes	125 (50.2)	103	58.9	22	29.7	17.650
No	124 (49.8)	72	41.1	52	70.3	0.000**
Has a person close to you died in the course of a COVID19?						
Yes	72 (28.9)	60	34.3	12	16.2	8.876
No	177 (71.1)	115	65.7	62	83.8	0.004**

X² Chi Square test

^{FE} Expected cell count less than 5, Fisher's Exact test was used.

* Statistically significant at p≤0.05 ** Highly statistically significant at p≤0.01

Table (3): Relation between Sociodemographic Characteristics and Coping Scale for Stressful Situations among Studied Subjects.

Items	No. (%)	Coping Scale for Stressful Situations				X ² (Sig.)
		Low adaptive		High adaptive		
		No.	%	No.	%	
Gender						
Male	99 (39.8)	64	39.3	35	40.7	0.048
Female	150 (60.2)	99	60.7	51	59.3	0.826
Place of residence						
Urban	109 (43.8)	65	39.9	44	51.2	2.913
Rural	140 (56.2)	98	60.1	42	48.8	0.088
Department						
Psychiatry	130 (52.2)	69	42.3	61	70.9	18.454
Community	119 (47.8)	94	57.7	25	29.1	0.000**
Financial income of student						
enough	172 (69.1)	117	71.8	55	64.0	1.614
not enough	77 (30.9)	46	28.2	31	36.0	0.204
Education of the father						
Illiterate	41 (16.5)	25	15.3	16	18.6	17.472^{FE}
Primary	48 (19.3)	26	16.0	22	25.6	0.002**
Secondary education	100 (40.2)	60	36.8	40	46.5	
University	48 (19.3)	42	25.8	6	7.0	
Postgraduate	12 (4.8)	10	6.1	2	2.3	
Education of the mother						
Illiterate	66 (26.5)	41	25.2	35	40.7	14.041^{FE}
Primary	64 (25.7)	32	19.6	32	37.2	0.006**
Diploma	77 (30.9)	55	33.7	22	25.6	
University	40 (16.1)	33	20.2	7	8.1	
Postgraduate studies	2 (0.8)	2	1.2	0	0.0	
Presence of any chronic or immune disease						
Diabetes	6 (2.4)	4	2.5	2	2.3	2.108 ^{FE}
Hypertension	5 (2.0)	3	1.8	2	2.3	0.775
Allergic or inflammatory disease	3 (1.2)	3	1.8	0	0.0	
chronic heart or renal disease	2 (0.8)	2	1.2	0	0.0	
None	233 (93.6)	151	92.6	82	95.3	
Have you been tested positive for COVID19?						
Yes	72 (28.9)	46	28.2	26	30.2	0.111
No	177 (71.1)	117	71.8	60	69.8	0.739
Has someone close to you been infected with COVID19?						
Yes	125 (50.2)	89	54.6	36	41.9	3.655
No	124 (49.8)	74	45.4	50	58.1	0.056
Has a person close to you died in the course of a COVID19?						
Yes	72 (28.9)	53	32.5	19	22.1	2.975
No	177 (71.1)	110	67.5	67	77.9	0.085

X² Chi Square test

^{FE} Expected cell count less than 5, Fisher's Exact test was used.

** Highly statistically significant at p≤0.01

Table (4): Correlation between Perceived Stress Scale and Coping Scale for Stressful Situations among Studied Subjects.

Perceived Stress Scale	Coping Scale for Stressful Situations	
	R	P
Total	-0.421	0.000**

r Pearson correlation test * Statistically significant at $p \leq 0.05$

** Highly statistically significant at $p \leq 0.01$

Discussion:

As of the second half of January 2021, over 98 million COVID-19 infections were recorded globally claiming the lives of over 2.1 million people (*Medicine, 2020*). Governments all around the world implemented early comprehensive control measures to slow the spread and impact of the COVID-19 illness after it quickly increased in number and the World Health Organization declared it to be a pandemic (*WHO, 2020*). Stress from COVID-19 infection, lack of preventive measures in clinical training and a transition to online learning are the specific stressors connected to the impact of COVID-19 among nursing students. (*Fitzgerald & Konrad, 2021*). This study was carried out to assess perceived stressors and coping patterns among nursing students during covid-19 pandemic.

As regards nursing students' characteristics, the present study revealed that less than two-thirds of the nursing students were females. This may be due to that females usually prefer professions that include offering interest and caring unlike males who would prefer more hard professions also nursing is much less flash and adrenaline and much more the constant pouring out of oneself to meet physical, spiritual, and emotional needs, Therefore it's less appealing to men if not in the ER or trauma units. This result agreed with *Garbóczy et al., (2021)* who conducted study about health anxiety, perceived stress, and coping styles in the shadow of the COVID-19 and stated that more than three quarters of participants were females. Also the current study results agreed with *Savitsky et al., (2020)* who conducted a study about anxiety and coping strategies among nursing students during the COVID-19 pandemic. Savitsky and his colleagues revealed in their results that most of nursing students were females.

Concerning the place of residence, the current study revealed that more than half of nursing students were from rural areas. This may

be due to that the concept and stigma of rural cultures about nursing profession and nurses in Egypt had been changed to a more positive point of view and more awareness about nursing profession. This result agreed with *Abdullelah Alsolais et al., (2021)* who conducted study about risk perceptions, fear, depression, anxiety, stress and coping among Saudi nursing students during the COVID-19 pandemic and showed in their result that more than two thirds of nursing students were from rural areas. This result also was in consistent with *Masha'al et al., (2022)* who conducted a study about anxiety and coping strategies among nursing students returning to university during the COVID-19 pandemic and revealed in their result that more than half of the students were from villages or rural areas.

On the other hand, the present result was inconsistent with the study of *Islam et al., (2020)* who conducted a study about Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh and revealed in their result that more than two third of students were from urban areas.

Related to the financial income of nursing students and their families the current study showed that more than two-thirds of students had not enough income. This may be due to the fact that the financial burdens and associated additional costs such as study costs and the continuing increase in the prices of books. During covid -19 pandemic, these financial costs and burdens have increased more and more as The COVID-19 pandemic and resulting economic fallout caused significant hardship. In the early months of the crisis, tens of millions of people lost their jobs. While employment began to rebound within a few months, unemployment remained high throughout 2020. The current study result is in consistent with *Aslan et al., (2020)* who conducted a study about exploring perceived stress among students in Turkey during the COVID-19 pandemic and showed in their result that most students did not have enough income.

This result was also supported by *Li et al., (2021)* who conducted a study about the psychological effect of COVID-19 on home-quarantined nursing students in China and revealed in their result that more than half of students had financial burdens related to covid-19 pandemic. On the contrary, the current result disagreed with *Sallam et al., (2020)* who conducted a study about conspiracy beliefs are associated with lower knowledge and higher anxiety levels regarding COVID-19 among students at the University of Jordan. Sallam and his colleagues showed in their results that more than two-thirds of students had enough financial income.

Regarding the educational level of nursing students' parents, the current study showed that less than half of nursing students' fathers and mothers had secondary education while less than one-third of them had a university education. This may be due to that the majority of students were from rural areas where most parents usually have secondary education and did not go into the university. The present study incongruent with *Hussien, et al., (2021)* who conducted a study about Emotional intelligence and uncertainty among undergraduate nursing students during the COVID-19 pandemic outbreak and revealed in their results more than half of the student's parents were ended their education at school stage did not go to the university.

In connection with the possibility of having any chronic or immune disease that could be affected by stress, the present study revealed that more than three - quarters of them did not have any chronic or immune diseases. This study result may be explained that compared to their healthy peers, students with chronic illness are more likely to struggle with chronic illness and have greater loneliness and isolation. Such challenges may contribute to the fact that, despite similar high school graduation rates, few youth with chronic illness ultimately graduate from college. The usual stresses of starting college combined with the stresses of managing a chronic illness may be difficult to overcome. The current study results agreed with *Temiz et al., (2020)* who conducted a study about Nursing students' anxiety levels and coping strategies during the COVID-19 pandemic and showed in the results that most of students did not have any chronic diseases.

Concerning the possibility of having a relative or someone close been infected with COVID-19, the current study revealed that more than half of students had close people who had tested positive for covid-19 during covid-19 pandemic. This result may be explained that the awareness of general population about Covid -19 natures, signs and symptoms, ways of transmitting and protective measures increased leading to lower numbers of infected people. This result was in consistent with *Cao et al., (2020)* who conducted a study about The psychological impact of the COVID-19 epidemic on college students in China and clarified in their result that majority of student did not have having a relative or an acquaintance infected with COVID-19 .

The present result also agreed with *Aslan et al., (2020)* who conducted a study about exploring perceived stress among students in Turkey during the COVID-19 pandemic and showed in their result that more than half of students experienced COVID-19 infection among close relatives.

According to total score of perceived stress scale, the results of the present study revealed that, more than two thirds of nursing students suffered from stress during COVID-19 pandemic. This result may be due to the fact that nursing students have many stressors in their academic and personal life and COVID-19 pandemic introduced significant new sources of stress for students. As explained that , the specific stressors related to the impact of COVID-19 among nursing students are stress from COVID-19 infection and a lack of preventive measures in clinical training. This period has been undoubtedly stressful for learners; with classes moving online, nursing students were faced many difficulties, such as being unable to concentrate and having difficulties participating, writing assignments, taking exams, and meeting the deadlines of academic assignments.

This finding was in accordance with the finding of (*Luberto et al., 2020*) who conducted a study about stress and coping among health professions students during COVID-19: a perspective on the benefits of mindfulness and reported in their study that more than half of students had stressors related to COVID-19. Moreover, the present finding was supported by (*El Kefi et al., 2022*) who carried out a study about

Evaluation of stress and coping skills of nursing students during a COVID-19 pandemic and revealed in their study result that according to the cungi stress rating scale, more than half of nursing students suffered from stress during COVID-19 pandemic.

Concerning to the present study result of total score of coping scale for stressful situations among studied subjects, the current result showed that more than two thirds of nursing students could not adapt well with stressors during COVID-19 pandemic. This result may be explained that COVID-19 pandemic added many stressors to nursing students life and affected their psychological and mental health resulting in many psychological problems like chronic stress, anxiety and depression which in turn affected their ability to cope well with stress.

This study result was supported by (*Sheroun et al., 2020*) who carried out a study to assess the perceived stress and coping strategies among nursing students during COVID-19 pandemic lockdown and revealed in their findings that only less than one third on nursing students had high coping. Additionally, the present study came in line with (*Xu et al., 2021*) who conducted a study about factors influencing the coping abilities in clinic nursing students under public health emergency (COVID-19): a cross-sectional study and showed in their study that more than half of students had low coping abilities to deal with stress during COVID-19.

Regarding to relation between sociodemographic characteristics and perceived stress scale among studied subjects. The current result revealed that there was a highly statistically significant difference between student's stress levels and the financial income of students and their families. This result was found in agreement with *Wan Mohd Yunus et al., (2021)* who conducted a study about the unprecedented movement control order (lockdown) and factors associated with the negative emotional symptoms, happiness, and work-life balance of Malaysian university students during the coronavirus disease (COVID-19) pandemic and stated in their results that stress was significantly associated with year of study, academic failure, financial difficulty, a lack of sleep/exercise/entertainment/and hobbies

The present result also showed that there was statistically significant difference between gender and stress levels indicating more stress among female nursing students. This present result came in line with *Savitsky et al., (2020)* who conducted a study about anxiety and coping strategies among nursing students during the covid-19 pandemic and stated in their results that there were significant differences in PSS score in terms of sex and it was observed that the stress level perceived by female students was higher than that of male student.

On the contrary, this result disagreed with *Hussien et al., (2021)* who conducted a study about emotional intelligence and uncertainty among undergraduate nursing students during the COVID-19 pandemic outbreak: a comparative study and stated in their results that no significant relationships were identified between stress scores and socio-demographic characteristics, including age and gender, which may be due to both male and female participants having the same perception towards stress, as they are exposed to the same workloads and study in very similar university environments.

According to relation between socio-demographic characteristics and coping patterns among studied subjects. The present result clarified that there was a highly statistically significant difference between nursing student's coping patterns and their department of study (psychiatry or community). The current result was found to be in consistent with *Temiz, (2020)* who conducted a study about nursing students' anxiety levels and coping strategies during the COVID-19 pandemic. Temiz stated in her result that there was no statistically significant difference between nursing student's coping patterns and their department or specialty of study.

As related to correlation between perceived stress scale and coping scale for stressful situations among studied subjects. The current result revealed that there was a negative moderate correlation between perceived stress scale and coping scale for stressful situations among nursing students and highly statistically significant difference between them. This result agreed with *Eweida et al., (2020)* who conducted a study about mental strain and changes in psychological health among intern-nursing students at pediatric and

medical-surgical units amid ambience of COVID-19 pandemic: a comprehensive survey. Eweida and his colleagues stated in their result that a significant negative correlation was found between students' stress feelings during COVID-19 pandemic and their coping strategies.

Conclusion:

More than two-thirds of nursing students had suffered from stress and could not adapt well to stressors during COVID-19. There was a negative moderate correlation between perceived stress scale and coping scale for stressful situations among nursing students.

Recommendations:

Based on the finding of the current study, these points are recommended:

I- For nursing students:

- Regular workshops for students on stress management and adaptive coping skills.

II- For nursing education:

- Incorporate Stress management and self-care strategies into the nursing curriculum and academic counseling programs at college.

III- For nursing research:

- Replication of the study on a large sample in other different setting is highly recommended.

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