

Online Training Program: Its Effect on Fear and Coping Strategies among Nurse Interns' during COVID 19 Pandemic

Heba Ali Hassan¹, Amira Ahmed Nawal², Fatma Ata Abd El-Salihen³

¹Assistant Professor of Nursing Administration, Faculty of Nursing, Ain Shams University, Egypt.

²Lecturer of Psychiatric/Mental Health Nursing, Faculty of Nursing, Ain Shams University, Egypt.

³Assistant Professor of Psychiatric/Mental Health Nursing, Faculty of Nursing, Ain Shams University, Egypt.

Abstract

Background: COVID-19 pandemic is attacking the world as in a war that produced a larger number of deaths and patients. Health care providers including nurse interns are considered soldiers in that war, so they shouldn't be afraid when facing any pandemic. **Aim:** This study aimed to evaluate the effect of online training program on fear and coping strategies among Nurse interns' during COVID-19 pandemic. **Design :** A quasi-experimental one-group pretest-posttest research study design was conducted in this study. **Setting :** Ain Shams University Hospitals . **Subjects:** A convenience sample 170 of nurse interns' who trained at Ain shams University hospitals. **Tools:** three tools were used for data collection namely: nurse interns' knowledge, practice, and attitude regard COVID-19, multidimensional fear of COVID-19 scale and Coping strategies scale. **Results:** This study revealed that nurse interns' knowledge, practice, and attitude regard COVID-19 at the post- and follow- up intervention was improved. Also, the nurse interns' COVID-19 fear at the post- and follow- up intervention was reduced. Hence, their coping strategies at the post- and follow- up intervention was improved. **Conclusion:** there was positive strong statistically significant correlation between knowledge, practice, attitude, total fear of COVID 19 and coping strategies scores after training program, and the effectiveness of COVID 19 training program had been achieved in reducing nurse interns' COVID-19 fear and improve knowledge, practice, attitude, and coping strategies. **Recommendations:** Continuous and recurrent training programs be conducted during internship training to reduce COVID-19 fear and how to cope effectively.

Keywords: COVID-19, fear, coping strategies, nurse interns', online training program

Introduction

The evolution of the novel Corona Virus Disease (COVID-19) and its spreading have led the World Health Organization (WHO) to declare it a pandemic on 11 March 2020 (WHO, 2020). As a consequence, many countries, including Egypt, have set a state of lockdown to prevent the spread of infection among people resulting in a global atmosphere of stress and anxiety associated with social isolation, fears of getting infected, financial problems, stopping travel plans, and future uncertainty (Hiremath, et al., 2020; Hou, et al. 2020; Zhang, et al. 2020).

The coronavirus disease 2019 (COVID-19) outbreak has caused a significant burden globally. Several countries that first faced the COVID-19 shed light on the effects of the pandemic on the health care system and

health care providers (Alfieri et al., 2020; Armocida et al., 2020; Oliva et al., 2020).

Fear is a human emotion with an adaptive function. it can become maladaptive depending on the situation, intensity, and frequency (Valero et al., 2020). When one experiences the fear of the unknown, there is, somehow, a sense that the perceived information is not sufficient for coping with the situation, at any point of processing or level of awareness (Carleton, 2016).

Fear is a negative emotional reaction to or persistent worry over an imminent public health event like COVID-related death and illness (Van Bavel et al. 2020). Furthermore, the extended parallel process model has defined fear as negative arousal emotion that can be produced by an overestimation of probability of dangerous situations (Witte

and Allen 2020). The fear of COVID-19, a social distancing, and increased media attention, along with a lack of information and knowledge about the pandemic, has created and exacerbated feelings of insecurity, and maladaptive coping (Vindegaard & Benros, 2020).

Coping may be defined as a process implying the use of a series of skills to face stressful situations (Labrague et al., 2018). Coping refers to the strategies and actions people use to deal with difficult situations. Problem focused coping and emotion-focused coping are the two types of coping strategies. Problem-focused coping seeks to resolve the issue or better the situation, whereas emotion-focused coping seeks to reduce the emotional distress caused by stressful situations (Huang et al., 2020).

The outbreak of COVID-19 and its pandemic nature has produced prevalent fear, concern, and anxiety (Ahorsu et al., 2020). Fear and terror about COVID-19 can produce experiences of stigmatization and social rejection of definite patients, survivors, their families, and others associated with the disease leading to an increased risk of developing psychological health difficulties such as adjustment disorder and depression (Zhang & Ma, 2020).

It's vital to investigate at nursing interns' and senior nursing knowledge of how to respond to and treat COVID-19-infected patients in the event of a pandemic. During a pandemic, nursing intern students are also exposed to additional stressful components, such as the fear of contracting the disease, high levels of worry, stress, and despair (Wang et al., 2020). Furthermore, fear of contagion, workplace stress, social isolation, and prejudice may disproportionately affect health care professionals (HCPs) (Zhang & Ma, 2020).

Nursing students and interns who are the future nurses faces many challenges regarding training during COVID-19 pandemic where it may be the first experience with such critical situation where the outbreak is global not only within the Egyptian community but among all the health care

workers worldwide (Devrim & Bayram 2020) and Olaimat, et al., 2020).

Significance of the study:

The more the nurse interns became more knowledgeable and skillful, the more they integrate positive attitude and psychological readiness during COVID-19 pandemic inside the hospitals or outside in the community & allow opportunity for them to learn critical thinking, clinical judgment and decision-making side by side with the manual skills especially in the new experience of caring of COVID-19 pandemic.

Thus. The aim of this study was to evaluate the effect of online training program on fear and coping strategies among nurse interns' during COVID 19 pandemic.

Aim of the Study

This study aims to evaluate the effect of online training program on fear and coping strategies among nurse interns' during COVID 19 pandemic through the following:

- 1- Assessment of knowledge, practices, and attitude of nurse intern toward COVID 19 pre-post and follow up.
- 2- Assessment of fear toward COVID 19 and coping strategies among nurse intern pre-post and follow up.
- 3- Evaluating the effect of online training program on fear and coping strategies among nurse interns' during COVID 19 pandemic.

Research hypothesis:

This study hypothesized that:

- 1- There will be improvement of nurse interns ' knowledge, practice and attitude toward COVID-19 post and follow up intervention.
- 2- The level of nurses' interns' COVID-19 fear will be lower post and follow up intervention than pre intervention.
- 3- There will be improvement of coping strategies reported by nurse interns post

and follow up intervention than pre intervention.

Subjects & Methods

Research design:

Quasi-Experimental pre-test and post-test design were conducted using one group.

Setting:

The study was conducted at Ain-Shams University Hospitals, since nurse interns had already completed their clinical rotation by the time this research protocol was approved, namely, Ain-Shams University Hospital, El-Demerdash Hospital, Pediatrics Hospital, and Cardiovascular Hospital, which include different clinical units.

Subjects:

A convenient sample 170 of nurse interns included who available with their training in the settings mentioned earlier during the data collection period (the academic year 2020-2021).

Tools for data collection:

The data of the current research was gathered through using three tools: Knowledge, attitudes, and practices questionnaire, multidimensional fear of COVID-19 scale and Coping strategies scale.

First tool: nurse interns' Knowledge, attitudes, and practices questionnaire regards COVID-19

This questionnaire was developed by Zhanget al., (2020). It aims to assess the knowledge, attitudes, and practices of nurses' interns toward the COVID-19 pandemic. It was adopted by the researchers with some modifications. It includes two parts:

The first part: demographic characteristics of the nurse interns':

It was concerned with data about, such as age, gender, residence, marital status, Source of knowledge, and attending previous

training for both COVID 19 pandemic and coping strategies of fear.

The second part:

This part was consisting of 19 items classified into 3 dimensions (1- knowledge of staff nursing regarding COVID-19 pandemic includes 11 items, 2- attitudes of staff nursing regarding COVID-19 pandemic includes 4 items and 3- nurses practice regarding COVID-19 pandemic which includes 4 items).

Scoring system:

The scoring system was measured with a 5-point Likert scale ranging from (1 = *not understanding* to 5 = *master*). The attitudes of nurses were assessed regarding level of fear, level of fatigue, confidence to defeat the virus, and if patients should disclose their exposure to COVID-19, the attitude items ranged from (1 = *always* to 5 = *rarely*). Practices were assessed regarding frequency of hand washing, carefully removal of personal protective equipment (PPE) according the protocol, participation in training about infection control during outbreak, and maintaining quarantine with family, practices items ranged from (1 = *always* to 5 = *rarely*) .

The inadequate level of knowledge and practice and negative attitude was obtained at (<70%), while the adequate level of knowledge and practice and positive attitude was obtained at (≥ 70%).

The second tool: multidimensional fear of COVID-19 scale:

This scale adopted from (Daniel,2020), it includes three dimensions of fear of COVID-19 consists of (24 items) as follow: fear of being infected (5 items), psychological response (11 items), and covid-19 threat (8 items). It used to assess fear of COVID-19 among nurse interns indicate their level of agreement with the statements using a five-item Likert type scale. Answers included "strongly disagree," "disagree," "neither agree nor disagree," "agree," and "strongly agree". The minimum score possible for each question is 1, and the maximum is 5. A total mean score is calculated by adding up each

item score (ranging from 7 to 35). The higher score indicates the greater the fear of C.

The third tool: Coping strategies scale:

This scale adopted from (Savitsky,2020), it used to assess the response of nurse interns about their coping strategies regarding fear of COVID-19. It includes the three overarching coping styles are outlined below:

Problem-Focused Coping (Items 2, 7, 10, 12, 14, 17, 23, 25) Characterized by the facets of active coping, use of informational support, planning, and positive reframing. A high score indicates coping strategies that are aimed at changing the stressful situation. High scores are indicative of psychological strength, grit, a practical approach to problem solving and is predictive of positive outcomes.

Emotion-Focused Coping (Items 5, 9, 13, 15, 18, 20, 21, 22, 24, 26, 27, 28) Characterized by the facets of venting, use of emotional support, humor, acceptance, self-blame, and religion. A high score indicates coping strategies that are aiming to regulate emotions associated with the stressful situation. High or low scores are not uniformly associated with psychological health or ill health but can be used to inform a wider formulation of the respondent's coping styles.

Avoidant Coping (Items 1, 3, 4, 6, 8, 11, 16, 19) Characterized by the facets of self-distraction, denial, substance use, and behavioral disengagement. A high score indicates physical or cognitive efforts to disengage from the stressor. Low scores are typically indicative of adaptive coping.

Validity and reliability:

These questionnaire of nurse interns' knowledge, practice, and attitude regarding COVID-19 were reviewed by a panel of 5 experts (3 professors in medical surgical nursing department, Ain Shams University and 2 professors in psychiatric mental health nursing, Ain Shams University) in order to evaluate its face and content validity. The experts reviewed the tools for its content, clarity, simplicity, relevance,

comprehensiveness, appropriateness, and applicability. Minor modifications were done and then the final form of the tool was developed.

Reliability: It was done by distributing the tool of data collection primary format to 40 staff nurses and after two weeks the researcher redistributes the questionnaire form to the same nursing staff. Cronbach's alpha test was used to test the tool reliability; also, the total Cronbach's alpha reliability was 0.79, which demonstrates good reliability.

Pilot study:

It was conducted before performing the main study in October 2020. The questionnaires were tested on a sample of nurses' interns that represent 10% of the total subjects. They were randomly selected to determine the applicability of the tool, the feasibility of the test, the clarity of the language, estimate the time required to fill out the questionnaires, and identify potential barriers and problems that may be encountered in the data collection process. Data obtained from the pilot study were analyzed, and no modifications were done for the used tools then the final form was developed. Completion of the tool took about 35-40 minutes. Nurse interns of the pilot study were included in the study's subjects.

Data Collection procedure:

This study was conducted from the beginning of October 2020 to the end of April 2021.

Nurse interns were informed to complete the research questionnaire via the application website on Google which send to all nurse interns through What's Up Application. The researchers told the nurse interns' that all information gathered will be used only for the aim of the research. Voluntary participation in the study was assured to all participants as well. COVID 19 training program passed into four phases; Assessment phase, planning phase, implementation phase, and evaluation and follow up phase.

Assessment phase:

This phase aimed to assess nurse interns' knowledge, practice, and attitude towards COVID-19. Also, to assess nurse interns' fear and coping strategies towards COVID-19 before training program (pre-test intervention) through need assessment technique (questionnaires) have been used in this study: Self-administered questionnaires to assess knowledge, practices, attitude towards COVID-19, fear of COVID-19 and its coping strategies.

Planning phase:

The aim of online training program for nurse interns was to reduce their fear of COVID-19 and improving coping strategies. Based on the results of the knowledge, practice, and attitude questionnaires among nurse interns' and their level of fear and coping strategies toward COVID-19. Study questionnaires were administered at three different times; the first time was administrated before the intervention, the second time was done immediately after the intervention to evaluate the effectiveness of the training program, and the third time was done administrated three months after the training (follow up). The contents of the online training program included the theoretical information and practical procedures related to COVID 19, background of COVID 19 fear and coping strategies.

Implementation phase:

The training program was applied via electronic learning like Microsoft teams and, YouTube channel. The total number of nurse interns were 170. So, it was divided into five groups to be effective, and each group included 34 intern students. The training program conducted 12 sessions including (5 theory sessions and 7 practical sessions & the total duration of sessions 24 hours divided to (10 hours theory) and (14 hours practices). Teaching methods used in the intervention were lecture, group discussion, brainstorming, and scenario- based situations are very important with effective practices. Teaching aids were videos, PowerPoint, and soft

handouts. The training program contents as the following:

Theoretical sessions:

At the first session, welcoming the nurses' interns then provide a soft hand out and show the intervention objectives and fill pretest (electronic study questionnaires). The second session: give theoretical information related to the overview and COVID-19 WHO guidelines and carry out group discussion with intern students. The third session: give theoretical information related to the COVID 19 pandemic isolation and complications of cases in Egypt and all over the world with videos. The fourth session: give theoretical and practical information related to COVID 19 waste management and infection control show scenario- based situations and carry out brainstorming to solve problems associated with COVID 19 pandemic. The fifth session, give theoretical information related to COVID 19 fear and role of nurse interns' regarding coping strategies.

Practical sessions:

It include practical procedures about the of COVID 19 pandemic regarding (hand washing, intravenous therapy, intravenous cannulation endotracheal tube care, endotracheal suction, ventilator care, and doffing. The training also covers nurse interns' fears of dealing with patients infected with Corona virus and emotional reactions toward this critical period of their live and how to cope effectively with it. At the end of each session fill posttest (electronic study questionnaires).

Evaluation and follow up phase:

After implementation of the training program sessions, using the same data collection tools were filled in again immediately and at the end of the three months post-intervention (follow up).

Evaluation of the effect of the training program was done by comparing the results of nurse interns' knowledge, practice, and attitude as well as fear of COVID -19 and coping strategies pre, post and follow up.

Ethical consideration:

The research approval was obtained from the faculty of nursing research ethics committee before initiating the study. The researcher clarified the purpose and aim of the study to nurse interns included in the study. Oral consent was obtained from nurses to ensure willingness to engage in the study. The researcher-maintained anonymity and confidentiality of subjects' data. nurse interns were informed that they are allowed to withdraw from the study at any time without penalty.

Statistical analysis:

Data entry and statistical analysis were done using SPSS 21. statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages and mean percentage scores for quantitative variables. Cronbach alpha coefficient calculated to assess the reliability of the tools through its internal consistency. Quantitative continuous data compared using the non-parametric t-test, The Mann-Whitney U test and the Kruskal-Wallis test were used for comparisons .ANOVA. Spearman rank correlation was used for assessment of the inter-relationships among quantitative variables and ranked ones. The results were assessed at a 95% confidence interval, and the threshold for statistical significance was $p < 0.05$.

Results:

Table 1 shows that, more than half of nurse interns had less than twenty-four years, 63% of them were female. Nearly their birth order in the family more than 2nd 71%. Most of them 85% were single, 93.7% live at urban residence. While, slightly more than half 52.9% had WHO as the source of their

information. The majority of the participants have not had previous training on covid 19 and work-related coping strategies of fear 90% & 81.7% respectively.

Table 2 illustrates that there was a highly statistically significant improvement in nurse interns' knowledge regarding covid-19 in the follow up phase $p < 0.01$ as compared to the pre intervention phase.

Table 3 shows that there was highly statistically significant improvement in nurse interns' Practice in the post and follows up phases $p < 0.01$ as compared to the pre intervention phase.

Table 4 shows that there was highly statistically significant improvement in nurse interns' attitude towards COVID-19 in the post and follows up phases $p < 0.01$ as compared to the pre intervention phase.

Table 5 compares the fear of COVID 19 as reported by studied nurse interns throughout intervention phases. It shows that the post- phase and follow phase demonstrated statistically significant improvement of all dimensions of fear of COVID 19 and total fear as reported by studied nurse interns with medians ranging from 2.00 to 3.0.

Table 6 compares the coping strategies of fear of COVID 19 as reported by studied nurse interns throughout intervention phases. It shows that the post- phase and follow phase demonstrated statistically significant improvement of coping strategies of fear of COVID 19 as reported by studied nurse interns with medians ranging from 1.74 to 3.82.

Table 7 shows that there was positive strong statistically significant correlation between knowledge, practice, attitude, total fear of COVID 19 and coping strategies scores.

Table (1): Socio-demographic characteristics of studied nurse interns' (n=170)

Demographic characteristics	Frequency	Percent
Age:		
<24	90	53.3
24+	80	46.7
Range	22.0-29.0	
Mean±SD	23.51±2	
Median	23.0	
Gender:		
Male	64	37
Female	106	63
Social status:		
Single	144	85
Married	26	15
Residence		
Rural	19	6.3
Urban	151	93.7
Source of knowledge:		
Journal	10	5.8
Social media	50	29.5
Friends	20	11.8
WHO information	90	52.9
Birth order:		
1	50	29
2+	120	71
Range	1-8	
Mean±SD	2.2±1.3	
Median	2.0	
Previous training on COVID 19 pandemic:		
No	153	90
Yes	17	10
Previous training on work related coping strategies of fear:		
No	139	81.7
Yes	31	18.3

Table 2: Nurse interns' knowledge about covid-19 throughout intervention times sample (n=170)

Total knowledge of covid-19	Time						x ² (p-value) Pre-post	x ² (p-value) Pre-follow-up
	Pre		Post		Follow Up			
	No	%	No	%	No	%		
Adequate (≥70%)	40	23.6	126	74.1	148	87	21.45	33.11
Inadequate (<70%)	130	76.4	33	25.9	22	13	(<0.001**)	(<0.001**)

(**) highly statistically significant $p < 0.01$

Table 3: Nurse interns' Practice related to covid-19 throughout intervention times sample (n=170)

total Practice	Time						x ² (p-value) Pre-post	x ² (p-value) Pre-follow-up
	Pre		Post		Follow Up			
	No	%	No	%	No	%		
Adequate (≥70%)	107	63.4	146	85.7	155	91	31.86	41.75
Inadequate (<70%)	63	36.6	24	14.3	15	9	(<0.001**)	(<0.001**)

(**) Highly statistically significant $p < 0.01$

Table 4: Nurse interns' attitudes towards COVID-19 throughout intervention times sample (n=170)

Total Attitude towards COVID-19.	Time						x ² (p-value) Pre-post	x ² (p-value) Pre-follow-up
	Pre		Post		Follow Up			
	No	%	No	%	No	%		
Positive attitude (≥70%)	74	43.7	146	86	152	89.7	26.28	24.22
Negative attitude (<70%)	96	56.3	24	14	18	10.3	(<0.001**)	(<0.001**)

(**) Highly statistically significant $p < 0.01$

Table 5: distribution of nurse interns' according to their reported fear level of COVID-19 throughout intervention phases (n=170)

Fear of COVID-19 dimensions	Phases (scores: max=5)						Kruskal Wallis test	p-value
	Pre		Post		Follow up			
	Mean±SD	Median	Mean±SD	Median	Mean±SD	Median		
Fear of being infected	4.00±0.51	3.00	3.00±0.48	2.00	1.00±0.36	1.50	25.87	<0.001*
Psychological response	4.00±0.67	3.00	3.00±0.61	3.00	2.00±0.41	2.00	20.12	<0.001*
COVID-19 threat	4.85±0.15	3.00	3.90±0.13	2.00	1.96±0.18	2.00	22.55	<0.001*
Total	4.82±0.38	3.82	2.84±0.27	2.88	1.74±0.32	1.88	24.67	<0.001*

(*) Highly statistically significant $p < 0.01$

Table 6: coping strategies of fear of COVID-19 reported by studied nurse interns throughout intervention phases (n=170)

Coping strategies	Phases (scores: max=5)						Kruskal Wallis test	p-value
	Pre		Post		Follow up			
	Mean±SD	Median	Mean±SD	Median	Mean±SD	Median		
Avoidant coping	4.00±0.51	3.00	3.00±0.48	2.00	1.00±0.36	1.50	25.87	<0.001*
Problem Focused	2.00±0.41	2.00	3.00±0.61	3.00	4.00±0.67	3.00	20.12	<0.001*
Emotion Focused	1.96±0.18	2.00	3.90±0.13	2.00	4.85±0.15	3.00	22.55	<0.001*
Total	1.74±0.32	1.88	2.84±0.27	2.88	4.82±0.38	3.82	24.67	<0.001*

(*) Highly statistically significant $p < 0.01$

Table (7): Correlation matrix of knowledge, practice, attitude, total fear of COVID 19 and coping strategies scores

Scores	Spearman's rank correlation coefficient			
	Knowledge	Practice	Attitude	Total fear of covid 19
Knowledge				
Practice	.763**			
Attitude	.642**	.584**		
Total fear of covid 19	.711**	.791**	.560**	
Coping strategies	.513**	.643**	.731**	.724**

Discussion

The present study revealed that more than half of participants there were age between 20- 24 years old with a mean age of 23.51 ± 2 and more than half of them were female & majority of them were single & lived in rural areas.

This finding was supported with the study conducted by (Abdulmalik et al., 2019), who showed that the majority of studied respondents age was narrow between 20 and 25 years, more than half of them were females and the majority of studied respondents were single.

The finding of the present study revealed that, more than half of subject study had a social media as the source of their information. This result might be due to the increase and diversity of social media and the ease of accessing various information on different sites additionally the information provided by the World Health Organization is accurate and correct during the outbreak of COVID 19.

This finding matched those of (Huynh et al., 2020; Chi Chen et al., 2020), who found that social media is the most common source of COVID-19 information among healthcare personnel. Official government

websites and social media, according to another study, are reliable sources of information about COVID-19 for healthcare personnel (**Bhagavathula et al., 2020**).

Moreover, The Egyptian Ministry of Health and Population and the World Health Organization (WHO) have provided information about COVID-19 through their websites, and they are recommending people to be aware of updates relating to knowledge about COVID-19 (**World Health Organization, 2020**).

The finding of the present study reveals that, majority of the participants have not previous training on covid 19 and coping strategies of fear. It may be due to that, Egypt is having lockdown measures since March 2020, during this period all students were at their home, and did not obtain any training or orientation to them regarding coping of fear & COVID-19.

The finding of the present study represents that, there was a highly statistically significant improvement in nurse interns' knowledge regarding to covid-19 in the follow up phase ($p \leq 0.001$) as compared to the pre intervention phase, and this answer the first research hypothesis.

From the researchers' point of view, the possible reason for this improvement may be that nurses' interns acquired adequate knowledge during the training program about COVID-19 (mode of transmission, manifestation, and complications.... etc.) by simple, clear and concise way presentation of training program and availability of media that gave more illustration and motivating them to share in the program. Also, this information comes from trusted and confident sources for them which may affect positively on their retention for this information and widen their awareness.

This result was agreement with a previous study that is conducted at the same issue and reported that there was a highly significant difference between the total COVID-19 knowledge score pre-intervention and post intervention (**ELmetwaly, et al., 2020**).

Moreover, this result was consistent with **Elnagar, et al., (2017), and Alqahtani, (2017)** who reported that the baseline knowledge regarding (MERS-CoV) among students was low before educational workshop sessions while knowledge increases after educational workshop session, and this finding similar with **Hui et al., (2020)** in their study reported that completion of the COVID19-related training program was connected with a higher total knowledge score.

The finding of the present study indicates that, there was highly statistically significant improvement in nurse interns' infection prevention practice in the post and follows up phases ($p \leq 0.001$) as compared to the pre intervention phase, and this result answer the second research hypothesis.

From the researchers' point of view, this could be attributed that, the constructive effect of the presence of teachers with nurses' interns and taught them all infection control and safety measures side by side, being role model for them, answering all interns' questions and give them chance to do things by themselves under supervision and guidance of mentors which give interns confidence in their abilities to handle and deal with diverse situations effectively and efficiently in different units.

This finding was agreed with **Faheim et al., (2019)** were reported most of the studied nurses had incompetent level of practice before the program implementation, which improved for most of them to have competent practices immediately post program implementation.

This finding was on the same line with, **Bugajski, et al., (2017)** found that nurses, whether novices or experts, valued assistance, on-going training, and mentorship to provide quality care to their patients. Moreover, these results were agreed with a study conducted by **Tork & mersal, (2018)**, who showed that the majority of students in Qassim University thought that the disease could be prevented by using safety measures and universal precautions given by WHO.

The finding of the present study reveals that, there was highly statistically significant improvement in nurse interns' attitude towards COVID-19 in the post and follows up phases ($p \leq 0.001$) as compared to the pre intervention phase, and this result answer the third research hypothesis.

From the researchers' point of view, this finding could imply that, during their university academic program, nurses' students are offered courses in pathology, pharmacology, microbiology /immunology/ virology, and public health. Therefore, nurse interns' is expected to gain more knowledge relevant to diseases, viruses, signs and symptoms of infections, treatments, disease related risk factors, and infection control techniques. This might help developing positive attitude toward science-based containment efforts.

This result supported by, **Abdelhafiz, et al., (2020)** who stated that personal attitudes and behaviors, which depend on the awareness of the disease along with the political efforts by the governments, are efforts that are employed to prevent the pervasion of the virus. On the same direction with the present study results, a previous study conducted by **ELmetwaly, et al., (2020)** showed that the total COVID-19 attitudes scores increased significantly from pre-intervention to post-intervention.

This is also in line with **Alzoubi, et al., (2020)**, who stated that the study resulted in an overall high level of attitudes and good practices towards the disease preventive measures. On the contrary, the current results are incompatible with previous research which done among nursing students at Hail University and informed a negative attitude about the disease MRS Co. (**Alshammari, et al., 2018**).

The finding of the present study clarifies that, the post- phase and follow phase demonstrated statistically significant improvement of all dimensions of fear of COVID 19 and total fear, and this result answer the fourth research hypothesis.

From the researchers' point of view, this improvement may be due that during the whole period of program a lot of reassuring messages were sent to interns via all previously designed groups to alleviate their psychological disturbances and help them to calm down. Furthermore, the content of program involved psychological aspects and common fears and concerns of nurse interns related to COVID 19 and how to cope effectively with this fear state.

This result supported by, **Kiliç & Şimşek (2019)** reported that post management training given to nursing students about psychological support response in case of disasters, students reported that they would manage post-disaster psychological problems more easily. Besides, **Hasan and Bao, (2020)** concluded that Perception of e-Learning had a significant positive impact on intern student's COVID-19 fear and psychological distress.

The finding of the present study reveals that, the post- phase and follow phase demonstrated statistically significant improvement of coping strategies of fear of COVID 19 as reported by studied nurse interns.

From the researchers' point of view, these results could be explained the fact that nurse interns about the fear, is a healthy psychological, physiological, and behavioral state that helps pupils cope with adversity and surprise. In addition, this possibly returned to that nurse interns' have much information which help them to cope with health problems and the effective communication & helps them to confront the difficulties during pandemic of COVID- 19.

This finding is consistent with the findings of (**Sheroun et al., 2020**), who found that 76.58 percent of individuals had intermediate coping strategies and just 4.92 percent had low coping strategies, also, this result is a similar with (**Huang et al., 2020**) to a recent study that found that nursing students were more willing to use coping strategies that focused on problem-solving during the COVID-19 pandemic.

The finding of the present study demonstrated that; there was positive strong statistically significant correlation between knowledge, practice, attitude, total fear of COVID 19 and coping strategies scores.

This finding could be due to increased knowledge and practice of intern nurses as a result of job exposure, as well as attending a training program and access to internet resources for nursing interns' students and availability of lecturers in clinical practice areas also provided students with support and encouragement. This allowed them to follow infection prevention measures and continue providing the needed nursing care. also, teacher and faculty support as a valuable resource in crisis. as a trusted person whom students can talk to which has been a medium for them to share their concerns and feelings as a source of coping.

This result was consistent with **Sahu, et al., (2020)** who demonstrated enhanced knowledge, skills, and preventive measures of the multidisciplinary staff after participation in training program. The baseline knowledge and skill scores including the self-reported confidence level of the staff for triaging and protected airway management for COVID-19 were low.

And **Palko and Xiang (2020)** who found positive impact of education on knowledge and performance of nurses and improvement in qualitative index of emergency department continued nursing education and practical triage are suggested for all personnel engaged in the emergency departments especially during COVID 19.

This finding is consistent with the findings of **(Sheroun et al., 2020)**, who mentioned that knowledge on COVID-19 is a prior requisite to establish prevention beliefs, form positive attitudes, and promote positive behaviors and cognition and the attitudes of people toward the disease affect the effectiveness of their coping strategies and decrease fear.

Along the same line, **Kobayashi, et al., (2020) & Lin, (2020)** reported that there is no doubt that fears and anxiety are justified in

nurse interns', especially when talking about a dangerous virus that threatens human life. Therefore, mentors play a significant role in providing continuous professional support and guidance, encouraging nurse interns' work and ideas, building students' confidence and independence in clinical environment.

Conclusion:

Based on the results of the present study it can be concluded that, there is a highly significant improvement in nurse interns' knowledge, practice, and attitude after training program. Also, the study result showed that statistically significant improvement of all dimensions of fear of COVID 19 and total fear after training program. Moreover, this study result reported that statistically significant improvement of coping strategies of fear of COVID 19 after training program., Also, the study result clarifies, there was positive strong statistically significant correlation between knowledge, practice, attitude, total fear of COVID 19 and coping strategies scores after training program. Finally, on this result, the effectiveness of training program had been achieved in reducing nurse interns' COVID-19 fear, and the study hypothesizes was achieved.

Recommendations:

The following recommendations are suggested based on the results of the current study:

- 1- Continuous updating for the content of nursing education curricula in epidemiology, public health, and principles of infection control to ensure that nurses are qualified to play frontline nursing roles especially during pandemic.
- 2- Continuous and recurrent training programs be conducted during internship training to reduce COVID-19 fear and how to cope effectively.
- 3- Conduct Periodical training to improve and update nurse interns' knowledge, attitude, and practice during COVID-19 pandemic.

- 4- Enhance public awareness through nurses' intern aiming to promote health and increase community awareness of the impact of COVID 19.
- 5- Further studies are needed to investigate the level of fear & coping strategies to nursing during pandemics time.

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