

Compassion Fatigue, Compassion Satisfaction, Burnout and its Associated Factors among Nurses Working in Critical Care Area of Tertiary Care Hospital, Karachi, Pakistan

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ABSTRACT

Background: Compassion satisfaction and compassion fatigue is the element of professional quality of life which plays an integral role in compassionate care. Compassion fatigue can lead to poor job performance, high turnover rate, absenteeism, lack of interest in patients, and poor patient outcome.

Objective: This study aimed to determine the burden of compassion fatigue, compassion satisfaction, and burnout among nurses working in specialty-based critical care areas.

Methods: A cross-sectional study was accomplished at Dow University Hospital from December 2020 to March 2021. A structured, and validated tool, ProQol was utilized for data collection. Data were entered and analyzed in SPSS version 24.0. Binary logistic regression was applied to establish the association between the variables. The level of significance was considered with a p-value ≤ 0.05 .

Results: A total of 140 nurses working in critical areas were approached and responded to this survey. The average score was 40.77 ± 6.26 for compassion satisfaction, 22.47 ± 5.46 for burnout, and 26.14 ± 6.20 for secondary traumatic stress. On multivariable regression analysis, the likelihood of average compassion satisfaction was significantly lower among nurses who had BSN degrees. Nurses with work experience of 6 months to <1 year, 1-3 years, and 4-6 years had higher average compassion satisfaction. None of the participants' characteristics was associated with a burnout on univariate analysis. The risk of secondary traumatic stress was found higher in nurses who were single.

Conclusion: The study findings indicated an average to a higher level of compassion satisfaction and a low to average level of compassion fatigue which is burnout and secondary traumatic stress among critical care nurses.

Keywords: *Compassion fatigue, compassion satisfaction, burnout, critical care, nurses.*

INTRODUCTION

The environment in the critical care unit is challenging for caring the critically ill patients [1] and demanding as well which can lead to stress and compassion fatigue (CF) [2, 3]. According to the prediction that in the year 2030, there will be a 7.6 million shortage of nurses around the globe [4]. Thus, in the healthcare system, CF is among the leading factor for nursing shortages worldwide [5]. It is documented by current research that compassion is a word used for internal feelings or drives for others' sufferings and the desire to help others in their suffering [6]. Compassion is a phenomenon closely associated with empathy [7]. Compassion satisfaction (CS) is a positive feeling toward patient care, nurses feel joy accomplished, feel more connected, and gain fulfillment in inpatient care [8]. On the other hand, CF is a word used to describe the combination of both the term Burnout (BO) and secondary traumatic stress disorder

(STS) [9]. Moreover, a healthy working environment is crucial in decreasing CF, nurses who reported workplace environments are connected, and observed low levels of compassion fatigue and a high degree of compassion satisfaction [10]. The world is facing a pandemic situation and the world health organization declared an emergency around the world [11]. Nurses are the frontline healthcare workers in this pandemic, their mental health is at risk as a recent mental health survey in China established that nurses have a higher level of anxiety than other healthcare workers [12].

CF has a global prevalence that ranges from 7.3% to 40% among healthcare workers in critical care units and it may affect the quality of life of nurses [3]. In developed countries, CF has been studied more as compared to developing countries, one study conducted in the United States of America to measure CF and relate it to turnover intention rate observed a significantly predictive association between both factors [13]. CF has been reported in Greece at 73.9% [14] and Turkey at 52.7% [15]. Despite the CF prevalence reported high in neighboring countries, Pakistan has a

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paucity of research on CF among intensive care unit nurses, one recent study which is conducted on cardiac physicians in Pakistan reported CF as a negative phenomenon and suggested increased CF awareness among Pakistani healthcare workers [16]. CF leads to low morale, absenteeism, high turnover rate, poor job performance, emotional and physical exhaustion, and ultimately poor patient outcome [17] whereas (CS) helps in the connection between patient and family, and also leads to better patient prognosis and patient satisfaction [18]. Therefore, the study aimed to determine the burden of compassion fatigue and compassion satisfaction, and burnout among nurses working in specialty-based critical care areas, including adult, pediatric, cardiac, and neonatal intensive care units and emergency departments of a tertiary care hospital in Karachi Pakistan.

MATERIALS AND METHODS

This analytical cross-sectional study design was accomplished at Dow University Hospital in Karachi, Pakistan. The study was carried out for a period of four months from December 2020 to March 2021. The participants were selected by using a convenient nonprobability sampling technique. Registered nurses having at least 6 months of working experience in the critical care units were included in the study.

The sample size was calculated through OpenEpi version 3.0 with the proportion formula. Taken 73% of the average score of compassion satisfaction [19], 95% confidence level, and 5% confidence limit. A total of 137 samples was calculated by specifying the population of 250. The sample was raised to 140 registered nurses.

Written informed consent was obtained from all participants before data collection. Subjects participated voluntarily and confidentiality of data was guaranteed. Data collection permission was obtained from the Medical Superintendent of the respective hospital and study protocols were approved by the Institutional Review Committee of Dow Institute of Nursing and Midwifery, Dow University of Health Sciences, Karachi (REF letter No. DIONAM(MSN2020)-18/391). The survey was conducted through face-to-face interviews.

The validated Professional Quality of Life Scale (ProQOL-5) questionnaire was utilized to determine the prevalence of compassion satisfaction, compassion fatigue, and burnout in nurses working in a critical area. ProQOL-5 contains 30 questions. Additionally, ProQOL-5 responses are further divided into three separate 10-item subscales including compassion satisfaction, burnout, and secondary traumatic stress. Each subscale is scored separately. For each subscale, the total score is reported as low, average, and high. A higher score in the compassion satisfaction component signifies a profound capability of the individual to be an effective care provider whereas a higher score in the burnout

component and secondary traumatic stress interlinked with a higher risk of developing burnout and compassion fatigue, respectively.

After approval from the institutional research committee (IRC) and relevant authority hospitals, data collection was started from critical care areas which include adult, pediatric, cardiac, and neonatal intensive care units, and emergency departments.

Data Analysis: The data was entered and analyzed through SPSS version 24.0. Normality was tested by the Shapiro-Wilk test. The prevalence of low, average, and high CS, BO, and STS was computed in percentages. Univariate and multivariable associations of study variables with CS, BO, and STS were computed by utilizing binary logistic regression. The level of significance was considered with a p-value ≤ 0.05 .

Table 1: Demographic and work-related characteristics of participants.

Demographic Variable	Frequency (%)
Gender	
Male	79(56.4)
Female	61(43.6)
Age	
20-29 years	76(54.3)
30-39 years	57(40.7)
40-49 years	3(2.1)
≥ 50 years	4(2.9)
Marital Status	
Single	78(55.7)
Married	62(44.3)
Nursing Unit	
Adult ICU	73(52.1)
CICU/CCU	22(15.7)
PICU	5(3.6)
NICU	6(4.3)
ED	34(24.3)
Education	
Diploma	50(35.7)
B.Sc. Nursing	45(32.1)
Post RN / Masters	45(32.1)
Experience	
6 months to <1 year	12(8.6)
1-3 years	43(30.7)
4-6 years	32(22.9)
7-10 years	31(22.1)
>10 years	22(15.7)
Working Shifts	
All three rotations	99(70.7)
Only morning duty	29(20.7)
Evening/night duty	12(8.6)
Salary	
30,000-40,000 PKR	18(12.9)
41,000-50,000 PKR	50(35.7)
51,000-60,000 PKR	47(33.6)
>60,000 PKR	25(17.8)

CCU: Critical care unit CICU: ED: Emergency department, ICU: Intensive care unit, NICU: Neonatal intensive care unit, PICU: Pediatric intensive care unit

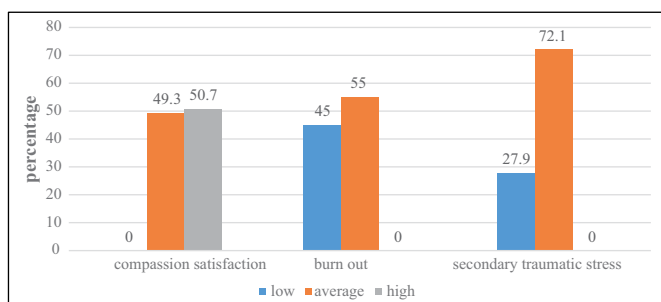


Fig. (1): Prevalence of low, average, and high compassion satisfaction, burnout, and secondary traumatic stress.

RESULTS

Table 1 describes the demographic and work-related characteristics of study participants. A total of 140 nurses working in critical areas were approached and all of them agreed to be part of the study. Most of the study participants were females 56.4%. Concerning age,

it ranges from 20 to 50 years, half of the participants 54.3% were between the ages of 20-30 years. For marital status, 55.7% were single while 44.3% were married. The majority of critical care area nurses were working in adult intensive care units 52.1%.

Fig. (1) displays the prevalence of low, average, and high CS, BO, and STS. The average means score was 40.77 ± 6.26 for CS, 22.47 ± 5.46 for BO, and 26.14 ± 6.20 for STS.

Table 2 exhibits the univariate and multivariable association of participants' features with CS. On univariate regression analysis, the likelihood of average CS was significantly higher among nurses who had BSN degrees as compared to those who studied Post RN or master's programs the odds of average CS were significantly higher among nurses who had the experience of <6 to 1 year and 4 to 6 years than those with work experience of more than 10 years. The chance of average CS was less

Table 2: Univariate and multivariable association of study variables with compassion satisfaction on binary logistic regression.

Variables	OR (95% CI)	p-value	aOR (95% CI)	p-value
Age				
20-29 years	0.27 (0.03-2.71)	0.266	-	-
30-39 years	0.37 (0.04-3.78)	0.402	-	-
40-49 years	0.67 (0.03-18.06)	0.81	-	-
>50 years	Ref		-	-
Gender				
Female	0.90 (0.46-1.75)	0.750	-	-
Male	Ref		-	-
Marital Status				
Single	0.95 (0.49-1.85)	0.880	-	-
Married	Ref		-	-
Nursing Unit				
ICU	0.78 (0.35-1.76)	0.552	-	-
CICU	1.20 (0.41-3.52)	0.740	-	-
PICU	4 (0.40-39.58)	0.236	-	-
NICU	2 (0.32-12.41)	0.457	-	-
ER	Ref		-	-
Education				
Diploma	0.87 (0.39-1.94)	0.729	0.74 (0.26-2.09)	0.568
B.Sc. Nursing	0.53 (0.23-1.23)	0.141	0.28 (0.08-0.91)	*0.035
Post RN / Masters	Ref		Ref	
Working Experience				
6 months to <1 year	8 (1.60-39.97)	*0.011	20.95 (2.61-168.06)	**0.004
1-3 years	3.37 (1.11-10.27)	*0.033	15.11 (3.19 - 71.45)	**0.001
4-6 years	2.35 (0.73-7.56)	0.151	6.85 (1.51-31.20)	*0.013
7-10 years	2.50 (0.77-8.08)	0.126	1.97 (0.49-7.99)	0.342
>10 years	Ref		Ref	
Working Shifts				
All three rotations	0.16 (0.03-0.77)	0.022	0.08 (0.01-0.44)	**0.004
Only morning duty	0.21(0.04-1.15)	0.073	0.10 (0.02-0.65)	*0.016
Evening/night duty	Ref		Ref	
Salary				
30,000-40,000 PKR	0.13 (0.03-0.54)	**0.005	0.06 (0.01-0.34)	*0.002
41,000-50,000 PKR	0.51 (0.19-1.40)	0.190	0.24 (0.06-0.89)	*0.033
51,000-60,000 PKR	0.41(0.15-1.14)	0.089	0.32 (0.09-1.09)	0.068
>60,000 PKR	Ref		Ref	

CI: Confidence interval, OR: Odds ratio, aOR: Adjusted odds ratio, Ref: Reference category, *Significant at $p < 0.05$, **Significant at $p < 0.01$

likely among nurses with income of 30,000-40,000 PKR than those with income of >60,000 PKR. A multivariable model shows that likelihood of average compassion was lower among nurses with BS education than those who were Post RN or Master. Nurses with work experience of 6 months to <1 year, 1-3 years, and 4-6 years had higher odds of average CS than those who had experience of more than 10 years.

Table 3 represents an association of BO with study participants' characteristics. None of the participants' characteristics was associated with a BO on univariate analysis.

Table 4 shows the association of STS with study participants' features. The risk of low STS was higher for nurses who were single than those who were married.

Table 3: Univariate and multivariable association of study variables with a burnout on binary logistic regression.

Variables	OR (95% CI)	p-value	aOR (95% CI)	p-value
Age				
20-29 years	0.28 (0.03-2.86)	0.286	0.65 (0.05-8.81)	0.749
30-39 years	0.24 (0.02-2.47)	0.232	0.45 (0.04-5.93)	0.548
40-49 years	0.17 (0.01-4.51)	0.287	0.25 (0.01-9.06)	0.449
>50 years	Ref		Ref	
Gender				
Female	1.34 (0.68-2.62)	0.402	-	-
Male	Ref		-	-
Marital Status				
Single	1.11 (0.57-2.17)	0.758	-	-
Married	Ref		-	-
Nursing Unit				
ICU	1.33 (0.58-3.06)	0.498	1.22 (0.49-3.01)	0.664
CICU	1.94 (0.65-5.75)	0.233	1.51 (0.46-4.94)	0.492
PICU	2.42 (0.36-16.50)	0.366	2.14 (0.27-16.06)	0.458
NICU	0.81 (0.13-5.05)	0.827	0.80 (0.11-5.54)	0.818
ER	Ref		Ref	
Education				
Diploma	1.74 (0.77-3.92)	0.181	2.09 (0.83-5.31)	0.119
B.Sc. Nursing	0.75 (0.32-1.76)	0.517	0.93 (0.35-2.48)	0.893
Post RN / Masters	Ref		Ref	
Working Experience				
6 months to <1 year	0.86 (0.21-3.55)	0.832	-	-
1-3 years	0.78 (0.28-2.22)	0.647	-	-
4-6 years	0.82(0.27-2.45)	0.724	-	-
7-10 years	1.66(0.55-5)	0.366	-	-
>10 years	Ref		Ref	
Working Shifts				
All three rotations	0.76 (0.44-1.29)	0.308		
Only morning duty		0.656		
Evening/night duty	Ref		Ref	
Salary				
30,000-40,000 PKR	0.53 (0.15-1.81)	0.315	0.40 (0.09-1.63)	0.202
41,000-50,000 PKR	0.48 (0.18-1.28)	0.144	0.35 (0.11-1.14)	0.082
51,000-60,000 PKR	0.45 (0.16-1.21)	0.116	0.43 (0.14-1.34)	0.148
>60,000 PKR	Ref		Ref	

CI: Confidence interval, OR: Odds ratio, aOR: Adjusted odds ratio, Ref: Reference category.

Table 4: Univariate and multivariable association of study variables with secondary traumatic stress on binary logistic regression.

Variables	OR (95% CI)	p-value	OR (95% CI)	p-value
Age				
20-29 years	1.56 (0.15-15.75)	0.706	-	-
30-39 years	0.72 (0.07-7.57)	0.782	-	-
40-49 years	1.50 (0.05-40.63)	0.810	-	-
>50 years	Ref		-	-
Gender				
Female	1 (0.47-2.11)	0.998	-	-
Male	Ref		-	-

Variables	OR (95% CI)	p-value	OR (95% CI)	p-value
Marital Status				
Single	2.21 (1.01-4.83)	*0.048	2.95 (1.13-7.72)	*0.027
Married	Ref		Ref	
Nursing Unit				
ICU	0.84 (0.34-2.09)	0.714	-	-
CICU	1.37 (0.44-4.28)	0.587	-	-
PICU	0.60 (0.06-6.06)	0.665	-	-
NICU	0.48 (0.05-4.64)	0.526	-	-
ER	Ref		Ref	
Education				
Diploma	1.96 (0.79-4.88)	0.144	2.18 (0.78-6.11)	0.135
B.Sc. Nursing	1.13 (0.42-3.01)	0.803	1.09 (0.35-3.43)	0.877
Post RN / Masters	Ref		Ref	
Working Experience				
6 months to <1 year	3.40 (0.75-15.36)	0.112	1.98 (0.37-10.43)	0.420
1-3 years	1.03 (0.30-3.49)	0.962	0.49 (0.11-2.08)	0.341
4-6 years	1.33 (0.37-4.69)	0.657	0.73 (0.18-2.94)	0.666
7-10 years	1.39 (0.39-4.91)	0.609	1.45 (0.38-5.53)	0.579
>10 years	Ref		Ref	
Working Shifts				
All three rotations	1.50 (0.38-5.91)	0.562	-	-
Only morning duty	0.35 (0.05-2.03)	0.240	-	-
Evening/night duty	Ref		Ref	
Salary				
30,000-40,000 PKR	0.91 (0.21-3.82)	0.892	-	-
41,000-50,000 PKR	1.11 (0.36-3.39)	0.851	-	-
51,000-60,000 PKR	1.63 (0.54-4.90)	0.381	-	-
>60,000 PKR	Ref		Ref	

CI: Confidence interval, OR: Odds ratio, aOR: Adjusted odds ratio, Ref: Reference category, *Significant at p<0.05

After adjusting the effects of other covariates in the multivariable model, this association still exists.

DISCUSSION

The present study results designated an average to a higher level of CS and a low to average level of CF among critical care nurses. The study results are in line with a study carried out in Karachi, Pakistan that reported a higher level of CS and an average level of CF in nurses working in critical areas [20]. Similarly, a study conducted in China, unveiled that 78.34% of nurses had an average to a high level of CS whereas CF had an average score [21]. In contrast, the study findings were dissimilar to a study accomplished in a San Antonio Military Medical Center, USA, among emergency department nurses which established lower levels of CS among nurses along with CF [22]. The current study determined the average to the high mean score for CS and the low mean score for BO and STS. These study results are comparable with study findings from a study employed in Spain, which showed a high mean level of CS while a low mean level of BO and STS among nurses [23].

The present study findings, the nurses who hold BSN or Post RN BSN degrees had an average to a higher level of CS. On the other hand, the study done in the

USA documented a higher level of CS among nurses who had a nursing diploma with certification courses [24]. The current study revealed higher CS levels among nurses who had less than 10 years of clinical experience. Similar findings were reported in a study performed in the USA, which disclosed nurses having less than 10 years of clinical experience had a high level of CS [24]. In the current study, STS was found statistically significant among nurses who were single in marital status. These study results are constant with studies carried out that portrayed higher levels of CF score in married nurses, however, a low level of STS score in unmarried nurses and a significant association was found between STS score with unmarried nurses [25]. Conversely, a significant association was established between STS scores with married nurses in a study conducted in China among nurses [26]. A significant association was established between salary with compassion satisfaction. The study results are parallel with a study carried out by Xie W, *et al.* which revealed that attractive salary packages are highly satisfying as well as motivating factor factors among nurses [27]. It is demonstrated that motivation significantly increases job performance and staff retention [28]. On the other hand, low job satisfaction causes job turnover and severe burnout among nurses which reduces nurses' job working capability and productivity [29].

LIMITATIONS OF THE STUDY

The study was conducted on a small sample; hence its results cannot be generalized. The study was employed in public sector organizations; thus, the study findings are not constant with private sector organizations.

CONCLUSION

The study concluded an average to higher level of compassion satisfaction and a low to the average level of compassion fatigue which is burnout and secondary traumatic stress among critical care nurses.

ETHICAL APPROVAL

Ethical approval was obtained from the Institutional Review Committee of Dow Institute of Nursing and Midwifery, Dow University of Health Sciences, Karachi (REF letter No. DIONAM(MSN2020)-18/391). All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the Helsinki declaration.

CONSENT FOR PUBLICATION

Written informed consent was taken from the participants.

AVAILABILITY OF DATA

The authors unanimously confirm that data supporting the results of this study are available in the article.

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None.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHOR'S CONTRIBUTION

All the authors contributed equally to the publication of this article.

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