

The Association of Compassion Fatigue and Compassion Satisfaction with Demographic Characteristics, Personal and Work-Related Factors among Critical Care Nurses

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Abstract

Critical care nurses are providing specialised nursing care to critically ill patients. On a daily basis, they witness the patients' suffering, facing death and exposure to the grief of patients and families. As a result, critical care nurses are at risk of developing compassion fatigue (CF) which can affect safety, quality and patient satisfaction as the nurses with CF often have poor nursing performance and judgment that may lead to medical errors. Therefore, this study was conducted to determine the association of CF and compassion satisfaction (CS) among critical care nurses with respect to demography, personal factors and work-related factors. A total of 106 critical care nurses at the public hospital were surveyed using self-administered questionnaires related to demography with several personal and work-related factors. The findings reflected nurses who worked in the Pediatric Intensive Care Unit (PICU) had high secondary traumatic stress (STS) compared to those who worked in other units. Being well rewarded by the organization and superiors' support was associated with CS and burnout (BO). Age and years of nursing experience were identified as a significant predictor of BO. Completed all the duties before shift end and having support from co-workers was positively associated with CS. There are several intervention programs which may help nurses combat or lessen CF, BO and reduce morally distressed situations. Supporting the nurses in identifying any undesirable thoughts they have will allow them to be aware before CF symptoms are instigated in their personal lives and affect their clinical practice.

Keywords: Compassion Fatigue, Compassion Satisfaction, Critical Care Nurses, Burnout, Stress Traumatic Syndrome.

Introduction

Healthcare professionals especially nurses are very vulnerable to experiencing compassion fatigue (CF). Nurses in critical care units always work with multidisciplinary teams including doctors, specialists, physiotherapists, pharmacists, and others to ensure that the patients receive optimal care. They have longer exposure to the trauma of patients, death, grief of patients and families. Therefore, due to the nature of working situations, critical care nurses are at high risk of experiencing CF (exhaustion of emotional, physical, social and spiritual) which can affect the quality of care given to patients and may lead to patient dissatisfaction. The nurses are unable to provide compassionate care for patients, have poor nursing performance and judgment that may lead to medical errors.

Several studies have been done related to the factors leading to CF and the negative consequences of CF in other parts of the country but there is very limited study published in the Malaysian setting. CF is described as exhaustion of emotional, physical, social, and spiritual characteristics Slocum-Gori et al (2013) as a direct result and prolonged exposure to another person's trauma or difficult situation Coetzee & Klopper (2010), therefore they might lack in the action of caring (Ledoux, 2015). CF occurs more abruptly El-bar et al (2013) and the nurses with CF have low capacity or interest in being empathic to their patients Figley (2012) leading the nurses unable to relieve the suffering and providing care for their patients (Ledoux, 2015).

CF contains two elements which are burnout (BO) and secondary traumatic stress (STS). These negative elements in CF will be balanced with compassion satisfaction (CS) as the positive coping mechanism. Compassion Satisfaction (CS) is referred to as the pleasure developed from being able to do work well and help others, able to contribute to the working setting or society (Stamm, 2010). These feelings help defend against the negative effects of traumatic events and provide motivation and purpose for nurses to continue their profession (Wu, 2016).

CF becomes the main resource of moral distress, burnout, and negative perception of job satisfaction (Johnson-Coyle et al., 2016), and leads towards leaving the profession (Fahey & Glasofer, 2016). It may also cause an increase in absenteeism and staff turnover, reduced quality of patient safety, and difficulty in recruiting and maintaining staff (Hooper et al., 2010). A high level of CF is noted among young nurses with three or fewer years of experience (Sung et al., 2012). Therefore, if this trend continues, it will cause a shortage of nurses, jeopardizing patient care and leading to patients' dissatisfaction. CF also mirrors secondary traumatic stress disorder (STSD) in most symptoms (El-bar et al., 2013) and affects people in caregiving professions as nurses are very susceptible to it (Wentzel, 2014).

CF is found to be influenced by witnessing numerous human sufferings (Sheppard, 2016), violence, and death leads towards emotional, spiritual and physiological conditions within the nurses (Sabo, 2011). Therefore, prolonged exposure to causes of CF leads to inability of the nurses to care adequately for patients (Hinderer et al., 2014) with less empathy and compassion (Henson, 2017). Many studies done stated that poor nurse staffing, unhealthy working environment, increasing workload, increasing care complexity (Aiken et al., 2013), low level of managerial support (Hunsaker et al., 2015), lack of understanding from peers and other nurses from other discipline and administrators, unable to provide quality care to patients due to time constraint (Perry et al., 2011) and low adapting coping style are the

factors leading to CF.

In contrast, CS “is about the pleasure derive from being able to do work well such as feel like it is a pleasure to help others through a work and feel positive about the colleagues or the ability to contribute to the work setting or even the greater good of society” (Stamm, 2010). These feelings help defend the negative effect of traumatic events and provide motivation and purpose for nurses to continue their profession (Wu, 2016).

Given that critical care nurses may experience CF, a study of factors that influence CF and CS by analysing the demographic data, personal and work-related factors which may predict the risks of development of CF among critical care nurses is important to the profession. Understanding CF can allow nurses to apply preventive measures to reduce absenteeism that promotes to self-care, enhances patients’ outcomes and reduced patients’ dissatisfaction. Having an understanding on the issue, the organization should aware and develop a compassion fatigue prevention or intervention programs for nurses to increase the quality of nurses in healthcare setting.

Methodology

The study was conducted at Hospital Raja Permaisuri Bainun, Ipoh, Perak. Hospital Raja Permaisuri Bainun is the largest hospital in Perak with the capacity of 990 beds and is the third largest in Malaysia.

The design of this study was non-experimental, descriptive study aimed to determine the association of compassion fatigue and compassion satisfaction among critical care nurses, with respect to demography, personal factors and work-related factors. This design approach is appropriate for this study as it allowed for statistical comparison of the experience within groups of nurses at four critical care units.

The target population of this study was the Registered Nurses (RN) who worked in intensive care unit (ICU), cardiac care unit (CCU), pediatric intensive care unit (PICU) and neonatal intensive care unit (NICU). The total registered nurses in ICU were 116, 16 nurses in CCU, 49 nurses in PICU and 42 nurses in NICU, making the total population of nurses to be 223(N=223). However, the total population of nurses during data collection reduced due to resignation, further study, confinement leave and transferred to other area. A total of 117 questionnaires were distributed to the participants and all the questionnaires (100% response) were returned to the researcher. However, 106 (91%) were completed and taken for analysis and another 11 (9%) were rejected as incomplete responses.

Convenience sampling was used in collecting the data as it allows to gather information from the participants easily. It is a non-probability sampling technique where the subjects are selected because of their convenient accessibility and proximity to the researcher.

This study used a self-administered questionnaire and divided into three parts. Part 1 consisted of demographic data and part 2 consisted of personal factors and work-related factors and part 3 consisted of professional Quality of Life instruments (ProQOL, version 5) to measure CF and CS. Part 1 included the standard question to gather respondent’s general information. Part 2 were adapted from a study of CF among hospice nurses by Abendroth (2005). Part 3 is a ProQOL version 5 was adapted from Stamm (2010) and it is the most commonly used instrument in research on CF and CS.

After being consulted by medical experts, changes were made in part 2 where the mode of the answer changed from 5 Likert-scale to some of the questions. The researcher also added some questionnaires related to contributing factors to CF as stated in the study by (Jenkins & Warren, 2012; Perry et al., 2011; Aiken et al., 2013; Husanker et al., 2015) . The content validity of the questions was reviewed by nursing and medical experts.

Part 1 of the questionnaires consisted of seven questions for demographic data. Part 2 divided into two section which first section consists of three questions regarding personal factors and eight questions on work-related factors that may contribute to the development of CF. Part 3 is a subscales which are BO, STS and CS. Out of the 3 subscales, BO and STS are components of CF and CS is stand-alone measure. The instrument contains 30 items of self-score instrument that reflect how frequently a person experiences the situation in the last 30 days. Each subscale consists of 10 items rated using a 5-point Likert scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often).

An envelope containing questionnaires with information sheet explaining the purpose of the study and a informed consent for the voluntary of participation form was distributed by researcher to nurses in four critical care units (ICU, CCU, PICU and NICU). Each participant was assigned with a numerical code to ensure confidentiality and to aid in data analysis.

Statistical Package for Social Sciences (SPSS) version 21.0 was used for data processing and analysis purposes. A serial of Pearson correlation and independent t-test was used to determine the factors associated with CF and CS in critical care nurses, with respect to demography, personal factors, and work-related factors. All the items in demographic data, personal factors and work-related factors were analysed individually.

A strategy for reducing respondent ambiguity in Likert scale data and to facilitate interpretation of the results, collapsing the response category in the same manner are required. Therefore, for personal factors and work-related factors rated using Likert-scale, the researcher further recoded them into dichotomous variables. Never, rarely and sometimes were recoded to 'less often', whereas 'often' and 'very often' were recoded to 'more often' in order to facilitate interpretation of the results.

Results

Demographic characteristic that has been asked in the early part of the questionnaire were analysed using descriptive statistic tests. As presented in table 1, the participant's age was within range of 25 to 59 years old (M = 32.85, SD = 5.98) in which 35 (33%) of them were below 29 years old, 60 (56.6%) participants aged between 30 to 39 years old, 11 (10.4%) participants were above 40 years old and majority of the participants were 25 years old (9.4%). Most of the participants were married 85 (80.2%), followed by single 20 (18.9%) and widowed 1 (0.9%).

Currently, 55 (51.9%) participants are working in ICU, 8 (7.9%) participants working in CCU, 24 (22.6%) participants working in PICU, and 19 (17.9%) participants working in NICU (17.9%). The highest level of education among participants was diploma 99 (93.4%), degree 6 (5.7%), and master 1 (0.9%). Out of 106 participants, 48 (45.3%) of them had post basic certificate, and 58 (54.7%) of them did not have any. Years in nursing profession was ranging between 2

to 29 years ($M = 9.77$, $SD = 5.75$) with 32 of them (30.2%) working less than 5 years, 29 (27.4%) working between 6 to 10 years, 45 (42.5%) with experience more than 11 years in nursing profession and majority of the participants had 13 years (10.4%) in nursing profession. Whereas years in critical care nursing was between 1 to 21 years ($M = 7.84$, $SD = 5.01$) with 30 (28.3%) of them working for 3 years and less in critical care nursing, 18 (17%) working between 4 to 6 years, 16 (15.0 Car%) working between 7 to 9 years, 42 (39.7%) with experience more than 10 years in critical care nursing and majority of the participants had 3 years (11.3%) experience in critical care nursing.

Table 1

Demographic characteristic of respondents (n =106)

Demographic data	Range	Mean (SD)	n (%)
Age (Years)			
Below 29	25 – 59 years	32.85 (5.98)	35 (33)
30 - 39			60 (56.6)
Above 40			11 (10.4)
Marital status			
Single			20 (18.9)
Married			85 (80.2)
Widowed			1 (0.9)
Type of critical care unit			
ICU			55 (51.9)
CCU			8 (7.5)
PICU			24 (22.6)
NICU			19 (17.9)
Highest level of education			
Diploma			99(93.4)
Degree and above			7 (6.6)
Certificate in Post Basic			
None			58 (54.7)
ICU			21 (19.8)
CCU			5 (4.7)
Paediatric			8 (7.5)
NICU			13 (12.3)
Midwifery			1 (0.9)
Years in nursing profession			
Less than 5 years	2 -29 years	9.77 (5.75)	32 (30.2)
6 – 10 years			29 (27.4)
More than 11 years			45 (42.5)
Years in Critical Care Nursing			
Less than 3 years	1 – 21 years	7.84 (5.01)	30 (28.3)
4 – 6 years			18 (17)
7 – 9 years			16 (15.1)

A series of Pearson correlation and t-test were used to determine if any of the demographic characteristic, personal factors, and work-related factors was associated with CS and CF in critical care nurses. A Pearson correlation was used to assess the relationship between continuous data with CS, BO and STS.

The Association between Demographic Variables with CF and CS

The analysis of t-test was used in determining any relationship between marital status, level of education and having post-basic course with CS, BO, and STS. To be significant, this test used a *p* value of smaller or equal to 0.05. The result reveal that the mean difference between marital status, level of education and having post basic are not statistically significant with CS, BO and STS (Table 3).

Table 2

The Level of CS, BO and STS According to Demographic Variables (n = 106)

Demographic Variables	CS			BO			STS		
	Low n (%)	Moderate n (%)	High n (%)	Low n (%)	Moderate n (%)	High n (%)	Low n (%)	Moderate n (%)	High n (%)
Age (Years)									
Below 30	10 (28.6)	18 (51.4)	7 (20.0)	4 (11.4)	16 (45.7)	15 (42.9)	16 (17.1)	21 (60.0)	8 (22.9)
30 - 39	15 (25.0)	31 (51.7)	14 (23.3)	16 (26.7)	31 (51.7)	13 (21.7)	19 (31.7)	35 (58.3)	6 (10.0)
Above 40	2 (18.2)	5 (45.5)	4 (36.4)	4 (36.4)	4 (36.4)	3 (27.3)	1 (9.1)	8 (72.7)	2 (18.2)
Marital status									
Single	6 (30.0)	8 (40.0)	6 (30.0)	4 (20.0)	8 (40.0)	8 (40.0)	5 (25.0)	10 (50.0)	5 (25.0)
Married	21 (24.4)	46 (53.5)	19 (22.1)	20 (23.3)	43 (50.0)	23 (26.7)	21 (24.4)	54 (62.8)	11 (12.8)
Highest level of education									
Diploma	26 (26.3)	52 (52.5)	21 (21.2)	20 (20.2)	50 (50.5)	29 (29.3)	22 (22.2)	62 (62.6)	15 (15.2)
Degree and above	1 (14.3)	2 (28.6)	4 (57.1)	4 (57.1)	1 (14.3)	2 (28.6)	4 (57.1)	2 (28.6)	1 (14.3)
Certificate in Post Basic									
Yes	13 (27.1)	21 (43.8)	14 (29.2)	11 (22.9)	22 (45.8)	15 (31.3)	14 (29.2)	28 (58.3)	6 (12.5)
No	14 (24.1)	33 (56.9)	11 (19.0)	13 (22.4)	29 (50.0)	16 (27.6)	12 (20.7)	36 (62.1)	10 (17.2)
Years in nursing profession									
1 to 5 years	9 (28.1)	17 (53.1)	6 (18.8)	4 (12.5)	15 (46.9)	13 (40.6)	3 (9.4)	21 (65.6)	8 (25.0)

6 to 10 years	8 (27.6)	17 (58.6)	4 (13.8)	7 (24.1)	15 (51.7)	7 (24.1)	8 (27.6)	18 (62.1)	3 (10.3)
More than 10 years	10 (22.2)	20 (44.4)	15 (33.3)	13 (28.9)	21 (46.7)	11 (24.4)	15 (33.3)	25 (55.6)	5 (11.1)
Years in Critical Care Nursing									
Below 3 years	4 (22.2)	11 (61.1)	3 (16.7)	6 (33.3)	7 (38.9)	5 (27.8)	4 (22.2)	11 (61.1)	3 (16.7)
3 – 5 years	6 (25.0)	11 (45.8)	7 (29.2)	5 (20.8)	11 (45.8)	8 (33.3)	5 (20.8)	13 (54.2)	6 (25.0)
6 – 8 years	5 (31.3)	8 (50.0)	3 (18.8)	4 (25.0)	8 (50.0)	4 (25.0)	4 (25.0)	11 (68.8)	1 (6.3)
Above 9 years	9 (25.0)	24 (50.0)	12 (25.0)	9 (18.8)	25 (52.1)	14 (29.2)	13 (27.1)	29 (60.4)	6 (12.5)

Table 3
The Analysis of Differences between CS, BO and STS With marital satus, level of education and post basic certificate (n = 106)

Demographic Variables	Professional Quality of Life (ProQOL)								
	CS			BO			STS		
	Mean (SD)	t-stats (df)	p value	Mean (SD)	t-stats (df)	p value	Mean (SD)	t-stats (df)	p value
Marital status									
Single (n=20)	48.6 (11.16)	-0.69 (104)	0.49	52.1 (11.34)	1.04 (104)	0.29	51.3 (10.87)	0.69 (104)	0.49
Married (n=86)	50.3 (9.75)			49.5 (9.66)			49.6 (9.82)		
Level of education									
Diploma (n=99)	49.6 (9.67)	-1.21 (104)	0.22	50.1 (9.91)	0.39 (104)	0.69	50.46 (9.76)	1.78 (104)	0.07
Degree and above (n=7)	54.4 (14.23)			48.5 (11.88)			43.55 (11.91)		
Post Basic certificate									
Yes (n=48)	50.9 (10.01)	0.84 (104)	0.39	49.1 (10.23)	-0.76 (104)	0.44	48.6 (9.42)	-1.30 (104)	0.19
No (n=58)	49.2 (10.01)			50.6 (9.83)			51.1 (10.39)		

A Pearson correlation was used to assess the relationship between age, years in nursing profession and years in critical care nursing with CS, BO and STS. As per Table 4, the result of Pearson correlation revealed that there is a moderate negative correlation between BO and age, $r = -0.30$, $p = 0.002$. This means, high burnout scores associated with younger nurses and low BO associated with older nurses. Result from the descriptive analysis (Table 2) shown that, 42.9% critical care nurses' category age below 30 (n = 15) had high BO compared to older nurses'.

A Pearson correlation test also reveal that there is a small negative correlation between BO and years in nursing profession, $r = -0.28$, $n = 106$, $p = 0.003$. This means, high burnout scores associated with less experience nurses in nursing profession and low BO associated with more experience nurses. Result from the descriptive analysis (Table 2) shown that, 40.6% of nurses with 5 years of experience and less in nursing profession had high BO (n=13) compared to more experience nurses. No correlation found between years in critical nursing with CS ($r =$

0.14) and STS ($r = -0.18$). The test also shows no correlation significant between age with CS ($r = 0.16$), and STS ($r = -0.11$) and between years in critical care nursing with CS ($r = 0.10$), BO ($r = -0.14$) and STS ($r = -0.06$).

Table 4

Pearson Correlation Analysis of CS, BO and STS With Age, Years in Nursing and Years in Critical Care ($n = 106$)

Demographic variables	CS Pearson r (p)	BO Pearson r (p)	STS Pearson r (p)
Age	0.16 (0.09)	-0.30 (0.002)**	-0.11 (0.23)
Years in nursing profession	0.14 (0.12)	-0.28 (0.003)**	-0.18 (0.05)
Years in critical care nursing	0.10 (0.27)	-0.14 (0.13)	-0.06 (0.49)

** $P < 0.01$

The Association between Personal Factors with CF and CS

A series of t-tests was used to determine if there is relationship between CS and CF with personal factors. As per Table 4.17, while examining STS scores among nurses who cared their elderly or disable parent or loved ones ($n = 74$) and those who are not caring their elderly or disable parent or loved ones ($n = 32$), there was a statistically significant in scores ($M = 51.3$, $SD = 9.65$; $t = 2.17$, $p = 0.03$). The group that taking care of their elderly or disable parent or loved ones produced high mean score of STS compared to the other group. Other personal factors such as experienced death of someone and maintaining budget as source of stress are not statistically significant with CS, BO, and STS as the p value obtained was more than 0.05.

Table 5

The Analysis of Differences between CS, BO and STS With Personal Factors Variables ($n = 106$)

Demographic Variables	Professional Quality of Life (ProQOL)								
	CS			BO			STS		
	Mean (SD)	t-stats (df)	p value	Mean (SD)	t-stats (df)	p value	Mean (SD)	t-stats (df)	p value
Caring elderly or disable									
Yes ($n=74$)	49.3 (10.0)	-1.03 (104)	0.30	50.6 (10.39)	1.00 (104)	0.31	51.3 (9.65)	2.17 (104)	0.03**
No ($n=32$)	51.5 (9.98)			48.5 (9.00)			46.8 (10.23)		
Experienced death someone close									
Yes ($n=48$)	48.9 (11.32)	-0.99 (104)	0.32	49.4 (11.13)	-0.51 (104)	0.60	49.4 (10.20)	-0.48 (104)	0.62
No ($n=58$)	50.8 (9.03)			50.4 (9.03)			50.4 (9.89)		
Maintaining budget source of stress									
Less often	50.0	0.11	0.91	49.7	-0.65	0.51	50.4	0.98	0.32

	(9.94)	(104)	(10.21)	(104)	(9.70)	(104)
More often	49.7		51.4		47.8	(11.51)
	(10.61)		(8.95)			

** $P < 0.05$

The Association between Work-related Factors with CF and CS

A series of Pearson correlation was used to determine the relationship between CS, BO and STS with work-related factors such as total exposures of patients’ deaths within the last 30 days and average number of in-charged patients per shift. The result reveal that there are no statistically significant values were found (Table 6).

Table 6

Pearson Correlation Analysis of Total Patient Death Were Exposed and Average Number of in-charged Patients With CS, BO and STS Scale (n = 106)

Demographic variables	CS	BO	STS
	Pearson r (p)	Pearson r (p)	Pearson r (p)
Total patient death was exposed	0.04 (0.62)	-0.09 (0.35)	-0.14 (0.15)
Average number of in-charged patients	-0.09 (0.32)	0.10 (0.30)	0.01 (0.89)

Whereas a series of t-test were used to determine the relationship between CS, BO and STS with care for patients experiencing traumatic death, completed duties before shift ends, supportive co-workers, supportive supervisor, and well-rewarded from the organization (Table 7).

An Independent t-test was conducted to compare CS scores with work related factor which is completed duties before shift end. There was a statistically significant difference in scores for group that less often (M = 44.8, SD = 12.43) and more often completed duties before shift end (M = 50.9, SD = 9.22; $t = -2.35, p = 0.02$). The nurses who more often had completed their duty before shift end experience high CS compared to those who are not. Additionally, BO and STS scores did not show any statistically significant when compared with completed duties before shift end.

While comparing CS among nurses who had more often received support from their co-worker (M = 51.5, SD = 9.06; $t = -2.83, p = 0.006$) and those who had less often (M = 45.3, SD = 11.41), there was a statistically significant found in the study. The nurses who hand more often received support from their co-workers are experienced high CS compared to those who are not. Whereas, no statistically significant values were found between BO and STS scores and received support from co-workers.

Burnout scores were found statistically significant among the nurses who felt less often of superior support (M = 52.9, SD = 9.76) and those who felt more often received superior support (M = 47.7, SD = 9.65; $t = 2.74, p = 0.007$). It means that, the nurses who less often received superior support are experienced high BO compared to those who more often received superior support. Additionally, the comparisons between superior support and CS demonstrate a statistical significant in scores. The nurses who felt less often of superior support (M = 45.9, SD = 10.57) had low CS and those who felt more often of superior support

(M = 53.1, SD = 8.37; t = -3.88, p = 0.000) are experienced high CS.

While comparing CS scores and received reward from the organization, there was a statistically significant in scores. The nurses who more often received reward (M = 53.3, SD = 10.7) are experienced high CS and those who had less often received reward (M = 48.3, SD = 9.28; t = -2.44, p = 0.016) are experienced low level of CS. Additionally, the comparisons between received reward from the organization and BO demonstrate a statistically significant in scores. The nurses who had less received reward (M = 52.2, SD = 9.32; t = 3.41, p = 0.001) are experienced high BO and those who more often received reward (M = 45.5, SD = 9.93) are experienced low BO.

Table 7

The Analysis of Differences between CS, BO and STS With Work-related Factors (n = 106)

Work-related factors	(ProQOL)			Professional BO			Quality of Life STS		
	Mean (SD)	t-stats (df)	p value	Mean (SD)	t-stats (df)	p value	Mean (SD)	t-stats (df)	p value
Cared of patient with traumatic death									
Yes (n=79)	50.1 (10.30)	0.02 (104)	0.98	50.1 (9.7)	0.25 (104)	0.80	50.0 (9.87)	0.16 (104)	0.87
No (n=27)	49.9 (9.22)			49.5 (11.0)			49.7 (10.53)		
Completed all duties before shift end									
Less often (n=17)	44.8 (12.43)	-2.35 (104)	0.02**	51.1 (10.09)	0.52 (104)	0.60	48.1 (9.98)	-0.82 (104)	0.41
More often(n=89)	50.9 (9.22)			49.7 (10.02)			50.3 (10.02)		
High demand from patient and family									
Less often (n=78)	50.0 (9.89)	0.12 (104)	0.90	49.2 (10.14)	-1.24 (104)	0.21	49.5 (10.04)	-0.72 (104)	0.46
More often (n=28)	49.8 (10.46)			52.0 (9.47)			51.1 (9.95)		
Supportive co-workers									
Less often (n=26)	45.3 (11.41)	-2.83 (104)	0.006**	52.4 (11.76)	1.44 (104)	0.15	51.3 (7.19)	0.77 (104)	0.44
More often (n=80)	51.5 (9.06)			49.2 (9.30)			49.5 (10.76)		
Supportive superior									
Less often (n=46)	45.9 (10.57)	-3.88 (104)	0.000**	52.9 (9.76)	2.74 (104)	0.007**	50.2 (9.87)	0.23 (104)	0.81
More often (n=60)	53.1 (8.37)			47.7 (9.65)			49.8 (10.17)		
Well rewarded from the organization									
Less often (n=71)	48.3 (9.28)	-2.44 (104)	0.016**	52.2 (9.32)	3.41 (104)	0.001**	50.2 (9.94)	0.37 (104)	0.71
More often (n=35)	53.3 (10.7)			45.5 (9.93)			49.4 (10.23)		

** $P < 0.05$

Discussion

In this section of study, the factors influencing CF and CS in critical care nurses are assessed according to three factors which are demographic factors, personal factors and work-related factors. From the demographic factors, there was a significant finding found between work units with STS, whereas, age and years in nursing experience had a significant association with BO. From personal factors, there was a statistically significant a found between caring the elderly or disable parents or loved ones with STS. Work-related factors were assessed using Independent t-test and reveal that completed duties before the shift end, supportive superior, supportive co-workers and well rewarded by the organization has a statistically significant with CS. Whereas, supportive superior and well rewarded by the organization also has a statistically significant with BO. Therefore, the significant differences found are discussed below.

Majority of the critical care nurses in this study experience low to moderate CS, but differences are noted between the work-related factors. Factors that affect ProQOL in this study are support from the superior in terms of listening and responding to their concern regarding work problems, able to complete their duties before the shift end, supportive co-workers toward work responsibilities whenever needed and felt well rewarded in terms of praise and recognition received by the participants.

The nurses who more often completed their duties before their shift end are experienced high CS compared to the nurses who less often. This result is opposite to the finding reported by Kelly & Lefton (2017) where the nurses who like to stay over the shift reported higher CS. Possible explanation to this finding, these nurses are having healthy work environment and job enjoyment therefore they can complete their duties on time. Job enjoyment has been reported as factor in increasing CS (Kelly & Lefton, 2017). It also shows that these nurses are not required to spend extra times in the hospital to complete their duties. Spending extra hours in working place or working extra shift are found to be cause of stress among nurses (Drury et al., 2014) which may lead to low CS. Thus, this finding is important as it suggests that completed the duties within the stipulated times is a factor in the development of CS in critical care nurses and is a potential contributing factor.

This study found that nurses who more often had supported from co-worker were experienced high CS compared to nurse who less often received helped from their colleagues. Similar finding by Hinderer et al. (2014) that having colleague support is one of the coping mechanism methods to prevent BO and at the same time may increase CS.

The nurses who more often received supported by the superior are having high CS whereas, the nurses who have less often been supported by the superior experienced low to moderate CS. The relationship between superior supports with CS has been investigated by other researchers before and the findings by Husanker et al (2015) revealed that nurses who had high level of CS are those who had high level of managerial support and this finding is consistent with the current study.

Critical care nurses are often exposed to stressful situation, therefore, superior support is very important by mentoring the junior nurses, providing guidance and necessary support to

lessen the burden of the staff (Breau & Rhéaume, 2015). Poor leadership skills such as ignoring and not listening to staff's work problem cause nurses' dissatisfaction (Atefi et al., 2014), therefore, positive working environment such as performance, leadership and nurse manager or superior support are very important for nurses' satisfaction especially among critical care nurses (Breau & Rhéaume, 2015). The ability of attending professional development courses and updating clinical knowledge through seminars or workshops are some types of superior support required by the nurses (Atefi et al., 2014). Healthy work environment such as support from managers and the organization affects the success or failure of the nurses (Hart et al., 2012) .

This study found that there is a significant association between age and years in nursing profession with BO. Young nurses aged less than 30 years old with 5 years' experience and less have high degree of BO and older nurses with experience more than 5 years have low degree of BO. These findings are similar to the previous study reported by Husanker et al (2015); Sung et al (2012) reported that nurses with aged 20 to 29 years old and had less than 3 years of nursing experience had high level of BO which suggested it could be due to inability to cope with difficulties and had inadequate salary scales.

High BO among young nurses with less experience in nursing could also be due to inability of them to cope with hectic situation and this could be related to Generation Y attitudes. A study reported that the characteristics of Generation Y workers are requiring on-going mentorship from the managers, workplace motivation factors such as on-going education or professional development opportunities, and positive work environment (Jamieson, 2012) such as flexible duty schedule (Reilly, 2012). Therefore, BO can occur if these young nurses are unable to get what they require from their workplace. Thus, further research can be done to explore the relationship between characteristics of Generation Y nurses with CF and CS. It could be due to anxiety related to critical events, inexperienced nurses that need to learn new thing daily and felt too exhausted to provide nursing care to meet patients' satisfaction, thus leading to high BO.

The older and more experienced nurses in this study are having low BO which are similar to outcome reported by (Sacco et al., 2015). The possible conclusion is these nurses had attended various trainings or seminars to gain more knowledge and skill. Therefore, they are well-prepared to face the challenges in critical care nursing. Furthermore, these senior nurses may also develop resilience as they use their experience to transform the emotional challenges that they overcome in their personal and professional lives, therefore, by facing the issues, they have realistic view of what should be done (Zander et al., 2013).

This study also found that superior support was statistically significant with BO. The nurses who more often had superior support are experienced low BO compared to those who less often received superior support. These findings are similar to the outcome reported by Husanker et al (2015) where low level of superior support was a significant predictor to high level of BO. Nursing managers and the organization should be aware that poor quality of care and increased accidents are possible consequences of BO among employees (Slatten et al., 2011).

Another finding in this study, found that well rewarded by the organization were statistically significant with BO. The nurses who more often received reward in terms of praise and

recognition are experience less BO compared to those who are less often received. This finding is similar to the outcome of study stated by Kelly & Lefton (2017) where the nurses who received meaningful recognition showed significantly reduced BO and high CS. Therefore, acknowledgment by patient and having opportunity to develop relationship between patients and their families (Perry et al., 2011), recognition of achievement by having prospects for bonuses, salary increments or other rewards were suggested as a possible solution in managing potential BO (Henry, 2014) which may lead to satisfaction increment. Healthcare managers should use it as a powerful tool to acknowledge their staff. Future research needs to be done to explore the relationship between mentoring system and various types of meaningful recognition with CF and CS.

Independent t-test reveal that there was a statistically significant between nurses who are more often taking care of their elderly or disable parent or loved ones compared to those who are less often taking care with STS. Possible explanation to this finding, these nurses may constantly observe their elderly or disable parents or loved ones suffered from disease or other disabilities due to traumatic event or aging process. Drury et al (2014) reported that having ill of loved one is one of the causes of major stress among nurses. Thus, this finding is important as it suggests that caring of elderly or disable parents or loved ones is a factor in the development of STS in critical care nurses and is a potential contributing factor.

Nurses who experience STS may have sleepless nights and still imagining the faces of the injured or the deceased especially if the victims are young and worse if they are children (Jenkins & Warren, 2012). Furthermore, dealing and watching the families who suffer with tragedies and lost someone they love causes distress to the nurses (Mason et al., 2014). The ability of the nurses to be resilient is affected by the challenges at work place which constantly changes and has high demand in healthcare environment (Hart et al., 2014). Besides other nursing stressors such as rosters, working shifts, and staffing level, being involved in care of critically ill and dying children, facing deteriorated patients and failure of treatment seem to be the contributing factors for the oncology nurses to seek for resiliency programmes (Zander et al., 2013) as these issues are similar to critical care nurses.

Therefore, it is important for the nursing manager and counselling unit to play a role in reducing the effect of STS among nurses as the healthcare professionals who are at high risk of CF need specific assistance with their stress, emotional exhaustion, and discouragement (Hooper et al., 2010). The management may develop resiliency programmes to support all the nurses in preventing dangerous effects of CF to themselves, their co-workers, and patients (Geraghty et al., 2016) as resilience does not necessarily depend on nurse's age, experience and education (Hart et al., 2014). This programme is to educate participants about CF, including contributing factors and harmful effects of chronic stress and has been identified as giving long-term benefit to nurses in decreasing CF which may improve decision making and patients' and nurses' satisfaction (Potter et al., 2013). The participants will be in small groups and through self-regulation, they will learn how to attain relaxation and lessen negative stimulation which will help the participants release domination of sympathetic nervous system (Potter et al., 2013).

Conclusion

Overall, results reveal that the critical care nurses score low to average level of CF and CS. Results show that demographic variables and work-related factors influence the score for CS,

BO and STS in critical care nurses. STS is seen to be statistically significant with work units where PICU nurses are facing high level of STS compared to other work units. Those nurses that more often taking care of an elderly or disable parent or loved one had statistically significant with STS. Co-workers support and completed duties before shift end contributes to high CS. Superior support and well reward by the organization had statistically significant with CS and BO. Whereas, age and years in nursing profession contributes to high level of BO.

Critical care nurses are often exposed to stressful situation, therefore, superior support is very important by mentoring the junior nurses, providing guidance and necessary support to lessen the burden of the staff. Poor leadership skills such as ignoring and not listening to staff's work problem cause nurses' dissatisfaction (Atefi et al., 2014), therefore, positive working environment such as performance, leadership and nurse manager or superior support are very important for nurses' satisfaction especially among critical care nurses (Breau & Rhéaume, 2015).

It is important that this finding can help the nurses, nursing managers, and the organization to better understand CS, BO and STS in nurses. Nurses should be aware on how to prevent and cope with the symptoms of CF in order to maintain their ability in providing compassionate care for patients' satisfaction. Understanding the level of CS, BO and STS can help the nursing managers to work together with their nurses to handle these symptoms as awareness by nursing managers will improve group performance. Using these findings, nursing managers and the organization can develop the strategies such as the resiliency programme in CF prevention for the nurses in order to increase the quality of nurses in healthcare setting and at the same time will improve nurses' retention and satisfaction especially for Generation Y nurses as well as the older nurses.

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