

## Relationship between Compassion Satisfaction, Compassion Fatigue and Peritraumatic Psychological Distress among Nurses Caring for COVID-19 Patients

Marwa Nasser Ali<sup>1</sup>, Amany Anter Mohamed<sup>2</sup> and Ebtsam Hanafy Saber<sup>3</sup>

1. Clinical instructor of Psychiatric and Mental Health Nursing, Faculty of Nursing, Minia University.
2. Assistant Professor of Psychiatric and Mental Health Nursing, Faculty of Nursing, Minia University.
3. Lecturer of Psychiatric and Mental Health Nursing, Faculty of Nursing, Minia University.

### Abstract

**Background:** COVID-19 outbreak has been acknowledged as a global health threat, that negatively impacting countries' health care systems and economies. This pandemic has generated a range of stressors that have an influence on the nurses. Thus, the exposure of nurses to compassion fatigue and psychological distress increased. **Aim:** Current study aimed to assess the relationship between compassion satisfaction, compassion fatigue and peritraumatic psychological distress among nurses caring for COVID-19 patients. **Research design:** A descriptive correlational research design was utilized. **Sample:** A convenient sample; included two hundred and five (205) staff nurses who providing care for COVID-19 patients at Minia isolation hospitals. **Setting:** This study was conducted at Minia isolation hospitals which include: Minia fever hospital and Minia chest hospital. **Tools:** Three tools were used; socio-demographic characteristics questionnaire, compassion satisfaction and compassion fatigue scale (PROQOL) in addition to COVID-19 peritraumatic distress index (CPDI). **Results:** The present study showed that about two thirds of the studied sample had average level of compassion satisfaction, compassion fatigue burnout and secondary traumatic stress. While, less than half of them had high level of peritraumatic psychological distress. Also, a highly significant positive correlation was found between compassion fatigue (secondary traumatic stress) and peritraumatic psychological distress. **Conclusions:** Compassion fatigue (burnout) had a positive significant correlation with compassion fatigue (secondary traumatic stress), and a highly significant negative correlation with compassion satisfaction. **Recommendations:** A resilience program should be implemented to reduce stress and inspire nurses to work efficiently during these difficult times.

**Keywords:** COVID-19, compassion satisfaction, compassion fatigue, peritraumatic psychological distress

### Introduction

The latest threat to global health is the ongoing outbreak of the respiratory disease that was recently given the name Coronavirus Disease 2019 (COVID-19) (Fauci et al., 2020). In December 2019, several health centers in Wuhan, China, reported a cluster of patients with pneumonia of unknown etiology; in which clinical presentations were similar to those of severe acute respiratory syndrome (SARS) outbreak that occurred in 2003 (Parasher, 2021). COVID-19 can be defined as mild to severe respiratory illness that is caused by a corona virus; which transmitted through contact with infectious material as respiratory droplets, objects or surfaces contaminated by the virus (Batty et al., 2020). COVID-19 primarily affects the respiratory system, although other organ systems are also involved; lower respiratory tract infection related symptoms including fever, dry cough and dyspnea. In addition, headache, dizziness, generalized weakness, vomiting and diarrhea were observed. Respiratory symptoms of COVID-19 are extremely heterogeneous, ranging from minimal symptoms to significant hypoxia with acute respiratory distress syndrome (ARDS) (Huang et al., 2020).

Nurses were and still are the most important service provider and the front-line care professional that stand near the patients' journey when they face a complex disease that requires hospitalization and even intensive critical care (WHO, 2021). Nursing is a helping profession that is based on an individual's ability to provide compassionate and empathetic care to the patients. Caring and compassion are considered the most basic characteristic traits a nurse must have to deliver high quality care to the patients. Overall,

nurses gain satisfaction from giving compassionate care to the patients and their families, but are prone to compassion fatigue as a result of repeated exposure to traumatic events. Thus, nurses who render most of the patient care, are at greater risk for developing high compassion fatigue and low compassion satisfaction (Ruiz-Fernández et al., 2020).

Indeed, the current situation of COVID-19 pandemic has generated a range of stressors that have an influence on the nurses and other health workers. Nurses are among the most affected group by the pandemic; actually, nurses regularly are in direct contact with patients from the time of admission to the discharge (Alharbi et al., 2020). In addition, the combination of witnessing patient physical suffering and death along with the immediate threat to one's own safety as well as nurse's desire to act to alleviate the suffering of others in certain situations that may exceed their ability. Thus, nurses are highly exposed to psychological distress which has been associated with the development of compassion fatigue (Horesh & Brown, 2020).

Correspondingly, nurse's professional quality of life (ProQOL) may be negatively affected, which is a huge challenge for nursing management (Niu et al., 2022). Professional quality of life refers to emotions an individual encounters in the job of helping others. It incorporates two aspects; compassion satisfaction (CS) and compassion fatigue (CF). Compassion satisfaction refers to positive experiences resulting from work that involves helping and caring for others (Wong et al., 2022).

Compassion satisfaction signifies "the pleasure and gratification received by a professional caregiver through contribution to well-being of patients and families". Nurses

often experience reward and fulfillment from the caring process that can enhance morale to continue in the nursing role (Okoli et al., 2020). This construct focuses on the satisfaction that comes from helping and caring for individuals in difficult situations. Unsurprisingly, the balance between CS and CF determines the level of professional quality of life (Ruiz-Fernández et al., 2020). There are various positive consequences of compassion satisfaction in nursing as; the ability to provide meaningful care, improvement in work performance, engagement, competency, positive work environment, and protection against compassion fatigue (Sacco & Copel, 2018).

Compassion fatigue (CF) is a phenomenon that affects healthcare providers across disciplines and is associated with psychological disruptions, emotional exhaustion, impaired interpersonal function and physiological problems (Niu et al., 2022). Compassion fatigue is a condition in which nurses display a lack of compassion or empathy toward patients or desensitization for patient's care; the occurrence of compassion fatigue is attributed to prolonged exposure to continuous, intense patient contact and stress (Storm & Chen, 2021).

Besides, compassion fatigue includes burnout (BO) and secondary traumatic stress (STS). Burnout refers to the feeling of hopelessness and inefficacy associated with work. While, secondary traumatic stress is a condition in which trauma or stressful events are witnessed but not actually experienced. Indeed, burnout and secondary traumatic stress not only lead to physical, emotional and work-related symptoms but also affect the quality of patient care and pose a threat to patient safety (Wong et al., 2022). On one hand, burnout generally occurs gradually; over time it can lead to low morale, dissatisfaction, and turnover. The nurse experiencing burnout often is unhappy, ineffective, disconnected and insensitive to the work environment (Magano, 2021). On the other hand, secondary traumatic stress occurs quickly and unexpectedly as a reaction to one or more exposures to another's primary trauma (Miller, 2018).

Peritraumatic distress (PD) is defined as the emotional and physiological distress experienced during and/or immediately after the traumatic event (Chaix et al., 2020). Similarly, psychological distress refers to a state of emotional suffering, resulting from being exposed to a stressful event that poses a threat to one's physical or mental health. Inability to cope effectively with the stressor results in psychological distress that can manifest as a range of adverse mental health and psychiatric outcomes including depression, anxiety, acute stress, post-traumatic stress, burnout, and psychiatric morbidity. Although psychological distress is often viewed as a transient state that negatively impacts day-to-day and social functioning, it can persist and have longer-term negative effects on mental health (Sirois & Owens, 2021).

Therefore, the occurrence of compassion fatigue must be identified, and strategies for dealing with this phenomenon should be implemented, there are known protective factors and strategies to reduce CF and other emotional stresses including; socializing, mindfulness habits, healthy life/style habits and seeking professional help (Chatmon & Rooney, 2021). Furthermore, there are nine provisions in the American Nurses Association Code of Ethics. Provision 5 includes a duty to self and the promotion of well-being; during COVID-19, the nurses have faced many challenges; taking care of self is one of those challenges. Nurses must recognize that taking care of themselves

increases the ability to provide care to patients and decreases compassion fatigue (American Nurses Association (ANA), 2020).

### Significance of the study

Globally, in 4 October 2022, there have been 615,777,700 confirmed cases of COVID-19, including 6,527,192 deaths, reported to world health organization (WHO, 2022). In Egypt, in 4 October 2022, there have been 515,381 confirmed cases of COVID-19 with 24,797 deaths (Ministry of Health and Population Egypt (MOHP), 2022). Considering the data obtained from different studies, COVID-19 pandemic has had an unfavorable effect on the psychological well-being of nurses. In this respect, (Fahmy et al., 2022) & (Amir & Okalo, 2022) reported that (64.0%, 49.11%) of the studied nurses had high levels of compassion fatigue respectively. In addition, (Arafa et al., (2021) based on the survey that was used to assess the psychological impacts of the COVID-19 pandemic on health care workers (HCWs) in Egypt and Saudi Arabia. Study included 426 health care workers (48.4% physicians, 24.2% nurses, and 27.4% other HCWs). The same authors added that; 69% had depression, 58.9% had anxiety, 55.9% had stress, and 37.3% had inadequate sleeping (<6 h/day).

Accordingly, compassion fatigue and psychological distress are linked to adverse occupational outcomes including decreased quality of patient care, irritability with colleagues, and intentions to leave one's job. Nurses are also at risk of experiencing adverse personal outcomes including substance misuse, and suicide (Labrague & de Los Santos, 2021). Therefore, it is essential to investigate nurse's compassion fatigue and psychological distress levels, to draw attention to their experiences, provide support to address their struggles and improve the quality of provided care.

### Aim of the study

The aim of the present study is to assess the relationship between compassion satisfactions, compassion fatigue and peritraumatic psychological distress among nurses caring for COVID-19 patients.

### Research questions

1. What are the levels of compassion satisfaction, compassion fatigue and peritraumatic psychological distress among nurses caring for COVID-19 patients?
2. Is there a relationship between compassion satisfaction, compassion fatigue and peritraumatic psychological distress among nurses caring for COVID-19 patients?

### Subjects and methods

#### Research design

A descriptive correlational research design was utilized in the present study.

#### Study setting

This study was conducted at Minia hospitals which include: Minia fever hospital and Minia chest hospital; these hospitals serve the Minia city and work as isolation hospitals for COVID-19 patients during the pandemic; each hospital consists of in-patient departments, intensive care unit and emergency unit. Minia fever hospital consists of three buildings, each building has three floors and its capacity is 143 beds. While Minia chest hospital has one building with

three floors; and its capacity is 110 beds.

### Study sample

A convenient sample was utilized in this study; included two hundred and five (205) staff nurses who caring for COVID-19 patients (on duty) at Minia isolation hospitals. Which divided into one hundred and ten (110) staff nurses working in Minia fever hospital and ninety five (95) staff nurses working in Minia chest hospital.

### Data collection tools:

Considering the aim of the study data needed were collected through the following tools:

#### Tool I:

##### Socio-demographic characteristics questionnaire:

The questionnaire was developed and collected by the researcher which covering the following items as age, gender, marital status, educational qualification, job, years of experience, hospital type and department.

#### Tool II:

##### Compassion satisfaction and compassion fatigue scale (version 5 2009):

This scale was originally developed by (Figley, 1995). While, the last version of the scale was developed by (Hundall Stamm, 2009); the scale consists of 30 items; that divided into three subscales; compassion satisfaction subscale which measured by 10 items numbers (from 1 to 10), and burnout subscale which measured by 10 items (from 11 to 20), as well as secondary traumatic stress subscale which measured by 10 items (from 21 to 30). Likert-type responses range from (1-5) as 1 (never), 2 (rarely), 3 (sometimes), 4 (often) and 5 (very often). For questions (11, 12, 15, 16, and 20) the answers were reversed (Hundall Stamm, 2009).

The studied sample total scores were divided into 3 groups on the following base:

Score	Compassion satisfaction	Burnout	Secondary traumatic stress
22 or less	Low compassion satisfaction	Low risk for burnout	Low risk for secondary traumatic stress
23 – 41	Average compassion satisfaction	Moderate risk for burnout	Moderate risk for secondary traumatic stress
42 or more	High compassion satisfaction	High risk for burnout	High risk for secondary traumatic stress

#### Tool III:

##### COVID-19 peritraumatic distress index (CPDI)

COVID-19 Peritraumatic Distress Index (CPDI) self-reported questionnaire that was originally developed by a group of specialists in China to survey peritraumatic psychological distress during the epidemic. This questionnaire consists of 24 items; each item has a set of at least five possible answers choices ranging from (0 to 4) as 0 (never), 1 (occasionally), 2 (sometimes), 3 (often) and 4 (most of the time) (Costantini & Mazzotti, 2020).

The total score ranges from 0 to 100.

- < 28 = no distress.
- 28 – 51 = mild to moderate distress.
- > 51 = severe distresses.

### Validity & Reliability of the study tools:

The tools were reviewed by five panels of experts in psychiatric and mental health nursing (Minia University and

Assiut University - Faculty of Nursing, Psychiatric Mental Health Nursing Department) to test the content validity of the tools. Each of the expert panel was asked to examine the instruments for content coverage, clarity, wording, length, format and overall appearance. And necessary modification was done. Internal consistency estimated reliability by using Cronbach's alpha coefficient to ensure that the study tools are reliable as follow: Compassion satisfaction (0.935), compassion fatigue (0.803) and peritraumatic psychological distress (0.939).

### Pilot Study

Pilot study was done to evaluate the study tools clarity, it was carried out on 10% of study sample (20 nurses), to test the comprehensiveness, accessibility, applicability of the study scales, and to estimate time needed to fill the scales, it was about 5 - 10 minutes; results of the pilot study indicated that; the scales were applicable and don't need changes. The pilot study was included in the study sample.

### Procedure

- A review of the related literature which covering various aspects of the problems was done, using available books and journals to get acquainted with the research problem and to implement the study.
- Tools of the study were translated into Arabic version by the researcher and revised by the supervisors. In addition, the tools were reviewed and validated by the jury committee to test the content validity.
- An official permission was granted from the Dean of Nursing Faculty at Minia University, Ethical Committee, Nursing Faculty at Minia University. As well as written approvals were obtained from the directors of Minia fever hospital and Minia chest hospital after explaining the purpose of the study. The purpose of the study was explained by the researcher through direct personal communication with the studied sample for getting their approval to participate in the study and their cooperation, privacy and confidentiality were assumed.
- The researcher distributed the study tools for on duty staff nurses during the working days. Staff nurses were given from 15 to 30 minutes to fill the study tools. The researcher responded to any questions from the nurses. The researcher went to the hospital for two days/ week (Saturday, Tuesday) from 10 a.m to 1 p.m to meet with the studied sample after finishing their work.
- The researcher collected data over period of (3 months) from the beginning of September 2021 to the end of November 2021 for collecting data.

### Ethical consideration

An official letter was granted from the research ethics Committee of the Faculty of Nursing, Minia University. A permission and consent were obtained from the head of the department, before conduction of the pilot study as well as the actual study, oral consent was obtained from the participants that are willing to participate in the study, after explaining the nature and purpose of the study. The participants have the right to refuse to participate or withdraw from the study without any rational at any time. The privacy of the participants was considered during the collection of data. The participants were assured that all data are highly confidential;

anonymity was also assured through assigning a number for each nurse instead of names to protect their privacy.

**Statistical design**

Data were summarized, tabulated and presented using descriptive statistics in either means or standard deviations as a measure of dispersion or number and/or percentage for qualitative data. A statistical package for the social science (SPSS), IBM (21) was used for statistical analysis of the data. For qualitative data, comparison between independent groups was done using Chi square test (or fisher test in case of less than 5 cases). Multiple regression analyses for the compassion satisfaction, compassion fatigue and peritraumatic psychological distress were conducted to reveal to the prediction percentage of variance in each variable by the others. Residuals were independently and identically normally distributed. Probability (P-value) is the degree of significance,

less than 0.05 was considered significant.

**Operational definitions**

Compassion satisfaction is a positive altruistic quality that describes the feeling of self-appreciation while caring for and helping others (Zhang et al., 2018).

Compassion fatigue is a preventable state of holistic exhaustion that manifests as a physical decline in energy and endurance, an emotional decline in empathetic ability and emotional exhaustion, and a spiritual decline as one feels hopeless or helpless to recover that results from chronic exposure to others’ suffering (Peters, 2018).

Psychological distress: the unique discomforting, emotional state experienced by an individual in response to a specific stressor or demand that results in harm, either temporary or permanent to the person (Mopkins, 2022).

**Results**

**Table (1): Frequency distribution of the studied sample regarding to socio-demographic characteristics (n=205)**

Items	N	%
<b>Age (years)</b>		
20 - <29	116	56.6
29 - <39	64	31.2
39 - < 49	14	6.8
≥ 49	11	5.4
<b>Gender</b>		
Female	130	63.4
Male	75	36.6
<b>Marital status</b>		
Single	72	35.1
Married	116	56.6
Divorced	13	6.3
Widow	4	2
<b>Educational level</b>		
Diploma	36	17.6
Technician	102	49.8
Baccalaureate	62	30.2
Other qualifications	5	2.4
<b>Job</b>		
Nursing Director	2	1
Nursing Supervisor	40	19.5
staff Nurse	163	79.5
<b>Years of experience</b>		
< 5 years	123	60
5 – 10 years	60	29.3
> 10 years	22	10.7
<b>Hospital type</b>		
Chest hospital	109	53.2
Fever hospital	96	46.8
<b>Department</b>		
Intensive care units (ICUs)	56	27.3
Emergency (ER)	42	20.5
Inpatient	63	30.7
Other departments	44	21.5

Table (1) shows that more than half of the studied sample (56.6%) were in the age group “20 - <29” years and were married, while, (63.4%) of them were females. As regarded to level of education and job, (49.8% and 79.5%, respectively), have technician level of education and were staff nurse. On the other hand, about two-thirds of the studied sample (60%) have less than five years of experience. Concerning the hospital type, more than half (53.2%) of the studied sample were in chest hospital. While, (46.8%) of them were in fever hospital. Moreover, (30.7% and 27.3%, respectively) were working in inpatient and ICU department.

**Table (2): Distribution of total scores for compassion satisfaction, compassion fatigue sub scales and peritraumatic psychological distress (N = 205)**

Variable	Low		Average		High	
	N	%	N	%	N	%
Compassion satisfaction	30	14.6	123	60.0	52	25.4
Compassion fatigue (burnout)	40	19.5	134	65.4	31	15.1
Compassion fatigue (Secondary traumatic stress)	28	13.7	142	69.3	35	17

Variable	Low		Average		High	
	N	%	N	%	N	%
Peritraumatic psychological distress	35	17	78	38.0	92	45

As regarded to total scores of study variables (Table 2) demonstrates that more than half of the studied sample had average levels of compassion satisfaction, compassion fatigue (burnout) and compassion fatigue (secondary traumatic stress) (60%, 65.4%, and 69.3% respectively). Concerning the peritraumatic psychological distress, the same table demonstrates that, less than half of the studied sample had high level of peritraumatic psychological distress (45%), and more than one-third of them (38.0%) had moderate level of distress

**Table (3): Mean and standard deviation of compassion satisfaction, compassion fatigue sub scales and peritraumatic psychological distress (N = 205)**

Variable	Mean ±SD
Compassion satisfaction	34.9±9.6
Compassion fatigue (burnout)	29.5±7.3
Compassion fatigue (Secondary traumatic stress)	30.4±7.7
Peritraumatic psychological distress	47.8±18.0

Table (3) reveals that the highest mean scores is for, peritraumatic psychological distress (47.8±18.0), followed by compassion satisfaction (34.9±9.6). Whereas, the lowest mean scores is for compassion fatigue (burnout) (29.5±7.3).

**Table (4): Correlation between compassion satisfaction, compassion fatigue and peritraumatic psychological distress (N = 205)**

Variable		Compassion satisfaction	Compassion fatigue (burnout)	Compassion fatigue (secondary trauma)	peritraumatic psychological distress
Compassion satisfaction	R	1	-.834**	-.022	.001
	P		<.001	.754	.992
Compassion fatigue (burnout)	R		1	.177*	.076
	P			0.011	.280
Compassion fatigue (secondary traumatic stress)	R			1	0.554**
	P				<.001
Peritraumatic psychological distress	R				1
	P				

Concerning the correlation between compassion satisfaction, compassion fatigue and peritraumatic psychological distress (Table 4) presents that compassion fatigue (burnout) had a positive significant correlation with compassion fatigue (secondary traumatic stress) ( $r=.177^*$ ,  $p=0.011$ ) and a highly significant negative correlation with compassion satisfaction ( $r=.834$ ,  $p<.001$ ). Also, a highly significant positive correlation was found between compassion fatigue (secondary traumatic stress) and peritraumatic psychological distress ( $r=.554$ ,  $p<0.001$ ). On the other hand, compassion satisfaction was not significantly correlated with compassion fatigue (secondary trauma). Also, there was no significant correlation between peritraumatic psychological distress with either compassion satisfaction or compassion fatigue (burnout).

**Table (5): Linear Regression analysis of sociodemographic predictors of compassion satisfaction, compassion fatigue, and peritraumatic psychological distress (N = 205):**

	B	SE	B	T	P-value
<b>Compassion Satisfaction</b>					
Age	0.004	.803	<0.001	0.005	0.990
Gender	-1.974	1.385	-.100	-1.425	0.156
Marital status	-1.172	1.018	-.081	-1.151	0.251
Education level	0.202	0.908	-.016	-.222	0.824
Job	-.908	1.545	-.041	-.588	-.557
Years of experience	1.555	0.978	0.111	1.591	0.113
Hospital type	4.772	1.301	0.249	3.667	<0.001**
Department	-1.289	0.599	-.149	-2.151	0.033*
<b>Compassion fatigue</b>					
Age	-1.230	0.773	-.111	-1.591	0.113
Gender	-1.896	1.341	-.099	-1.414	0.159
Marital status	-.429	0.989	-.030	-.434	0.665
Education level	0.666	0.878	0.053	0.758	0.449
Job	2.067	1.490	0.097	1.387	0.167
Years of experience	-2.598	0.935	-.191	-2.779	0.006**
Hospital type	-5.748	1.237	-.310	-4.647	<0.001**

	B	SE	B	T	P-value
Department	1.941	0.571	0.232	3.402	<b>0.001**</b>
<b>Peritraumatic psychological distress</b>					
Age	-1.412	1.503	-.066	-.940	0.348
Gender	-.887	2.609	-.024	-.340	0.734
Marital status	-.144	1.915	-.005	-.075	0.940
Education level	-1.682	1.699	-.069	-.990	0.323
Job	8.364	2.838	0.203	2.947	<b>0.004**</b>
Years of experience	-2.323	1.837	-.088	-1.265	0.207
Hospital type	-9.063	2.438	-.253	-3.718	<b>&lt;0.001**</b>
Department	3.611	1.107	0.223	3.260	<b>0.001*</b>

**Table (5)** reports that the crude regression analysis of sociodemographic factors as predictors of compassion satisfaction, compassion fatigue and peritraumatic psychological distress. As shown, indicates that, hospital type and department had strong predictor effect on compassion satisfaction (0.249, -.149), compassion fatigue (-.310, 0.232), and peritraumatic psychological distress (-.253, 0.223), respectively. While, years of experience had strong predictor effect on compassion fatigue (-.191). In addition, job had strong predictor affected on peritraumatic psychological distress (0.203).

### Discussion

Since the earliest days of the nursing profession, nurses all over the world have played a significant role during disaster and emergency situations, including disease outbreaks as COVID-19 pandemic. While nurses remain committed to this role, the unprecedented pressure exerted by the pandemic on every country's health care system, in turn this could affect their well-being and work performance (Labrague & de Los, 2021). Vast amounts of evidence have shown a significant association between the COVID-19 outbreak and adverse mental health issues such as stress or burnout. Thus, to effectively play this role, it is essential to maintain psychological and mental health of the nurses (Mo et al., 2020). The aim of this study was to investigate relationship between compassion satisfaction, compassion fatigue and peritraumatic psychological distress among nurses caring for COVID-19 patients.

Concerning the age, years of experience and marital status of the studied sample, the present study showed that more than half of the studied sample were in the age group "20 - <29" years and were married, as well as the less than two-thirds of the studied sample have less than five years of experience. These findings could be attributed to that as a result of the increasing number of COVID-19 patients, the isolation hospitals were forced to appoint or assign nurses who obtained the technical institute of nursing to work as clinical nurses to provide direct care and fulfill their active role in this critical situation, all of these may explain why, more than half of the studied sample were in age groups (20 - < 30 years) and have less than five years of experience.

These findings were in agreement with (Ageel & Shbeer, 2022) who indicated that half of the studied nurses were 22–30 years old. In the same respect, Mohamed, (2022) demonstrated that the majority of nursing staff's age included in the study was ranged between 19-30 years and have less than 5 years of experience, in relation to marital status, most of the participants were married. Moreover, these results were consistent with (Storm & Chen 2021) who mentioned that the majority of the participants reported two and three years of nursing working experience.

In contrary to these results, El Nagar et al., (2022) showed that less than half of the participants were between 30 and 45 years old, and nearly two-thirds of them were single. Likewise, Niu et al., (2022) found that, more than half of the studied nurses were aged 30–40 years old and had working

experience more than 10 years.

Regarding the gender, the present study demonstrated that the female nurses encountered nearly two-thirds of the studied sample. This result may be due to that most of the graduates, whether from nursing colleges or institutes, are females. This result was proven by (Labrague & de Los, 2021) who revealed that nearly three-quarters of the studied nurses were females. Similarly, Amir & Okalo, (2022) noticed that more than half of the participants were females.

Concerning the level of education, the present study found that technician level was reported in about half of the studied sample. This result could be due to the Egyptian Ministry of Health directed to appoint most graduates of its nursing institutes to isolation hospitals in order to overcome the nursing deficit, also meet the need and work as a clinical nurse.

This result was in agreement with (Mohamed, 2022) who illustrated that the majority of the participants had technical institute of nursing. In the same line with this result, Erkin et al., (2021) revealed that slightly less than half of the participants held an undergraduate degree. On the other hand, this result was in disagreement with (Inocian et al., 2021) who indicated that about three-quarters of the respondents had bachelor's degree in nursing. Similarly, El Nagar et al., (2022) reported that (48.6%) of the participants were postgraduates. In addition, Cai et al., (2020) showed that more than half of the nurses included in the study held a bachelor's degree.

Regarding the job and department, the present study reported that staff nurse as a job was represented by more than two-thirds of the studied sample and about one-third of them were working in inpatient and intensive care units (ICU). This might be related to providing care for the largest numbers of COVID-19 patients that were present in these departments. These findings were consistent with (Inocian et al., 2021) who indicated that the highest percentage of the respondents was in a staff nurse. Likewise, these results were backed up by (Niu et al., 2022) who found that nearly two-thirds of the nurses were junior nurse. Moreover, Storm & Chen, (2021) supported these findings and revealed that nearly three-quarters of the participants worked in the intensive care units.

As regarded to total scores of compassion satisfaction and compassion fatigue sub- domains, the present study demonstrated that about two thirds of the studied sample had average level of compassion satisfaction, compassion fatigue

(burnout) and compassion fatigue (secondary traumatic stress). Whereas, mean and standard deviation were, (34.9±9.6), (29.5±7.3) and (30.4±7.7) respectively. One possible explanation for these results is that the data of the current study were gathered after the third wave of the pandemic; in which the nurses have more information about the epidemic's trajectory as well as a sense of control and resilience with job stressors. In addition, the subjective feelings of competence and fulfillment, along with nurse's sense of responsibility during the pandemic; make nurses controlled, exhibited better levels of CS, and enhance their psychological stability.

These results were in consistent with **(Inocian et al., 2021)** who illustrated that the majority of the respondents reported average level of compassion satisfaction CS, burnout BO and secondary traumatic stress STS. Also, based on the same study, the mean score of the respondents in the CS scale was 39.75 (SD = 5.68), while in the BO and STS scales, the respondents reported a mean score of 23.41 (SD = 5.29) and 24.47 (SD = 5.32), respectively.

Additionally, parallel to these results **EL- Etreby et al., (2021)** showed that more than half of the studied nurses felt a moderate level of compassion satisfaction, and about one-third of the nurses had average burnout level. As well as, more than one-third of them had average secondary traumatic stress level. Also, **Marshall, (2020)** indicated that over half of the participants scored moderately in all of the three subcategories including: compassion satisfaction, burnout and secondary traumatic stress. Whereas, mean and standard deviation for the three domains were, (M =39.06, SD = 6.332), (M =24.94, SD = 6.32) and M = 23.67, SD = 7.73), respectively.

In disagreement with these results, **Trumello et al., (2020)** concluded that significantly higher levels of burnout, secondary traumatic stress and lower levels of compassion satisfaction were detected among professionals working with COVID-19 patients and working in areas with higher rates of contagion.

In relation to peritraumatic psychological distress, the results of the present study revealed that less than half of the studied sample had high level of peritraumatic psychological distress, and more than one-third of the them had moderate level of distress, with a higher total mean score. This could be attributed to extended working hours, excessive workload, and dangerous working environment. Also, this was combined with shortages in medical supplies and low wages received, which in turn pose a psychological burden on nurses. Moreover, social seclusion or isolation and COVID-19 related stigma, that proven to be associated with high levels of anxiety and depression.

This result was endorsed by **(El-Abasiri et al., 2020)** who found that nearly two-thirds of the participants (64.2%) had psychological distress. (51.9%) of them experienced mild to moderate distress, while (15%) experienced severe distress, while COVID-19 peritraumatic distress index (CPDI) mean score for all the participants was 35.78 ± 15.52. Furthermore, in agreement with this result **(Al-Hanawi et al., 2020)** demonstrated that less than half of health workers had severe distress and about one-third of them had moderate distress.

In the same line with this result, **Lai et al., (2020)** reported that more than two-thirds of the participants reported psychological distress, and also a significant proportion of them experienced symptoms of anxiety, depression, and insomnia. Similarly, **El-Qushayri et al., (2021)** based on the

study, which conducted at Alexandria University on nurses in critical care units; found that the prevalence rates for depression, anxiety and stress among nurses were (51%, 69% & 50% respectively).

In contradiction to these findings, **EL- Etreby et al., (2021)** noted that more than half of the studied nurses had a minimal or no anxiety level, and nearly half of the studied nurses had a minimal or no depression level. In the same line, **Chew et al., (2020)** cleared that the prevalence rates for anxiety, depression, and stress were 15.7%, 10.6% and 5.2%, respectively.

Concerning the correlations between compassion satisfaction, compassion fatigue and peritraumatic psychological distress, the results of current study revealed that compassion fatigue (burnout) had a highly significant negative correlation with compassion satisfaction. This result suggesting that compassion satisfaction may be acting as a protective variable against burnout and secondary traumatic stress; because compassion satisfaction serves as a source of strength for nurses, allowing them to continue working even with hazardous working circumstances, poor patient outcomes, and high-stress levels.

On the other hand, there was a positive significant correlation between compassion fatigue (burnout) and compassion fatigue (secondary traumatic stress). This might be explained by that burnout occur as a result of work related stressors combined with specific individual traits, burnout results in physical, emotional and psychological problems, which make nurses disturbed, fragile and have less energy to manage job stress. This along with nurse's indirect exposure to trauma when assisting the client in recovering and caring for dying patients, increase the risk for secondary traumatic stress development.

These findings were corroborated by **(Wang et al., 2020)** who found that compassion satisfaction was strongly but negatively correlated with burnout ( $r = -0.70$ ,  $p < 0.0001$ ), while burnout was positively correlated with secondary traumatic stress ( $r = 0.43$ ,  $p < 0.0001$ ). In the same line with these findings, **Serrão et al., (2022)** concluded that burnout exhibits a high negative correlation with compassion satisfaction ( $r = -0.687$ ,  $p < 0.001$ ) and a high positive correlation with secondary traumatic stress ( $r = 0.624$ ,  $p < 0.001$ ).

Moreover, the results of the current study reported that peritraumatic psychological distress had a highly positive correlation with compassion fatigue (secondary traumatic stress). This result may be due to that, exposure to suffering is the first pathway to STS; when negative energy accumulates without counteraction by some positive mechanisms, this residual energy reprise within the affected person, which increase person susceptibility to experience psychological distress. These findings were in agreement with **(El-Etreby et al., 2021)** who confirmed a significantly positive correlation between secondary traumatic stress, anxiety, and depression. Similarly, **Secosan et al., (2020)** noted that STS was correlated positively and significantly with mental health complaints ( $r = 0.38$ ,  $p < 0.001$ ).

Furthermore, the present study presented that compassion satisfaction was not significantly correlated with compassion fatigue (secondary traumatic stress). This result was endorsed by **(Yu & Gui, 2022)** who demonstrated that compassion satisfaction was weakly and non-significantly correlated with secondary traumatic stress. On the other hand, this result was opposed by **(Wang et al., 2020)** who illustrated

that compassion satisfaction was weakly but positively correlated with secondary traumatic stress ( $r = 0.07$ ,  $p = 0.016$ ). Similarly, **Dehghannezhad et al., (2020)** showed that there was negative correlation between compassion satisfaction and secondary traumatic stress.

Regarding the crude regression analysis of sociodemographic factors as predictors of compassion satisfaction, compassion fatigue and peritraumatic psychological distress, the current study found that hospital type and department had strong predictor effect of compassion satisfaction, compassion fatigue, and peritraumatic psychological distress. These findings were backed up by **(Lee et al., 2021)** who demonstrated that nurses working in a hospital dedicated to COVID-19 infectious diseases have a higher compassion fatigue than nurses working at the National Safe Hospital.

Similarly, **Trumello et al., (2020)** revealed that there were statistically significant higher levels of burnout, secondary traumatic stress, anxiety, stress, and depression among professionals working with COVID-19 patients. Otherwise, with regard to the most affected regions, the findings indicated that, healthcare professionals working in the Italian regions most affected by the COVID-19 pandemic, presented higher levels of perceived stress and burnout, and lower levels of compassion satisfaction compared with healthcare professionals working in the other regions. In contrast to this finding, **Nashwan et al., (2021)** based on the study that was conducted in Qatar, illustrated that there were no significant differences in stress, anxiety, and depression between nurses working in COVID-19 and non-COVID-19 facilities.

Besides, the current study presented that years of experience had strong predictor effect of compassion fatigue and job had strong predictor effect of peritraumatic psychological distress. This result could be interpreted by the reason that holders of senior professional titles and those with long years of working experience often have stronger intuitive knowledge and professional skills; they are able to better understand the course of the disease and accept death, and their personal expectations are consistent with their actual working effort. Otherwise, although the professional experience of helping others promotes CS, caregivers experience distress and CF, due to a frequent contact with patients during long-term professional engagements.

These findings were in agreement with **(Amir & Okalo, 2022)** who demonstrated that working experience was a predictor of compassion fatigue ( $p$ -value =  $<.001$ ). In the same line with this result, **Sehsah et al., (2021)** illustrated that the main independent significant predictors of severe psychological distress were job experience less than 15 years, being a close contact to a COVID-19 case outside work and being involved in direct COVID-19 patient care (frontline physician). Similarly, **Zhang et al., (2022)** cleared that those who have senior professional titles and longer years of working experience, had high levels of satisfaction and low levels of burnout.

Moreover, this finding was supported by **(Lee et al., 2021)**, who indicated that nurses with more than five years of clinical experience suffered higher levels of compassion fatigue than participants with more than one year and less than three years of experience. In contrary to these findings, **Ruiz-Fernández et al., (2020)** in the multiple linear regression analysis for CF found that neither socio-demographic variable had a significant influence on compassion fatigue.

## Conclusion

Based on the findings of this study, it can be concluded that about two-thirds of the studied sample had average levels of compassion satisfaction, compassion fatigue (burnout) and compassion fatigue (secondary traumatic stress). On the other hand, nearly half of the studied sample had high level of peritraumatic psychological distress. Moreover, there was a significant positive correlation between compassion fatigue (burnout) and compassion fatigue (secondary traumatic stress), in addition, a highly significant negative correlation was found between compassion satisfaction and compassion fatigue (burnout). Also, there was a highly significant positive correlation between compassion fatigue (secondary traumatic stress) and peritraumatic psychological distress.

## Recommendations

### For policymakers and nursing managers:

- Hospitals should introduce in-service training programs for staff nurses about epidemic prevention and control measures, personal resilience and psychological counseling.
- Financial incentives and rewards from the managers and arranging the work schedule of nurses, which can reduce nurses' working hours are advised to increase work satisfaction and avoid CF.
- A resilience program should be implemented to reduce stress and inspire nurses to work efficiently during these difficult times.

### For nursing research:

- Continuous assessment is needed for acknowledgment of the psychological burden of a pandemic on health care workers (HCWs). Then, psychological and mental health services should be provided to health professionals emphasizing the importance of emotional support from colleagues, family, and friends.

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