

## Effect of Covid 19 on Critical Care Nurses' Physical, Social and Psychological Wellbeing

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### Abstract

**Background:** The 2019 Coronavirus Disease (COVID-19) pandemic has become a global health emergency. This disease is affecting the health of general population and causing severe physical, psychological and social distress in healthcare workers. **Aim:** assess the effect of COVID 19 on critical care nurses' physical, social and psychological wellbeing. **Design:** descriptive research design. **Research questions:** What are the effects of COVID 19 on critical care nurses' physical, social and psychological wellbeing? **Setting:** trauma care unit and general intensive care unit of Assuit Main University hospital in Egypt. **Subject:** A convenience sample of 100 critical care nurses. **Tools:** "COVID 19 Assessment Questionnaire" to assess the effect of COVID 19 on critical care nurses' physical and social. Depression, Anxiety and Stress scale (DASS-21) to assess the effect of COVID 19 on critical care nurses' psychological wellbeing. **Results:** the majority of critical care nurses worried about to be infected and infections of their families, suffer from long term fatigue and disturbed social life. More than half of critical care nurses provide care for patient with COVID -19 suffer from stress and anxiety. **Conclusion:** Critical care nurses who caring directly for patients with COVID-19 higher risk of exposure to the virus infection and a greater physical, social and psychological impact.

**Keywords:** Coronavirus (COVID-19), Physical, Social, Psychological, critical care nurses

### Introduction

Corona virus has invaded the world and has resulted in worst crisis which every person have ever experienced. Two third of the world converted the general hospital to corona hospital and reports increased the numbers of deaths every day. Non availability of beds especially Intensive care units (ICU) beds and shortage of ICU staff and not getting a respectful burial are depressing events sited in every country (Brooks SK, Webster RK, Smith

LE, Woodland L, Wessely S, Greenberg N, et al 2020). Corona virus disease 2019 (COVID-19) is rapidly spreading worldwide. As of November 17, 2020, there have been 55,033,418 confirmed cases worldwide, with 1,327,500 deaths (World Health Organization 2020)

The high prevalence of COVID-19 in the general population of many countries, its novelty and highly infectious nature, and the associated morbidity and mortality rates are placing an unprecedented demand on health and

social care services worldwide. In addition to the admission to hospital of high numbers of critically ill patients, care demands on nurses and care assistants have also increased in the community (Lai J, Ma S, Wang Y et al 2020) & (Maben J, Bridges J.2020). The novel Corona virus Disease 2019 (COVID-19) pandemic has adverse effect and lead to depression and anxiety and an exacerbation of existing mental health issues, with a particular emotional and physical effect on health care workers (Lu H, Stratton CW, Tang YW 2020). Severe acute respiratory syndrome corona virus is the causative agent of COVID-19 pandemic. The outbreak first originated in Hubei province of China in December 2019 (Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS 2020).

The coronavirus disease (COVID-19) pandemic has exposed nurses to conditions that threaten their health, well-being, and ability to work .Media reports from many of the world's COVID hotspots, including Egypt document extreme exhaustion, psychological and physical discomfort from long working hours with face masks and other PPE, fear of contagion, and emotional distress in nurses. This combination of physical and emotional strain on an already stressed nursing workforce has become a hallmark of the COVID-19 pandemic (Arnetz J, Goetz C, Arble E 2020). In battling the sudden emergence of severe acute respiratory syndrome (SARS), psychological distress among medical staff especially nurses appeared gradually: fear and anxiety appeared immediately and decreased in the early stages of the epidemic, but depression, psychophysiological symptoms and posttraumatic stress symptoms appeared later and lasted for a long time, leading to profound impacts (Chong L, Wu H, Kang L,Chen Y, Wang Y, Xiang B 2020). Being isolated, working in high-risk

positions, and having contact with infected people are common causes of trauma. These factors may have impacted medical and nursing staff in Egypt, leading to mental health problem

Health-care providers are vital resources for every country. Their health and safety are crucial not only for continuous and safe patient care, but also for control of any outbreak (Lu H, Stratton CW, Tang YW 2020) . However, health-care providers caring for patients diagnosed with COVID 19 and suffer from severe acute respiratory syndrome (SARS) were under extraordinary stress related to high risk of infection, worried about families , feeling of isolation, stigmatization (Morin Ch 2011) & (Lovibond, S.H. & Lovibond, P.F 1995).

Physicians and nurses are worried about their families, and some hesitate to go home in fear of exposing family members to infection. It is common to see emotional exhaustion in the intensive care unit (ICU). It observed front-line health care providers emotionally breaking down, mainly due to the added pressure to choose between family responsibilities and their inner sense of duty toward patients (Lee SM, Kang WS, Cho A-R, Kim T, Park JK 2018).

The outbreak of novel corona virus pneumonia that was first detected in Wuhan in December 2019 resulted in a worldwide pandemic. On February 11, 2020, the World Health Organization (WHO) formally named it corona virus disease 2019 (COVID-19). A person with laboratory confirmation of virus causing COVID-19 infection, irrespective of clinical signs and symptoms, is considered as a confirmed case (Maunder R, Hunter J, Vincent L, et al 2003). Globally, more than 3,750,000 confirmed individuals and over 250,000 deaths, across more than 200 countries, territories

or areas have been reported. Approximately 14% of confirmed cases developed severe disease while the grand fatality rate was 4.2% (Maunder R, Hunter J, Vincent L 2003) ,(Farzan S , Stephen L., Faisal N. Masuad ,Farhaan S 2020) & (World Health Organization 2020).

Evidence from studies on COVID-19 and other infectious respiratory disease outbreaks reflects high concern among critical care nurses for personal or family health in the face of direct contact with virus and the stress of balancing this concern with the ethical obligations of continuing to provide care (World Health Organization 2020) .Other stressors evident from research to date include concerns about shortages of staff and of personal protective equipment (PPE), navigating an unfamiliar setting or system of care and lack of organizational support (World Health Organization 2020). Additionally psychological conflicts between healthcare workers' responsibility to care for the ill and their right to protect themselves from a potentially lethal virus were reported (Jiang, Y 2020).

In the COVID-19 emergency, medical workers includes nurses and physicians have been dealing with high risk of infection and inadequate protection against contamination, overwork, frustration, discrimination, isolation, patients with negative emotions, lack of contact with their families and exhaustion (Jiang, Y 2020) . The current situation is causing mental health problems such as stress, anxiety, depressive symptoms, insomnia, denial, anger and fear (Kim, J. S., & Choi, J. S 2016). These mental health problems not only affect attention, understanding and decision-making capacity of medical workers, which could hinder the fight against COVID-19, but they could also

have a lasting effect on their overall well-being (Chen, C.-S., Wu, H.-Y., Yang, P., & Yen, C.-F 2005).

Workplace location had a strong impact on sleep disturbance in this study. Healthcare workers in isolation and intensive care units had significantly high frequency of insomnia than the ones working in other departments. Situation is extremely tense in Isolation and intensive care units as patients are lonely, isolated, infected and critical. Prioritizing the beds and ventilators, continuous treatment protocols change and seeing patients worsening definitely adds stress and anxiety (Kang, L., Li, Y., Hu, S., Chen, M., Yang, C., & Yang, B 2020) ,(Jones, N. M., Thompson, R. R., Dunkel Schetter, C., & Silver,R. C 2017) & (Tayyiba Wasim, Gul e Raana, Natasha Bushra, Anam Riaz 2020) .Also the author added Corona virus has invaded the world and has resulted in worst crisis which we have ever experienced. Two third of the world is under lockdown with hospitals converted to corona hospitals and reports of deaths pouring daily. Non availability of beds, shortage of ICU beds and medications and not getting a respectful burial are depressing events sited in every country.

Healthcare workers (HCWs) faced a great amount of pressure during their fight against the novel corona virus (COVID-19) outbreak. Healthcare workers faced the pressure of a high risk of infection, inadequate protection from contamination, high working load, frustration, discrimination, isolation, patients with negative emotions, and a lack of contact with their families, and exhaustion (Fiorillo A, Gorwood P 2020). Therefore the study was conducted to assess the effect of COVID 19 on critical care nurses' physical, social and psychological wellbeing

**Aim of this study to:**

Assess the effect of COVID 19 on critical care nurses' physical, social and psychological wellbeing

**Research questions:**

What are the effects of COVID 19 on critical care nurses' physical wellbeing?

- What are the effects of COVID 19 on critical care nurses' social wellbeing?
- What are the effects of COVID 19 on critical care nurses' psychological wellbeing?

**Subject And Methods****Research design:**

Descriptive research design was used in this study.

**Setting:**

This study was conducted in trauma care unit and general intensive care unit of Assuit Main University hospital in Egypt.

**Subjects:**

Convenient sample of approximately 100 nurses providing direct care with patient diagnosed with COVID 19 and working in previously mentioned setting were included in this study during the period of data collection from 17<sup>th</sup> June 2020 to 30<sup>th</sup> December 2020

**Tools of the study**

Two tools were used in this study

**Tool I. COVID 19 Assessment Questionnaire** This tool was developed by the researcher after reviewing the related literature (Morin CH 2011), (Lee SM, Kang WS, Cho A-R, Kim T, Park JK 2018) & (Maunder R, Hunter J, Vincent L, et al 2003) and used to assess the effect of COVID 19 on critical care nurses' physical and social wellbeing. This tool consisted of twenty seven questions It include two parts

• Part one. **Physical effect of COVID 19 on nurses** which includes:

A. Sleep used insomnia severity index (seven questions) which adopted from (Morin CH 2011). The score of each question was assigned as follows

- ✓ None = 0
- ✓ Mild = 1
- ✓ Moderate = 2
- ✓ Severe = 3
- ✓ Very severe = 4

B. Fifteen questions to assess the effect of COVID-19 on critical care nurses fatigue, nutrition, risk of infection and personal protective equipment. The score of each question was assigned as follows

- ✓ Yes = one
- ✓ No = zero

• Part two. **Social effect of COVID-19 on nurses** which includes

five questions. The score of each question was assigned as follows

- ✓ Yes = one
- ✓ No = zero

- In addition to the critical care nurses' characteristics which included demographic data such as age, sex, marital status, living with family and job related data such as nurses' qualification, job title and ICU years of experience

**Tool II. Depression, Anxiety and Stress scale (DASS-21)** adopted from (Lovibond S.H. & Lovibond P.F.1995).Used to assess the psychologically effect of COVID 19 on nurses which includes Twenty one questions The score of each question was assigned as follows

- ✓ Didn't apply to me at all = 0
- ✓ Applied some degree = 1
- ✓ Applied to considerable degree= 2
- ✓ Applied very much = 3

### Method

- Permission to conduct the study was obtained from the hospitals' responsible authority after explanation of the aim of the study.

- Tool I "COVID 19 Assessment Questionnaire" was developed by the researcher based on reviewing the related literature (Morin CH 2011), (Lee SM, Kang WS, Cho A-R, Kim T, Park JK 2018) & (Maunder R, Hunter J, Vincent L, et al 2003) to assess the effect of COVID 19 on critical care nurses' physical and social wellbeing.

- Tool II. "Depression, Anxiety and Stress scale (DASS-21)" adopted from (Lovibond S.H. & Lovibond

P.F.1995).Used to assess the psychologically effect of COVID 19 on critical care nurses

- Content validity was done for two tools by five experts in the fields of critical care and psychiatric nursing and the necessary modifications were done accordingly.

- A pilot study was conducted on ten critical care nurses to test the tool I and tool II for the clarity, objectivity, feasibility, then necessary modifications were carried out and the results were excluded from the study.

- The reliability was tested for tool I "COVID 19 Assessment Questionnaire" by using Cronbach's coefficient alpha ( $r=89.6$ ) which is acceptable.

### Data Collection

- All critical care nurses were given verbal and written, detailed information about the study and were given the opportunity to discuss any issues in need for clarification.

- When the necessary information was given, the participants' nurses were asked to give oral approval to participate in the study.

- The researcher distributed the COVID 19 Assessment Questionnaire (tool I) and Depression, Anxiety and Stress scale (DASS-21) (tool II) to 100 critical care nurses who are providing direct patient care with CIVID 19 through online survey.

- An open channel of communication was established between the researcher and nurses to verify any misconception through online discussion

- The researcher respects all the participant answers for questions.

- Data was collected by the researcher during approximately three months starting from 17<sup>th</sup> June 2020 to 30<sup>th</sup> August 2020

### Statistical Analysis of The Data

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp) Qualitative data were described mean, standard deviation. Significance of the obtained results was judged at the 5% level.

#### The used tests were

##### 1 - Student t-test

For normally distributed quantitative variables, to compare between two studied groups

##### 2 - F-test (ANOVA)

For normally distributed quantitative variables, to compare between more than two groups

#### Ethical considerations:

- The researcher explained to the nurses working in ICU the objectives of the study orally, additionally to the written explanation on the covering letter of questionnaire.

- Nurses' ' were assured about the confidentiality of the data collected and the right to refuse to participate in the study.

#### Results

The aim of this study is to determine the effect of COVID 19 on critical care nurses' physical, social and psychological wellbeing

To fulfill this aim the current study results presented in the following order:

#### Part I: studied critical care nurses' characteristics

Table (1): shows the distribution of the studied critical care nurses according to their characteristics. This table indicates that more than two third (78%) of studied critical care nurses were females, less than half of them (49%) aged between 21 to less than 30 years old and more than half of them (56%) married and have years of experience from one to less than 5 years (55%) . Moreover, the majority of them have bachelor degree, working staff nurses and living with family (82%,85%,95% respectively).

#### Part II. Effect of COVID 19 on critical care nurses' physical wellbeing

Table (2a): demonstrates distribution of the studied critical care nurses' according to physical effect of COVID 19 on sleep pattern. It was found that less than half of nurses provide care for patients with COVID 19 suffering from difficulty in falling and staying to sleep after finishing the shift (39%,46% respectively) and more than half of them(56%) dissatisfied with current sleep pattern.

Table (2b): illustrates distribution of the critical care nurses' according to physical effect of COVID 19 on risk of infection, fatigue, nutrition and personal protective equipment. It was found that the majority of critical care nurses worried about to be infected and infections of our families (91 %, 96%

respectively). Moreover the majority of them reported that working with patient COVID -19 increase workload and lead to long term fatigue (94%, 91% respectively). From this table it can noted that the majority of critical care nurses reported that working with patient COVID -19 decreased appetite and lead to loss of body weight.

The same table revealed that the majority of critical care nurses suffer from effect of wearing personal protective equipment long time such as overheating and increase body temperature suffering from difficulty breathing ,facial ulcers and acne , affect vision, lead to and hand dermatitis or irritant contact dermatitis and acute urticaria (94%, 88%, 87%, 86%, 82% respectively)

### **Part III. Effect of COVID 19 on critical care nurses' social wellbeing**

Table (3). Show distribution of the critical care nurses according to social effect of COVID 19. It was observed that the majority of critical care nurses working with patient COVID -19 lead to feeling of loneliness, isolation, increase interpersonal conflicts in your family and disturbed social life (92%, 86%, 84%).

### **Part IV. Effect of COVID 19 on critical care nurses' psychological wellbeing**

Table (4). Describe distribution of the critical care nurses according to levels of psychological effect of COVID 19. It was found that more than half of critical care nurses provide care for patient with COVID -19 suffer from stress, anxiety and depression (64%, 56%,39% respectively)

### **Part V. Mean score percentage of physical, psychological, social effect of COVID 19 on critical care nurses**

Table (5). Present the mean score percentage of physical, psychological, social effect of COVID 19 on critical care nurses. It was found that highest mean score in social and physical effect of COVID 19 on critical care nurses ( $85.40 \pm 25.56$ ,  $73.37 \pm 20.85$  respectively)

### **Part VI. Relationship**

Table (6). Show relationship between physical, psychological and social effect of COVID 19 on critical care nurses and demographic data. There were highly statistically significant differences between the critical care nurses' social effect and their characteristics (living with family). Nurses are living with family had greater social impact than other t (p) ( $5.760^*$  ( $<0.001^*$ ))

**Table (1): Distribution of critical care nurses' according to their demographic characteristics**

Demographic characteristics	Critical care nurses (n=100)	
	No.	%
<b>Gender</b>		
Male	22	22.0
Female	78	78.0
<b>Age (years)</b>		
21-30	49	49.0
31 < 40	39	39.0
> 40	12	12.0
<b>Marital status</b>		
Single	44	44.0
Married	56	56.0
<b>Living with family</b>		
Yes	95	95.0
No	5	5.0
<b>Level of education</b>		
Bachelor	82	82.0
Master	9	9.0
Diploma of nursing	9	9.0
<b>Job title</b>		
Staff nurse	85	85.0
Supervisor	15	15.0
<b>Years of experience</b>		
1 year	11	11.0
1 < 5 years	55	55.0
5 < 10 years	23	23.0
> 10 years	11	11.0

**Table (2a): Distribution of the critical care nurses' according to physical effect of COVID 19 on sleep pattern (n = 100)**

Physical effect of COVID 19	None		Mild		Moderate		Severe		Very severe	
	No.	%	No.	%	No.	%	No.	%	No.	%
<b>1.Sleep used insomnia severity index</b>										
I found difficulty in falling asleep	7	7.0	6	6.0	23	23.0	35	35.0	29	29.0
I found difficulty staying asleep	8	8.0	10	10.0	14	14.0	39	39.0	29	29.0
I have problems waking up too early	9	9.0	8	8.0	16	16.0	46	46.0	21	21.0
			<b>Not at all</b>	<b>Little</b>	<b>Somewhat</b>	<b>Much</b>	<b>Very Much</b>			
How noticeable to others do you think your sleep problem is in terms of impairing the quality of your life?	5	5.0	15	15.0	11	11.0	39	39.0	30	30.0
How worried/distressed are you about your current sleep problem?	4	4.0	18	18.0	6	6.0	44	44.0	28	28.0
To what extent do you consider your sleep problem to interfere with your daily functioning?	8	8.0	12	12.0	5	5.0	33	33.0	42	42.0
			<b>Very satisfied</b>	<b>Satisfied</b>	<b>Moderately satisfied</b>	<b>Dissatisfied</b>	<b>Very dissatisfied</b>			
Are you satisfied/dissatisfied with your current sleep pattern?	6	6.0	6	6.0	7	7.0	25	25.0	56	56.0



**Table (2b): Distribution of the critical care nurses' according to physical effect of COVID 19 on risk of infection , fatigue , nutrition and personal protective equipment (n = 100)**

Physical effect of COVID 19	Yes		No	
	No.	%	No.	%
<b>Risk of infection</b>				
I have worried about to be infected	91	91.0	9	9.0
I have worried about the infection of our families	96	96.0	4	4.0
I have lacked of work experience in infectious diseases	52	52.0	48	48.0
I have received continuous infection control training on COVID-19	71	71.0	29	29.0
<b>Fatigue</b>				
Does working with patient COVID -19 increase workload	94	94.0	6	6.0
Does working with patient COVID -19 lead to long-term fatigue	91	91.0	9	9.0
<b>Nutrition</b>				
Does working with patient COVID -19 decreased your appetite	79	79.0	21	21.0
Does working with patient COVID-19 lead to loss of your body weight	84	84.0	16	16.0
Does working with patient COVID-19 lead to increase of your body weight	17	17.0	83	83.0
<b>PPE</b>				
Does wearing heavy form of PPE lead to overheating and increase your body temperature	94	94.0	6	6.0
Does frequent wearing gloves and hand hygiene lead to hand dermatitis or irritant contact dermatitis and acute urticaria	82	82.0	18	18.0
Does frequent wearing PPE lead to facial ulcers and acne	87	87.0	13	13.0
Does N 95 or surgical mask affect your breathing pattern	88	88.0	12	12.0
Does wearing PPE lead to secondary bacterial infection	81	81.0	19	19.0
Does the face shield affect your vision	86	86.0	14	14.0

**Table (3). Distribution of the critical care nurses according to social effect of COVID 19**

Social effect of COVID 19	Yes		No	
	No.	%	No.	%
Does working with patient COVID -19 disturb your social life?	84	84.0	16	16.0
Does working with patient COVID -19 increase interpersonal conflicts in your family?	86	86.0	14	14.0
Does working with patient COVID -19 lead to feeling of loneliness and isolation?	92	92.0	8	8.0
Does working with patient COVID -19 lead to worry about their family?	85	85.0	15	15.0
Does working with patient COVID -19 affect your relationship with intimate friends?	80	80.0	20	20.0

**Table (4): Distribution of the critical care nurses according to levels of psychological effect of COVID 19 (n = 100)**

Psychological effect of COVID 19	Normal		Mild		Moderate		Severe		Extremely Severe	
	No.	%	No.	%	No.	%	No.	%	No.	%
Stress	0	0.0	19	19.0	17	17.0	64	64.0	0	0.0
Anxiety	18	18.0	4	4.0	22	22.0	56	56.0	0	0.0
Depression	20	20.0	13	13.0	16	16.0	39	39.0	12	12.0

**Table (5): The mean score percentage of physical, psychological, social effect of COVID 19 on critical care nurses**

Factors	Total mean score	% score
	Mean $\pm$ SD.	Mean $\pm$ SD.
Physical effect	31.55 $\pm$ 8.97	73.37 $\pm$ 20.85
Social effect	4.27 $\pm$ 1.28	85.40 $\pm$ 25.56
Psychological effect		
Stress	11.05 $\pm$ 6.26	52.62 $\pm$ 29.81
Anxiety	10.25 $\pm$ 6.74	46.76 $\pm$ 38.84
Depression	9.82 $\pm$ 8.16	48.81 $\pm$ 32.09
Psychological	<b>31.12 <math>\pm</math> 20.13</b>	<b>49.40 <math>\pm</math> 31.95</b>

**Table (6): Relationship between physical, social and psychological effect of CPVID 19 and critical care nurses' demographic data**

Nurses' demographic data	Physical effect Mean $\pm$ SD.	Social effect Mean $\pm$ SD.	Psychological effect Mean $\pm$ SD.
<b>Gender</b>			
Male	73.68 $\pm$ 19.06	87.27 $\pm$ 26.58	53.25 $\pm$ 31.47
Female	73.29 $\pm$ 21.45	84.87 $\pm$ 25.42	48.31 $\pm$ 32.20
<b>t (p)</b>	0.078 (0.938)	0.387 (0.699)	0.638 (0.525)
<b>Age (years)</b>			
21-30	71.67 $\pm$ 21.85	80.41 $\pm$ 29.29	43.86 $\pm$ 30.43
31 < 40	74.0 $\pm$ 21.84	89.74 $\pm$ 21.94	55.11 $\pm$ 33.43
> 40	78.29 $\pm$ 11.91	91.67 $\pm$ 15.86	53.44 $\pm$ 31.88
<b>F (p)</b>	0.511 (0.602)	1.892 (0.156)	1.468 (0.235)
<b>Marital status</b>			
Single	69.24 $\pm$ 23.39	80.91 $\pm$ 28.27	43.04 $\pm$ 34.21
Married	76.62 $\pm$ 18.18	88.93 $\pm$ 22.86	54.39 $\pm$ 29.40
<b>t (p)</b>	1.724 (0.089)	1.569 (0.120)	1.784 (0.078)
<b>Living with family</b>			
No	72.56 $\pm$ 15.98	100.0 $\pm$ 0.0	66.35 $\pm$ 28.62
Yes	73.41 $\pm$ 21.15	84.63 $\pm$ 26.0	48.50 $\pm$ 32.0
<b>t (p)</b>	0.089 (0.929)	5.760* (<0.001*)	1.220 (0.225)
<b>Level of education</b>			
Bachelor	73.17 $\pm$ 21.21	84.39 $\pm$ 26.11	47.93 $\pm$ 32.88
Master	70.03 $\pm$ 25.51	86.67 $\pm$ 26.46	55.20 $\pm$ 25.44
Diploma of nursing	78.55 $\pm$ 11.56	93.33 $\pm$ 20.0	56.97 $\pm$ 30.17
<b>F (p)</b>	0.393 (0.676)	0.503 (0.606)	0.483 (0.619)
<b>Job title</b>			
Staff nurse	73.30 $\pm$ 20.98	84.24 $\pm$ 26.20	48.31 $\pm$ 32.74
Supervisor	73.80 $\pm$ 20.83	92.0 $\pm$ 21.11	55.56 $\pm$ 27.21
<b>t (p)</b>	0.085 (0.932)	1.086 (0.280)	0.808 (0.421)
<b>Years of experience</b>			
1 year	62.37 $\pm$ 28.23	80.0 $\pm$ 25.30	25.83 $\pm$ 26.30
1 < 5 years	76.45 $\pm$ 18.06	82.91 $\pm$ 29.42	53.02 $\pm$ 33.10
5 < 10 years	74.42 $\pm$ 21.63	92.17 $\pm$ 17.83	52.59 $\pm$ 30.24
> 10 years	66.81 $\pm$ 21.97	89.09 $\pm$ 16.40	48.20 $\pm$ 27.90
<b>F (p)</b>	1.849 (0.143)	0.951 (0.419)	2.411 (0.072)

t: Student t-test

F: F for ANOVA test \*: Statistically significant at  $p \leq 0.05$

## Discussion

Critical care units (CCUs) are specialist hospital wards that treat patients who are seriously ill and need constant monitoring. These patients might, for example, have problems with one or more vital organ or be unable to breathe without support. These units are staffed by specially trained health care professionals who deliver intensive levels of care and treatment, for example, there is usually one nurse for every one or two patients. Patients in these units are closely monitored and supported by sophisticated equipment, including ventilators that help patients breathe. In early 2020, the Covid-19 pandemic rapidly increased the demand for health care services, particularly services like critical care, which treat patients with severe acute respiratory disease. Critical care nurses higher risk of exposure to the virus infection and a greater physical, social and psychological impact. In China, frontline critical care nurses caring directly for patients with COVID-19 experienced stress, anxiety and insomnia, and exhibited higher levels of severe mental health symptoms than those in secondary roles Shen X , Zou X, Zhong Xi, Yan J (2020). Therefore, this research has been conducted to assess the effect of COVID 19 on critical care nurses' physical, social and psychological wellbeing.

### **Effect of COVID 19 on critical care nurses' physical wellbeing**

Critical care nurses across the world struggled with the impact of COVID-19 on their life, their families and besides the demands for long hours work and concerns about working environment safety. In Egypt, for example, many frontline COVID-19 nurses collapsed due to lack of sleeping while having bruised for using a tightened face mask and a

relentless 10-hours shift. Some nurses complained that they could not go to the toilet or drink for more than six hours and some nurses are stressed, being afraid of adequately putting the PPE, or having accidentally touched any dirty surface. Result of the current study revealed that more than half of nurses provide care for patients with COVID 19 suffering from difficulty in falling and staying to sleep after finishing the shift and more than half of them dissatisfied with your current sleep pattern. This result were in line with Jahrami H et al (June 2020) conducted by the Ministry of Health, Bahrain on 257 health care worker provide care for patient with COVID 19. It reported that more than two third of health care workers had high levels of poor sleep quality (76%) and the majority of them had moderate and severe stress (85% and 84%). It was supported also by Wasim T, Raana G, Bushra N, Riaz A (July 2020) study that reported more than half (53.3%) of critical care nurses provide care for patient with COVID 19 suffering insomnia.

The primary route for the spread of COVID-19 is thought to be through aerosolized droplets that are expelled during coughing, sneezing, or breathing, but there also are concerns about possible airborne transmission. In the situation we describe, 85% of health care workers were exposed during an aerosol-generating procedure while wearing a surgical mask, and the remainders were wearing N95 masks. Results of the current study revealed that the majority of critical care nurses worried about to be infected and infections of our families.

Shang Y et al (2020) supported the current study result; they found that the health care provider as the front-line of the COVID-19 outbreak response and exposed to a huge risk of infection. They reported most of the infections among

healthcare workers occurred at the early stage of this outbreak when the self-protective directive has not yet been established and reinforced. The same result was found in the study of Wallace, Wladkowski, Gibson, & White (2020) they documented that the nurses working under COVID-19 conditions (like so many other healthcare workers) are vulnerable to exposure to risk of infection, and have the added concern of potentially contracting the virus themselves or unknowingly exposing family members and friends to heightened risk. The concern about being infectious can lead to reluctance to seek out assistance from family or friends and may reduce the capacity to be compassionate in the workplace.

As the coronavirus disease 2020 (COVID-19) pandemic accelerates, global health care systems have become overwhelmed leading to great physical and psychological pressure on nurses in the care of critically ill patients with COVID-19. Moreover, critical care nurses suffer from extreme fatigue when caring for critically ill patients. Results of the present study revealed that the majority of critical care nurses reported the working with patient with COVID-19 increase workload and lead to long term fatigue. Wallace et al. (2020) supported the findings of the current study, they reported that the burnout and fatigue are high among all health professionals but especially so for those who work in the critical care environments where they are confronted daily with large numbers of people for whom the outcome is dire; such as the case for those diagnosed with COVID-19 and requiring admission to emergency or intensive care units.

Few papers have addressed the effect of COVID-19 on the critical care nurses' nutrition. Result of the current study revealed the majority of critical

care nurses reported that working with patient with COVID-19 lead to loss of your body weight.

However, despite their occupational risk, nurses continued to be at the frontline of patient care in hospitals and closely involved with assessment and monitoring in outpatient and community settings. Results of the current study revealed that the majority of them reported that wearing heavy form of PPE lead to overheating and increase your body temperature. Frequent wearing gloves and hand hygiene lead to hand dermatitis. Wearing face mask and face shield lead to facial ulcers, acne, affect your vision and breathing pattern. These findings are in the line with another study conducted by Robitzski (2020) which suggested that many nurses suffered pressure ulcers on their ears and forehead from donning multiple layers of protective gear for hours at a time; they continue to be dedicated. The same result was found in the study conducted in Wuhan China in early January 2020 (Grasselli et al 2020). Show the difficulty of wearing many donning multiple layers of protective gear for hours PPE, which lead to pressure ulcers on their body. Some nurses reported having fainted from low blood sugar and lack of oxygen, in addition to the physical exhaustion.

#### **Effect of COVID 19 on critical care nurses' social wellbeing**

Results of the present study revealed that the majority of critical care nurses reported that working with COVID 19 patient lead to disturb your social life, increase interpersonal conflicts in your family, feeling of loneliness, isolation and worry about their family. The International labour organization supported the findings of the current study, they reported that the COVID-19 pandemic represents a major public health

challenge and will have serious economic and social impacts especial on nurses working with patients have COVID 19. Governments are facing a double challenge: they have to contain the health pandemic while responding to its economic and social effects. The same result was found of the study (CHEN, Shu-Ching<sup>1</sup>; LAI, Yeur-Hur<sup>2</sup>; TSAY, Shio-Luan (June 2020) they reported that the contagious illnesses such as COVID-19 highlight the risk of safety problems and social impact for healthcare providers and nurses. Furthermore, exploring the psychological distress and social burdens experienced by healthcare professionals and nurses during this outbreak will be vital as well.

#### **Effect of COVID 19 on critical care nurses' psychological wellbeing**

Nurses who work in critical and intensive care units deliver the care required and they face difficulties on a daily basis in providing care to these very ill and infectious patients. The current situation has generated a range of stressors that could negatively impact nurses and other health workers. Critical care nurses at higher risk of exposure to the virus experience a greater psychological impact than those with less exposure. Results of the present study revealed that more than half of critical care nurses provide care for patient with COVID -19 suffer from stress and anxiety.

Liu Q, Luo D, Haase J, Guo Q, Wang X, et al (June 2020) supported the findings of the current study, they reported that the health-care providers carried on with their duties for caring of patient with COVID-19, they also experienced their own physical and emotional stresses, common to other people. None of the participants had previous experience with an infectious disease and entering the isolation ward

was viewed as oppressive and stressful. The same result was found in the study of Wu, Y., Wang, J., Luo, C., Hu, S., Lin, X., Anderson, A. E., Qian, Y (2020) they reported that healthcare workers caring directly for patients with COVID-19 experienced stress, anxiety and insomnia, and exhibited higher levels of severe mental health symptoms than those in secondary roles.

#### **Relationship between physical, psychological and social effect of COVID 19 on nurses and their characteristics**

Few papers have addressed the predictive relationship between the demographic variables such as; gender, age, marital status, living with family, level of education, job title and years of experience. A significant difference was found between the critical care nurses' social effect and **their characteristics (living with family)**. The result of the current study revealed that nurses are living with family had greater social impact than other. The same result was found in the study of (Lai J et al 2020) it was determined that there was a statistically significant difference between social, work, family and private life of health care worker and their characteristics.

#### **Conclusion:**

Critical care nurses who caring directly for patients with COVID-19 higher risk of exposure to the virus infection and a greater physical, social and psychological impact.

#### **Recommendation**

Based on the findings of the present study, the following recommendation can be suggested:

### Nursing education

1. Enhance education and training, including personal protective, hand hygiene and occupational exposure management

2. Strengthen professional training to deepen the understanding of the COVID-19

### Nursing administration

1. There should be workplace policies and procedures that focus on maintaining safety working environment for staff nurses working with COVID-19 patient

2. There should be reporting system for occurrence of infection, physical, psychological and social effect of COVID 19 on health care workers.

### Nursing research

1. Future research should be conducted to identify the best possible practices for prevention of physical, social and psychological effect COVID-19 on nurses

2. Further research also needs to be conducted to provide management strategies against physical, social and psychological effect of COVID-19 on nurses.

### Nursing practice

1. Adjust work shift to ensure nurses working with COVID 19 patient have plenty of rest to decrease fatigue.

2. Equip each medical team with a psychologist for early psychological assessments and interventions

3. Actively express emotions to relieve tension and anxiety.

4. Establish a social care and support group to find and resolve worries accordingly

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