护理杂志
Journal of Nursing
Volume 71 Number 09
ISSN: 0047-262X
DOI: 10.5281/zenodo.13888746

Assessment of Compassion Satisfaction among Intensive Care Nurses and Their Association with Burnout and Secondary-Traumatic Stress in Covid-19 Second Wave

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Abstract

Background: *In intensive care units (ICUs), caring for patients who are very sick and supporting their families can have a negative effect on healthcare workers' physical and mental health, as well as their quality of life both personally and professionally. The aim of the study was to determine the relationship of compassion satisfaction with burnout and secondary-traumatic stress among nurses working in ICUs in the second wave of COVID-19.* ***Methodology:*** *The study was conducted in Khyber Pakhtankhwa province of Pakistan using a cross-sectional analytical study design. The study participant was a nurse working in the ICU while dealing with patients having COVID-19 in the second wave. The sample size was 207 using the purposive sampling technique. The data was collected using a valid and reliable questionnaire after getting permission from the study setting and ethical review committee.* ***Results:*** *The study involved 207 nurses, with a majority being female (71%). Overall compassion satisfaction was average 2.7 ± 0.43, low burnout (1.5 ± 0.49), and low STS (1.8 ± 0.58). Compassion satisfaction is associated with gender, age, qualification, and experience, while burnout among nurses is associated with gender, age, qualification, and experience, and PTS is associated with age and experience.* ***Conclusion:*** *The study concluded that among the nurses, compassion satisfaction was average, burnout was low, and PTS was low. Moreover, with one point increase in burnout, compassion satisfaction significantly decreases up to -0.294 and 11% of total variation, while PTS is not associated with CS.*

Keywords: *Compassion Satisfaction, Burnout, Nurses, Covid-19.*

INTRODUCTION

The World Health Organization declared the COVID-19 outbreak in Wuhan, China, in December 2019 to be a pandemic due to its rapid evolution and start of a worldwide health catastrophe [1]. The pandemic has greatly affected the quality of life of healthcare professionals, particularly those who work on the front lines, where they face significant stress. These factors include limited access to appropriate safety gear, the physical strain of wearing personal protective equipment (PPE) for extended periods, insufficient support, long work hours, and abrupt changes in job responsibilities [2].

Stress at work has become more prevalent among healthcare professionals as a result of time restraints, a lack of social support, growing patient demands, and feelings of inadequate coping [3].

Volume 71 Number 09
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Research has frequently shown a correlation between the emotional toll that healthcare workers take from seeing their patients suffer and their perceptions of extreme work-related stress [4]. Caring for critically ill patients in a critical care unit can be difficult and demanding, which can cause stress and compassion fatigue (CF) [5]. Experts predict a 7.6 million nurse shortage worldwide by 2030 [6].

In intensive care units (ICUs), caring for patients who are very sick and supporting their families can have a negative effect on healthcare workers' physical and mental health, as well as their quality of life both personally and professionally. ICU workers frequently have health issues as a result of heavy workloads and workplace stress [7]. Secondary traumatic stress (STS), burnout (BO), depression, anxiety, and sleeplessness are common complaints made by distressed ICU staff [8]. The COVID-19 pandemic has significantly increased workloads and stress for intensive care unit (ICU) workers in low- and middle-income countries due to inadequate supplies for life-saving care and personal safety [9, 8].

A vital part of the healthcare system is nursing, which offers compassionate care to individuals of all ages who are suffering from physical or mental illnesses. Aspects of nursing care include being humane, showing others respect, fostering positive cohesiveness, possessing professional knowledge and abilities, and being considerate of others' experiences [10]. These characteristics have a strong correlation with nurse care and patients' satisfaction with such care. Researchers have linked high patient discontent to nurses' burnout and exhaustion, as they have found a correlation between high patient satisfaction and high nurse care satisfaction with compassion [11]. Empathy and compassion, fundamental to the nursing profession, foster a sense of satisfaction and happiness that comes from providing care for others [12]. The formation of sympathetic relationships with patients and the emotional pleasures of relieving their pain are indicators of compassion fulfillment, which is a positive aspect of nursing. Compassion fatigue, a type of secondary traumatic stress disorder, can arise from the high emotional engagement required, manifesting as a lack of attention to the patient's needs and a variety of physical and psychological symptoms such as apathy, melancholy, weariness, and headaches [13, 14].

Previous studies have highlighted the factors that affect the life of nurses, i.e., handling patients suffering from life-threatening conditions, high patient flow, long duty hours and shifts, high standards of quality, deaths of patients, and fulfilling the guidelines and initiatives of healthcare improvement [15]. Numerous studies have looked at the relationships that exist between burnout, compassion fatigue (CF), and a range of CS factors in diverse groups of nursing and support professionals across different regions. A Pakistani study reported that nurses working in critical areas have higher or average CS, while average to low CF, burnout, and STS [16]. Another Pakistani study identifies CF as considerable factors that affect the performance of nurses; therefore, awareness is mandatory among clinical nurses and healthcare workers [17]. The study aimed to uncover the compassion satisfaction level among critical care nurses and assess its impact on burnout and secondary-traumatic stress following the second wave of COVID-19.

METHODOLOGY

The tertiary care hospitals of Khyber Pukhtankhwa, Pakistan, was the study setting where the correlational-descriptive study design was conducted from September 2022 to march 2023. The study population consisted of nurses who work in critical care settings and deal with COVID-19 patients in the second wave. After determining the total number of nurses working in the critical care units of the selected population, through online Raosoft calculator by using a 95% confidence level, a 5% margin of error, and an 80% prevalence ratio, the purposive sampling technique yielded a final sample size of 207.

护理杂志
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The study's inclusion criteria included nurses working in the critical care unit with at least one year of experience, performing their duties in the unit where they care for and deal with COVID-19 patients, while it excluded interns, those absent or on leave, and those unwilling to participate voluntarily.

Once we obtained permission from the study setting, we initiated the data collection process. We completed the data collection process in two stages, gathering socio-demographic information and compassion satisfaction data via a questionnaire.

We adopted the compassion satisfaction questionnaire, which encompasses three dimensions: CS, BO, and STS. We divided the questionnaire's total of 30 questions evenly across all three dimensions, using a 5-point Likert scale ranging from 1-never to 5-always. The instrument's reliability was 0.75 (Cronbach alpha). The instrument's cutoff values were as follows: participants with a score of 22 or less were considered low, those with a score of 23 to 41 were considered average, and those with a score of 42 or more were considered high in terms of CS, burnout, and secondary-traumatic stress (PTS). Reverse the items 1, 4, 15, 17 and 29 and reverse your score [18].

We analyzed the data using SPSS 22.0 for both descriptive and inferential statistics. We used an independent t-test and ANNOVA to identify differences within the groups, and a chi-square test for categorical variable association and linear regression to determine the relationship between compassion satisfaction and socio-demographic data.

The ethical review committee approved the study and obtained informed consent from each participant. We explained the objectives' aim to each respondent, making it clear that they would not directly benefit, that only the primary investigator would have access to their data in a coded form, and that they could withdraw their data at any moment to safeguard the patient's ethical rights.

RESULTS

In the current study, the total participants were 207, where the maximum number of nurses were female, 147 (71%), than male, 60 (29%). The number of nurses in the age group of 22 to 25 years was higher at 85 (41.1%), followed by those in the age group of 26 to 30 years at 70 (33.8%). The majority of these nurses held a Bachelor of Science in Nursing (BSN) qualification. The maximum number of participants, 92 (44.4%), had 1 to 2 years of experience, followed by those with 3 to 5 years of experience, 45 (21.7%), and 156 (75.4%) were city dwellers (see table 1).

Table 1: Demographic data of the participants

	Frequency (207)	%
Gender		
Male	60	29.0
Female	147	71.0
Age		
18-21 years	14	6.8
22 to 25 years	85	41.1
26 to 30 years	70	33.8
31 and above	38	18.4
Qualification		
Registered Nurse	14	6.8
BSN	99	47.8
Post-Rn	48	23.2
MSN	46	22.2
Experience		
1 to 2 years	92	44.4

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3 to 5 years	45	21.7
6 to 10 years	39	18.8
11 and above	31	15.0
Living In		
City	156	75.4
Village	51	24.6

Level of CS among the participants

Table 2 illustrates that the majority of nurses compassion satisfaction was high at 160 (77.3%), followed by average CS at 46 (22.2%), while only 1 (0.5%) mentioned that their CS was low, while the overall mean score was 2.7 ± 0.43, which shows an average level of CS. As a result of analysis the maximum number of nurses with burnout was average 122 (58.9%), followed by low burnout 85 (41.1%), while no nurse had high burnout, and the overall mean score of burnout was 1.5 ± 0.49, which reveals low burnout. The secondary-traumatic stress mean score among participants was 1.8 ± 0.58 that reported low stress, while the majority of the participants PTS was average 132 (63.8%), followed by low PTS 52 (25.1%).

Table 2: Compassion satisfaction among the participants

	Low	Average	High	Mean score	Median
CS	1 (0.5%)	46 (22.2%)	160 (77.3%)	2.7 ± 0.43	3.0
BO	85 (41.1%)	122 (58.9%)	0	1.5 ± 0.49	2.0
STS	52 (25.1%)	132 (63.8%)	23 (11.1%)	1.8 ± 0.58	2.0

Difference within the groups regarding CS, BO and STS

Regarding the CS the female mean score were higher (2.8 ± 0.38) than male (2.6 ± 0.51). The younger age group of 18-21 years CS was higher (3.0 ± 0.00) than other groups, while nurses having qualification of 4 years BSN CS was also higher (2.8 ± 0.40), and nurses having experience of 3 to 5 years CS was high (3.0 ± 0.00). Moreover there were significant difference in mean score regarding CS among gender (0.000), age (0.002), qualification (0.048), experience (0.000), and living status (0.000).

The burnout among female was also higher (2.8 ± 0.50), in age group the maximum BO was found among age 26 to 30 years (1.7 ± 0.44), qualification of 3 years registered nursing diploma (2.0 ± 0.40), and experience of (1.8 ± 0.31). Furthermore there were significant difference among the groups of gender (0.000), age (0.000), qualification (0.000) and experience (0.000).

In PTS there were no significant difference among gender (0.411), while 31 and above age group were higher STS and found significant difference in age group (0.000), while there were no significant difference among qualification, and nurses having experience of 11 and above years STS was higher (2.0 ± 0.77), and having significant difference (0.022) in experience group regarding STS (See table 3).

Table 3: Difference within the groups regarding CS, BO and STS

	C-S		Burnout		STS	
	Mean ± SD	F (P-value)	Mean ± SD	F (P-value)	Mean ± SD	F (P-value)
Gender						
Male	2.6 ± 0.51	26.7 (0.000)	1.8 ± 0.40	81.8 (0.000)	1.8 ± 0.54	0.67 (0.411)
Female	2.8 ± 0.38		2.8 ± 0.50		1.8 ± 0.60	
Age						
18-21 years	3.0 ± 0.00	5.0 (0.002)	1.3 ± 0.49	10.2 (0.000)	1.7 ± 0.99	12.1 (0.000)
22 to 25 years	2.8 ± 0.43		1.4 ± 0.49		1.9 ± 0.52	
26 to 30 years	2.8 ± 0.40		1.7 ± 0.44		1.6 ± 0.49	

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31 and above	2.5 ± 0.50		1.7 ± 0.41		2.2 ± 0.43	
Qualification						
Registered Nurse	2.5 ± 0.51	2.6 (0.048)	2.0 ± 0.40	12.9 (0.000)	2.0 ± 0.00	0.7 (0.506)
BSN	2.8 ± 0.40		1.4 ± 0.49		1.8 ± 0.61	
Post-RN	2.7 ± 0.42		1.6 ± 0.48		1.8 ± 0.39	
MSN	2.7 ± 0.45		1.8 ± 0.40		1.7 ± 0.75	
Experience						
1 to 2 years	2.7 ± 0.46	6.7 (0.000)	1.4 ± 0.49	11.6 (0.000)	1.9 ± 0.59	3.2 (0.022)
3 to 5 years	3.0 ± 0.00		1.8 ± 0.31		1.6 ± 0.47	
6 to 10 years	2.6 ± 0.49		1.5 ± 0.50		1.7 ± 0.42	
11 and above	2.7 ± 0.46		1.7 ± 0.46		2.0 ± 0.77	
Living Status						
City	2.8 ± 0.37	37.7 (0.000)	1.5 ± 0.49	22.6 (0.000)	1.5 ± 0.59	8.1 (0.005)
Village	2.5 ± 0.50		1.7 ± 0.46		1.7 ± 0.50	

Association of CS, BO and STS with demographic data

Table 4 shows that compassion satisfaction is associated with gender (0.012), age (0.007), and experience (0.002), while not associated with qualification (0.088). The burnout among nurses are associated with (0.000), age (0.000), qualification (0.000), and experience (0.000). Moreover the PTS was associated with age (0.000), qualification (0.000) and (0.000), while not associated with gender (0.61). (See table 4).

Table 4: Association of compassion satisfaction, burnout and secondary-traumatic stress with demographic data

	Compassion satisfaction				**Burnout**				**secondary-traumatic stress**			
	L	**A**	**H**	***P-value***	**L**	**A**	**H**	***P-Value***	**L**	**A**	**H**	***P-value***
Gender												
Male	1	20	39	0.012	12	48	0	0.000	14	41	5	0.61
Female	0	26	121		73	74	0		38	91	18	
Age												
18-21 years	0	0	14	0.007	9	5	0	0.000	9	0	5	0.000
22 to 25 years	1	15	69		50	35	0		15	61	9	
26 to 30 years	0	14	56		18	52	0		28	42	0	
31 and above	0	17	21		8	30	0		0	29	9	
Qualification												
Registered Nurse	0	7	7	0.088	0	14	0	0.000	0	14	0	0.000
BSN	1	15	83		59	40	0		24	61	14	
Post-Rn	0	11	37		17	31	0		9	39	0	
MSN	0	13	33		9	37	0		19	18	9	
Experience												
1 to 2 years	1	22	69	0.002	54	38	0	0.000	19	59	14	0.000
3 to 5 years	0	0	45		5	40	0		15	30	0	
6 to 10 years	0	15	24		17	22	0		9	30	0	
11 and above	0	9	22		9	22	0		9	13	9	
Living in												
City	1	22	133	0.000	70	86	0	0.036	48	94	14	0.003
Village	0	24	27		15	36	0		4	38	9	

Correlation of compassion satisfaction on Burnout and secondary-traumatic stress

Table 5 shows that CS is associated with burnout while not associated with STS. With one point increase in burnout, compassion satisfaction significantly decreases up to -0.294, and 11% of total variation in compassion satisfaction is explained by burnout.

护理杂志
Journal of Nursing
Volume 71 Number 09
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Table 5: Impact of CS on BO and STS

	Compassion satisfaction						
	B	**SE**	**t**	**95% Confidence Interval for B**		**p-value**	**R^2 *(F value)***
				Lower Bound	**Upper Bound**		
Burnout	-.294	.058	-5.062	-.408	-.179	0.000	0.111 *(5.68)*
Secondary traumatic stress	-.081	.051	-1.570	-.182	.021	0.118	0.012 *(2.46)*

DISCUSSION

The provision of quality and safe patient care is the main responsibility of the nursing profession. Negative results among nurses, however, have the potential to impair both the standard of nursing care and patients' satisfaction with it. In the current study, the overall compassion satisfaction among nurses was high at 160 (77.3%), followed by average CS at 46 (22.2%), while only 1 (0.5%) mentioned that their CS was low, while the overall mean score was 2.7 ± 0.43, which shows an average level of CS. It may be due to higher degrees of empathy and nurturing traits frequently exhibited by nurses, which are crucial for providing patients with quality care. Their natural ability to connect profoundly with people makes their work more fulfilling when they are able to ease their suffering and bring relief. Supporting our findings, a study conducted in Pakistan among nurses shows that the majority of the nurses (75.5%) working in cardiology departments were average, while the number of nurses working in ICU CS was high (33.8%) [19]. Another study completed in Pakistan among rescue staff reported that employees at Rescue 1122 have a moderate level of CS, which is influenced by a variety of factors in addition to their pre-hospital trauma scene services. These studies [20] can help pre-hospital care trainees better understand the factors affecting CS among rescuers. Another study from Pakistan also revealed that critical care nurses had an average to high level of CS and a low to average level of CF [19]. Young et al.17 found similar results, demonstrating higher compassion satisfaction among cardiology nurses, with a mean CS of 41.84 [21] In the USA, a congruent study by Roney et al. found an average level of CS among pediatric nurses. The USA found that most pediatric nurses had an average level of CS [22]. Similarly, a Chinese study found that whereas CF had an average score, 78.34% of nurses had an average to high level of CS [23]. The results of the study, however, differed from those of a study conducted among emergency department nurses at a San Antonio Military Medical Centre in the United States, which found lower levels of CS in addition to CF [24].

In the current study, the level of burnout was assessed. As a result of the analysis, the maximum number of nurses with burnout was average 122 (58.9%), followed by low burnout 85 (41.1%), while no nurse had high burnout, and the overall mean score of burnout was 1.5 ± 0.49, which reveals low burnout. It may be due to the previous experiences of nurses in the first wave, and it may also be due to the possibility that the first wave's shared experiences helped the nursing staff become a more cohesive team. A study conducted in Belgium found that the prevalence of burnout was 68% [25], whereas other studies carried out in Belgium on a general nursing population reported a prevalence ranging from 17% to 38% [26, 27]. A study among nurses in Karachi, Pakistan, revealed an average burnout among 94.2% of the study subjects. There was a significant mean burnout difference (p=0.014). We discovered that ICU nurses had the highest burnout rate (8.5%) among the four departments [19]. According to another study [21], the prevalence among research participants who were at moderate risk of burnout was 92%. According to a study by Gordon et al., nurses, who work in the intensive care unit, have a higher level of burnout. Women have the highest level and are more likely to perform professional activities within the first decade [28].

In the current study, the secondary-traumatic stress mean score among participants was 1.8 ± 0.58 that reported low stress, while the majority of the participants PTS was average 132 (63.8%),

Volume 71 Number 09
ISSN: 0047-262X
DOI: 10.5281/zenodo.13888746

followed by low PTS 52 (25.1%). It could be due to the fact that most nurses, according to the survey, have moderate levels of CS. The satisfaction from supporting patients may balance out feelings related to STS. Stress management skills are frequently higher among nurses who find fulfillment in their work often have better stress management skills. According to a study in Saudi Arabia, the ED nurses reported a mean STS score of 51.0 ± 13.2 out of a possible score of 85 shows maximum level of STS among them. Just 5% of individuals said they had somehow to no, or average level of STS, while 11.6% said they had mild STS. With 27.6% reporting high levels and 50.8% reporting high level [29]. An extensive review of the literature suggests that ED nurses are highly susceptible to and at risk for both PTSD and STS. The nature of the duties and responsibilities held by nurses explains this [30]. Emergency departments (EDs) are required to handle emergencies, including injuries sustained by accident victims, sudden deaths, and violent crimes [31]. One potential trigger for developing STS is their ongoing exposure to fresh death experiences, including those of patients in the ED who have severe wound and agony, as well as the death of patients while under their care. Implementing focused support networks and resilience-building initiatives in healthcare settings is imperative in light of this exposure [32].

Regression in this study showed that CS significantly reduced burnout up to -0.294 and 11% of total variation, but did not significantly affect secondary traumatic stress. Furthermore, compassion satisfaction is associated with gender, age, and experience, whereas it is not associated with qualification. The burnout among nurses is associated with age, qualification, and experience. Moreover, the PTS was positively correlated with age and qualification, but not with gender. A study at Children's Hospital Los Angeles found a strong negative relationship between CS and BO [33], which supports our findings. Other studies have demonstrated that close contact with trauma survivors may cause emotional stress; there is a strong positive correlation between CS and STS [34]. An investigation on emergency nurses revealed that the majority of them had moderate to high levels of CS, BO, and STS, which is consistent with the moderate level of CS, BO, and STS among rescuers [35]. In Iran, a study revealed that 42% and 96% of participants exhibited high risk levels of BO and STS, respectively. Researchers detected significant positive relationships between BO and STS. Measures of CF and CS showed an inverse relationship [36].

The study had certain limitations. Firstly, its sample size was limited to 207, and it was only conducted in one province using a purposive sampling technique, which limited its generalizability to other populations and provinces. A cohort study will aid in identifying the variables at various stages of the wave, as the correlational study design restricts observation to a single point.

CONCLUSION

The study found that while BO and STS were low, CS was average among nurses working in critical care in Khyber Pukhtankhwa second wave. Burnout and the CS were linked to demographic factors as age, gender, and experiences. Additionally, the study discovered a relationship between burnout and compassion satisfaction, but not between STS and CS.

Ethical consideration: The study was approved by ethical review committee of institute of nursing sciences Khyber medical university Pakistan (No: DIR/KMU/INS/22/109).

Author contribution: AS: Design, concept and drafting, US: data collection and literature review, SK: data collection, review and editing, FA: data analysis and statistical analysis, validation

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

Funding Sources: This study was not supported by any sponsor or funder.

Availability of data: The data will available on request to corresponding author

Volume 71 Number 09
ISSN: 0047-262X
DOI: 10.5281/zenodo.13888746

What the study contributes

Clarifying Relationships Among Constructs: From the findings of the study the researcher have established relationship among these variables.

Demographic association: The study have also highlighted the CS, BO and PTS from demographic perspective that influences these variables.

Implications for policy development: The study findings can help the policy makers to established interventions for the promotion of well-being of nurses.

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Volume 71 Number 09
ISSN: 0047-262X
DOI: 10.5281/zenodo.13888746

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