The relationship between workplace violence, perceptions of safety, and Professional Quality of Life among emergency department staff members in a Level 1 Trauma Centre

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ARTICLE INFO

ABSTRACT

Background: Emergency department staff members are frequently exposed to workplace violence which may have physical, psychological, and workforce related consequences. The purpose of this study was to examine the relationships between exposure to workplace violence, tolerance to violence, expectations of violence, perceptions of workplace safety, and Professional Quality of Life (compassion satisfaction – CS, burnout – BO, secondary traumatic stress – STS) among emergency department staff members.

Methods: A cross-sectional design was used to survey all emergency department staff members from a suburban Level 1 Trauma Centre in the western United States.

Results: All three dimensions of Professional Quality of Life were associated with exposure to non-physical patient violence including: general threats (CS $p = .012$, BO $p = .001$, STS $p = .035$), name calling (CS $p = .041$, BO $p = .021$, STS $p = .018$), and threats of lawsuit (CS $p = .001$, BO $p = .001$, STS $p = .02$). Tolerance to violence was associated with BO ($p = .004$) and CS ($p = .001$); perception of safety was associated with BO ($p = .018$).

Conclusion: Exposure to non-physical workplace violence can significantly impact staff members' compassion satisfaction, burnout and secondary traumatic stress. Greater attention should be paid to the effect of non-physical workplace violence. Additionally, addressing tolerance to violence and perceptions of safety in the workplace may impact Professional Quality of Life.

1. Introduction

Workplace violence in healthcare settings is a significant problem, particularly in environments such as emergency departments [1–4] and it is well established that patients are overwhelmingly the perpetrators of this violence [1,3,5,6]. In addition to the prevalence of workplace violence, the effects of exposure to workplace violence have also been investigated. Results of the Emergency Nurses Association (ENA) Violence Surveillance Survey indicate that the most common physical injuries sustained as a result of workplace violence are bruises/contusions and abrasions, primarily to the arms or hands [1]. Fortunately, most nurses who are victims of workplace violence do not require treatment for physical injuries [6].

Short and long-term psychological effects of exposure to workplace violence have also been identified. These psychological effects are primarily associated with exposure to non-physical forms of workplace violence such as threats and harassment [1,3,6]. Anger, anxiety, and frustration are among the most commonly reported feelings nurses experience after exposure to workplace violence [1,6]. In addition to these immediate responses, 94% of emergency nurses who experienced workplace violence exhibited symptoms of post-traumatic stress; intrusion and avoidance were the two most common symptom clusters in one sample of emergency nurses [7]. In a Swedish study, trauma nurses reported feeling anxious, insecure and scared of being recognized by violent patients in public [8]. Furthermore, in a multidisciplinary study of Italian healthcare workers, physical health was significantly negatively associated with physical workplace violence [3]; and a Chinese study found that exposure to workplace violence in the previous year was a significant predictor of both physical and mental components of Quality of Life among nurses and doctors [9].

Not only may exposure to workplace violence have physical and/or psychological sequelae, it can also impact workforce issues including retention and productivity. With respect to retention, in a large study of the consequences of exposure to workplace violence, 6% of nurses who

participated identified it as a reason for leaving a job [6]; in a separate study of emergency physicians, 1% of participants cited workplace violence as a reason for leaving a job [2]. While the majority of emergency nurses have not considered leaving their departments as a result of workplace violence [1], some have reported a desire to work in environments with lower risks of exposure to violence [1,8].

A Spanish multidisciplinary study of healthcare workers found exposure to workplace violence to be significantly correlated with burnout; in this study burnout was conceptualized as emotional exhaustion, depersonalization, and work inefficacy [10]. The acute stress associated with exposure to workplace violence also significantly affects the cognitive and workload demands of emergency department staff members. In particular, acute stress has been found to significantly negatively impact emergency department staff members' ability to handle/manage their workload and concentrate/keep their mind on work [11]. Among emergency nurses in particular, post-traumatic stress symptoms were significantly negatively associated with support and communication demands such as providing emotional support and being empathetic [7].

Exposure to workplace violence is particularly prevalent among some healthcare workers and this exposure is clearly not without consequence. As illustrated, there may be personal and professional consequences. This study builds on that existing knowledge and examines the relationship between exposure to workplace violence and another theoretical concept: Professional Quality of Life.

1.1. Theoretical framework

The terms vicarious trauma, secondary traumatic stress and compassion fatigue are often used interchangeably. Historically, the term vicarious trauma refers to cognitive changes experienced by clinicians working with trauma victims. These changes include perceptions of safety, trust and spirituality resulting from repeated exposure to and treatment of trauma victims [12]. The concept of secondary traumatic stress, on the other hand, refers to the PTSD-like symptoms that can develop in those who know about and want to help people who are traumatized or suffering. These symptoms may extend beyond cognition to include irritability, avoidance, hypervigilance, insomnia, and nightmares [12]. Finally, compassion fatigue is a term used more broadly to describe the overall experience of emotional fatigue that can occur among those who repeatedly use empathy to treat individuals who are suffering. Experiencing this emotional fatigue, while stressful, may or may not co-occur with a secondary traumatic stress reaction [12].

This study used the Professional Quality of Life model [13], illustrated in Fig. 1, to examine the concepts of compassion fatigue and compassion satisfaction in relation to exposure to workplace violence among emergency department staff members. In this model, Professional Quality of Life (ProQOL) is described as how one feels with respect to his/her work as a helper, and incorporates both positive and negative aspects of that work. Professional Quality of Life is a complex phenomenon as it considers characteristics of the work environment, individual personal characteristics, and individual exposure to primary and secondary trauma in the workplace. In this model, the positive

Fig. 1. The Professional Quality of Life model.

aspect of helping work is referred to as compassion satisfaction. It is described as the pleasure derived from being able to do one's work. The negative aspect of helping work, compassion fatigue, has two elements: secondary traumatic stress and burnout. Secondary traumatic stress is defined as work-related, secondary exposure to people who have experienced extremely stressful or traumatic events. Negative effects of secondary traumatic stress can include fear, difficulty sleeping, intrusive thoughts, and avoidance. Burnout is described as feelings of hopelessness/feeling as though one's efforts do not matter and difficulty dealing with work or effectively doing one's job. These feelings can be associated with a non-supportive work environment or a high workload. Effects of burnout can include exhaustion, frustration, anger or depression [13].

In addition to being exposed to violence in the workplace, emergency department workers can understandably experience secondary traumatic stress and burnout. In one study there were no significant differences in burnout or compassion fatigue among emergency nurses when compared to nurses in other departments [14], however, when compared to ICU nurses, emergency department nurses had significantly lower compassion satisfaction [15]. While an early study of emergency nurses found that 33% of the participants met diagnostic criteria for secondary traumatic stress [16], a more recent exploration of these concepts among emergency nurses revealed low to average levels of compassion fatigue and burnout and average to high levels of compassion satisfaction [17].

1.2. Purpose

There is no research available specifically investigating the relationship between exposure to workplace violence and Professional Quality of Life among emergency department staff members in the United States. A better understanding of how these phenomena are related may offer insight into whether or not creating safer work environments might decrease compassion fatigue and/or burnout and increase compassion satisfaction. Therefore, the purpose of this study was to examine the relationships between exposure to workplace violence, tolerance to violence, perceptions of workplace safety, compassion satisfaction and compassion fatigue among emergency department staff members in a suburban Level 1Trauma Centre.

2. Methods

A cross-sectional design was used to survey all full and part time emergency department staff members (n = 235) in a 224 bed suburban Level 1 Trauma Centre, in the western United States, that sees an average of 132 patients each day, or 48,000 patients annually. Approximately 12% of patients seen in the ED are trauma patients; last year 2570 trauma patients were admitted to the hospital, 95% of these due to blunt trauma. Once Institutional Review Board approval was obtained, all emergency department staff members were sent an email to their organizational email account describing the study and inviting them to participate. A link to an anonymous, online survey was included in the message; completion of the voluntary survey implied consent to participate in the study.

The survey included demographic questions, questions regarding perceived tolerance to violence relative to coworkers (higher, about the same, or lower), perceived safety at work (yes/no), perception of violence as an expected part of the job (yes/no), and exposure to the following from patients, family members or visitors within the past six months: verbal abuse, name calling, physical violence, threats, sexual innuendo, sexual groping, grabbing, spitting, or threats of lawsuit. The Professional Quality of Life: Compassion Satisfaction and Fatigue v. 5 tool [13] was used with permission. This 30-item instrument uses a 6 point Likert scale (0 = never to 5 = very often) and consists of three subscales designed to measure the three dimensions of Professional Quality of Life (ProQOL): Secondary Trauma (STS), Burnout (BO), and
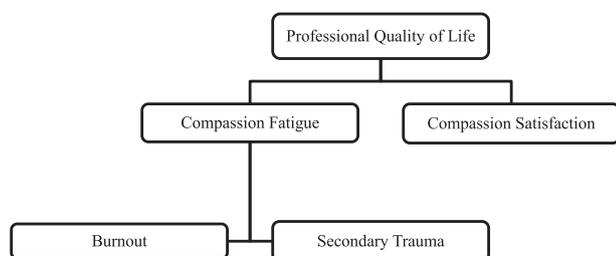
Compassion Satisfaction (CS). Construct validity and subscale reliability have been verified: STS α = 0.81, BO α = 0.75 and CS α = 0.88 [13]. Cronbach alpha subscale scores in this sample were: STS α = 0.77, BO α = 0.82 and CS α = 0.90.

Although the ProQOL data is best analyzed in a continuous form, t-scores were computed for each subscale per the directions outlined in the Concise ProQOL Manual for comparison to the published cut-scores and additional analysis. Cut-scores for the ProQOL are as follows: low compassion satisfaction = t-score < 44; high compassion satisfaction = t-score > 57; low burnout = t-score < 43; high burnout = t-score > 56; low secondary traumatic stress = t-score < 42; high secondary traumatic stress = t-score > 56 [13].

Data analysis was conducted using SPSS version 23. Frequency descriptive statistics were computed to describe categorical demographic data. Independent sample t-tests or Mann Whitney U (unequal group size) tests were performed to analyze differences between 2 groups. ANOVA was used to identify group differences with post hoc analysis conducted using Tukey HSD correction when sample sizes were equal and Hochberg's GT2 when sample sizes were unequal [18]. Chi-square for Independence and Fischer Exact tests (FET) were conducted to analyze categorical data. Chi-square analyses that had > 20% of cells with expected counts < 5 were analyzed by Fischer Exact tests (FET). Adjusted residuals (AR) were examined to determine categories with significant differences between observed and expected counts. Values < −2 or > +2 were used as cutoffs to determine significant associations for individual cells [19].

3. Results

A total of 147 people completed the online survey, yielding a response rate of 63%. Sample demographics are presented in Table 1. Thirteen disciplines were represented, however, due to low representation among some disciplines, roles were collapsed into the following five categories for analysis: registered nurses (RNs),

Table 1
Sample demographics.

Age (years)	n (%)	Level of Education (RNs only) (n = 57)	n (%)
20–30	22 (15)	Diploma	3 (5)
31–40	59 (40)	Associate Degree (ADN)	16 (28)
41–50	43 (29)	Baccalaureate (BSN)	36 (63)
51–60	18 (12)	Masters (MSN)	2 (4)
61–70	5 (3)	Doctorate (DNP or PhD)	0
Gender		Number of years in nursing	
Female	92 (63)	0–4	9 (16)
Male	22 (37)	5–10	15 (26)
		11–20	18 (32)
Primary Shift worked		21 or more	15 (26)
Day	55 (37)		
Evening	32 (22)	Number of years of ED nursing	
Night	34 (23)	0–4	14 (25)
Rotating	24 (16)	5–10	20 (35)
		11–20	17 (30)
Role	n (%)	21 or more	6 (11)
Registered Nurse (RN)	52 (35)		
MD/DO	28 (19)	Certified ED Nurse (CEN)	
Radiology Tech	23 (16)	Yes	31 (54)
Laboratory Tech	9 (6)	No	26 (46)
Physician Assistant	9 (6)		
Psychiatric RN	5 (3)		
Unit Secretary	5 (3)		
Critical Care Tech	4 (3)		
Psych Assessor	3 (2)		
Phlebotomist	2 (1)		
Registration Clerk	2 (1)		
Nurse Practitioners	0		
Pt Care Assistants	0		

Note. Total sample n = 147 participants; RN subgroup n = 57 participants.

psychiatric staff (psychiatric RN and assessor), providers (MD/DO, physician assistant (PA), and nurse practitioners), ancillary staff (technicians and phlebotomists), and clerical staff (unit secretaries and registration clerks). Additionally, because of limited responses in the older age groups, the categories of 51–60 and 61–70 years were collapsed for analysis. Results related to perceptions of tolerance to violence, safety at work, violence as an expected part of the job, prevalence of exposure to violence, and reporting behaviors have been reported elsewhere [5].

3.1. Gender

Males reported higher BO than females, ($t(143) = -2.20$, $p = .029$). No differences in CS ($t(143) = 1.51$, $p = .132$) nor STS ($t(143) = -0.51$, $p = .613$) were found by gender (Table 2). No overall associations between gender and subscale low, mid, nor high categories were identified for CS ($\chi^2(2) = 2.71$, $p = .259$), BO ($\chi^2(2) = 4.74$, $p = .093$), nor STS ($\chi^2(2) = 0.01$, $p = .993$).

3.2. Age

There was an effect on CS ($F(3,141) = 3.27$, $p = .023$) and BO ($F(3,141) = 3.54$, $p = .016$) by age. Specifically, participants over the age of 51 demonstrated higher CS than those aged 20–30 years ($p = .047$) and those aged 31–40 years ($p = .021$), but not with those aged 41–50 years ($p = .160$; Table 2). Participants over the age of 51 had lower levels of BO than all other age groups (20–30 years, $p = .032$; 31–40 years, $p = .031$; 41–50 years, $p = .025$). Additionally, there was an association between age and the subscale low, mid, and high categories for CS ($\chi^2(6) = 12.90$, $p = .045$), with a lower than expected count of participants aged 51–70 years in the mid-CS range (AR −2.3) and a higher number of participants older than 51 in the 'high' CS category (AR +3.3; Table 2). There was not an association between age and cut-scores for STS ($\chi^2(6) = 3.74$, $p = .712$) or BO ($\chi^2(6) = 9.78$, $p = .134$).

3.3. Shift worked

The shift worked did not have an effect on CS ($F(3,142) = 2.50$, $p = .062$), BO ($F(3,142) = 1.56$, $p = .203$), or STS ($F(3,142) = 0.922$, $p = .432$). Similar results were found examining the cut-score categories for each subscale (CS, ($\chi^2(6) = 8.83$, $p = .184$); BO, ($\chi^2(6) = 8.49$, $p = .204$); STS, ($\chi^2(6) = 6.03$, $p = .420$); Table 2).

3.4. Role

There was a main effect by role on CS ($F(4,144) = 4.06$, $p = .004$), BO ($F(4,144) = 4.26$, $p = .003$), and STS ($F(4,144) = 3.56$, $p = .008$). Post hoc comparisons demonstrated higher BO among RNs ($p = .041$) and providers ($p = .035$) compared to ancillary staff and lower CS among providers ($p = .014$) compared to ancillary staff.

Examining cut-scores for low, mid and high levels of each of the subscales demonstrated an association between role and STS levels ($\chi^2(8) = 19.17$, $p = .014$), and BO ($\chi^2(8) = 24.17$, $p = .002$), but not CS ($\chi^2(8) = 14.76$, $p = .064$). Fewer than expected RNs reported 'low' STS (AR −3.2) and higher than expected ancillary staff reported 'low' STS (AR 3.2). Fewer RNs reported 'low' levels of BO than expected (AR −2.4) and more than expected reported a 'high' level of BO (AR 2.5). Ancillary staff had the opposite finding, with higher numbers of ancillary staff reporting 'low' levels of BO (AR 2.1) and fewer than expected reporting 'high' BO (AR −2.9).

3.5. Years worked as RN

The number of years worked as an RN had an effect on CS ($F(3,55) = 3.07$, $p = .036$), BO ($F(3,55) = 5.25$, $p = .003$), and STS (F

Table 2

Compassion satisfaction, secondary traumatic stress and burnout by gender, age, shift worked, role, and years worked as RN.

	n (%)	Compassion Satisfaction			Burnout			Secondary Traumatic Stress		
		M ± SD	Low (t-score < 44) n (%)	High (t-score > 57) n (%)	M ± SD	Low (t-score < 43) n (%)	High (t-score > 56) n (%)	M ± SD	Low (t-score < 42) n (%)	High (t-score > 56) n (%)
Total sample	145 (1 0 0)	39.7 ± 5.4	39 (27)	36 (25)	20.5 ± 5.3	36 (25)	43 (29)	19.7 ± 4.7	40 (27)	37 (25)
Gender										
Males	54 (37)	38.8 ± 5.6	18 (33)	10 (19)	21.7 ± 5.3*	8 (15)	19 (35)	20.0 ± 4.9	15 (28)	14 (26)
Females	91 (63)	40.2 ± 5.3	21 (23)	26 (29)	19.8 ± 5.1	28 (31)	24 (26)	20.0 ± 4.5	25 (28)	23 (25)
Age										
20–30 years	22 (15)	38.5 ± 3.7$_a$	7 (32)	2 (9)	21.6 ± 5.4$_a$	3 (14)	6 (27)	20.3 ± 5.2	4 (18)	6 (27)
31–40 years	59 (41)	38.8 ± 5.1$_a$	16 (27)	13 (22)	20.9 ± 4.9$_a$	12 (20)	19 (32)	19.9 ± 4.8	14 (24)	14 (24)
41–50 years	41 (28)	39.8 ± 5.8	11 (27)	9 (22)	21.2 ± 5.5$_a$	10 (24)	14 (34)	19.9 ± 4.4	14 (34)	11 (27)
51–70 years	23 (16)	42.7 ± 6.0	5 (22)	12 (52)+	17.3 ± 4.9	11 (48)	4 (17)	18.5 ± 4.4	8 (35)	6 (26)
Shift										
Day	55 (38)	41.2 ± 5.4	9 (16)	19 (35)	19.6 ± 5.0	18 (33)	13 (24)	19.8 ± 4.9	17 (31)	15 (27)
Evening	30 (21)	39.4 ± 4.6	7 (23)	7 (23)	21.2 ± 4.8	4 (13)	12 (40)	19.7 ± 4.7	8 (27)	9 (30)
Night	34 (23)	38.7 ± 5.7	13 (38)	6 (18)	19.9 ± 5.0	8 (24)	7 (21)	18.8 ± 3.6	9 (27)	4 (12)
Rotating	24 (17)	38.2 ± 5.5	9 (38)	4 (17)	22.0 ± 5.9	6 (25)	10 (42)	20.8 ± 5.1	5 (21)	8 (33)
Role										
RN	52 (36)	38.7 ± 5.1	17 (33)	9 (17)	21.7 ± 4.7$_b$	7 (14)#	22 (42)+	21.0 ± 3.7	6 (12)#	18 (35)
Psych Staff	8 (6)	43.1 ± 5.5	1 (13)	4 (50)	17.8 ± 3.7	4 (50)	1 (13)	17.5 ± 3.6	3 (38)	1 (13)
MD/DO/PA	36 (25)	37.9 ± 4.8$_b$	14 (39)	5 (14)	22.1 ± 4.9$_b$	5 (14)	14 (39)	20.6 ± 4.6	8 (22)	10 (28)
Ancillary	41 (28)	41.7 ± 5.3	5 (12)	15 (37)	18.7 ± 5.3	15 (37)+	5 (12)#	18.4 ± 5.5	19 (46)+	8 (20)
Clerical	8 (6)	40.5 ± 6.5	2 (25)	3 (38)	17.6 ± 7.1	5 (63)	1 (13)	16.8 ± 3.1	4 (50)	0
Years RN										
0–4 years	9 (16)	38.2 ± 4.9	4 (44)	2 (22)	22.9 ± 4.8$_c$	1 (11)	4 (44)	23.2 ± 4.1$_c$	0	5 (56)
5–10 years	15 (26)	37.6 ± 4.2$_c$	5 (33)	1 (7)	22.4 ± 3.6$_c$	1 (7)	8 (53)	21.2 ± 3.0$_c$	0	5 (33)
11–20 years	18 (32)	37.8 ± 4.5$_c$	6 (33)	2 (11)	22.7 ± 4.3$_c$	1 (6)	8 (44)	21.2 ± 3.2$_c$	1 (6)	6 (33)
21 + years	14 (25)	42.6 ± 6.6	3 (21)	6 (43)	17.3 ± 5.0	7 (50)+	2 (14)#	17.7 ± 3.7	7 (50)+	2 (14)

Note: M = mean; SD = sample standard deviation. Low and High scores reported as t-scores. Cut-off for each subscale low/high t-score based on author recommendation.

X_a significant difference from age group 51–70 years, $p < .05$, using 1-way ANOVA with Tukey HSD post hoc comparisons.

X_b significant difference from ancillary staff, $p < .05$, using 1-way ANOVA with Hochberg GT2 post hoc comparisons.

X_c significant difference from RN years 21 +, $p < .05$, using 1-way ANOVA with Tukey HSD post hoc comparisons.

* $p < .05$, independent sample *t*-test.

+ Significant association using Chi-Square for Independence test, $p < .05$ with adjusted residual > 2.0 (count higher than expected).

Significant association using Chi-Square for Independence test, $p < .05$ with adjusted residual < 2.0 (count lower than expected).

$(3,55) = 5.39$, $p = .003$. Specifically, those with 21 or more years of experience reported lower BO than any other group (0–4 years, $p = .022$; 5–10 years, $p = .014$; 11–20 years, $p = .006$), less STS than any other group (0–4 years, $p = .002$, 5–10 years, $p = .041$, 11–20 years, $p = .032$) and higher CS than those with 5–10 years ($p = .054$) and 11–20 years of experience ($p = .052$).

When examining low, middle, and high categories of each subscale, the number of years worked as an RN was associated with levels of STS ($\chi^2(6) = 21.47$, $p = .002$), and BO ($\chi^2(6) = 14.49$, $p = .002$), but not CS ($\chi^2(6) = 8.26$, $p = .219$). RNs with more than 21 years of experience demonstrated higher than expected individuals with low STS (AR 4.4) and BO (AR 3.6). These well-seasoned nurses also have fewer individuals with high levels of BO (AR −2.2).

3.6. Tolerance to violence

ANOVA with post hoc testing revealed that CS was higher among those who reported their tolerance to violence as higher than their coworkers compared to those whose tolerance was about the same as their coworkers ($F(2,144) = 7.56$, $p = .001$, post hoc, $p < .001$). BO was lower among those who reported their tolerance to violence as higher than their coworkers compared to those whose tolerance was about the same as coworkers ($F(2,144) = 5.775$, $p = .004$, post hoc, $p = .005$). There was no significant effect of tolerance to violence on STS ($F(2,144) = 0.859$, $p = .426$; Table 3).

3.7. Expectations of workplace violence

There was no significant difference between ED workers who expected violence as part of the job in BO ($t(143) = -0.49$, $p = .628$), STS ($t(143) = -0.68$, $p = .499$), or CS ($t(143) = 0.36$, $p = .722$). Similar results were found when examining just the RNs within the sample (BO($t(50) = -1.84$, $p = .072$), STS ($t(50) = -1.9$, $p = .062$), or CS ($t(50) = 0.86$, $p = .512$).

3.8. Perceptions of safety

Most participants felt safe at work ($n = 142$, 99%) and there were no significant differences in CS ($t(143) = 0.331$, $p = .741$) nor STS ($t(143) = -0.972$, $p = .333$) among those who felt safe and those who did not. However, BO was significantly higher in participants who reported feeling unsafe at work (Mann-Whitney U $p = .018$; Table 3). Additionally, only 2 (1%) respondents stated that they had missed time at work due to violence from patients, family members or visitors.

3.9. Exposure to violence

Exposure to violence of any kind led to higher levels of BO ($t(143) = 2.79$, $p = .006$), and STS ($t(143) = 1.99$, $p = .049$). CS was not affected by overall exposure to violence ($t(143) = -1.37$, $p = .172$, Table 3).

Compassion satisfaction was lower in healthcare workers exposed to the following violent behaviors from patients: general threats (t

Table 3
Compassion satisfaction, secondary traumatic stress and burnout by tolerance to violence, perceived safety at work and exposure to violence.

		n (%)	Compassion Satisfaction	Burnout	Secondary Traumatic Stress
			$M \pm SD$	$M \pm SD$	$M \pm SD$
Tolerance to Violence		145			
Higher than co-workers		26 (18)	$43.2 \pm 5.0_a$[***]	$17.8 \pm 4.8_a$[**]	18.7 ± 4.5
About the same as co-workers		101 (70)	38.7 ± 5.0	21.4 ± 5.1	19.9 ± 4.6
Less than co-workers		18 (12)	40.1 ± 6.2	19.1 ± 5.7	20.4 ± 5.1
Safe at Work					
Yes		142 (99)	39.7 ± 5.4	20.3 ± 5.2[++]	19.7 ± 4.7
No		3 (1)	38.7 ± 8.5	28.3 ± 3.8	22.3 ± 3.2
Exposure to Violence-Patients					
Verbal Abuse	Yes	120 (83)	39.3 ± 5.5	21.1 ± 5.3[++]	19.9 ± 4.5
	No	25 (17)	41.5 ± 4.9	17.8 ± 4.5	19.1 ± 5.4
Physical Abuse	Yes	38 (26)	38.4 ± 5.3	21.4 ± 5.0	19.9 ± 4.6
	No	107 (74)	40.1 ± 5.4	20.2 ± 5.4	19.7 ± 4.7
General Threats	Yes	86 (59)	38.8 ± 5.7[+]	21.7 ± 5.1[++]	20.4 ± 4.3[+]
	No	59 (41)	41.0 ± 4.7	18.8 ± 5.1	18.8 ± 5.0
Sexual Innuendo	Yes	35 (24)	38.3 ± 5.3	23.0 ± 4.9[++]	21.5 ± 5.5[+]
	No	110 (76)	40.1 ± 5.4	19.7 ± 5.2	19.2 ± 4.2
Sexual Groping	Yes	5 (3)	36.2 ± 7.2	24.4 ± 6.9	23.6 ± 7.6
	No	140 (97)	39.8 ± 5.3	20.4 ± 5.2	19.6 ± 4.5
Grabbing	Yes	43 (30)	39.0 ± 5.0	21.0 ± 4.7	20.1 ± 5.0
	No	102 (70)	40.0 ± 5.6	20.3 ± 5.5	19.6 ± 4.5
Spitting	Yes	57 (39)	38.2 ± 5.0[++]	22.2 ± 4.6[++]	20.9 ± 4.1[+]
	No	88 (61)	40.6 ± 5.5	19.4 ± 5.4	19.0 ± 4.9
Name Calling	Yes	94 (65)	39.0 ± 5.5[+]	21.2 ± 4.8[+]	20.4 ± 4.4[+]
	No	51 (35)	40.9 ± 5.1	19.1 ± 5.8	18.5 ± 4.9
Threat Lawsuit	Yes	81 (56)	38.3 ± 5.4[+++]	21.8 ± 4.8[++]	20.5 ± 3.9[+]
	No	64 (44)	41.5 ± 5.0	18.9 ± 5.4	18.7 ± 5.3
Exposure to Violence-Family and Visitors					
Verbal Abuse	Yes	56 (39)	38.1 ± 5.3[++]	22.1 ± 5.2[++]	20.3 ± 4.4
	No	89 (61)	40.7 ± 5.3	19.5 ± 5.1	19.4 ± 4.8
Physical Abuse	Yes	4 (3)	39.8 ± 5.1	24.8 ± 6.4	21.5 ± 9.0
	No	141 (97)	39.7 ± 5.5	20.4 ± 5.2	19.7 ± 4.5
General threats	Yes	31 (21)	39.3 ± 5.0	21.7 ± 5.3	20.1 ± 4.3
	No	114 (79)	39.8 ± 5.5	20.2 ± 5.2	19.6 ± 4.8
Sexual Innuendo	Yes	8 (6)	39.5 ± 4.8	23.5 ± 5.8	24.1 ± 7.2[++]
	No	137 (94)	39.7 ± 5.5	20.3 ± 5.2	19.5 ± 4.4
Grabbing	Yes	4 (3)	39.5 ± 4.8	23.3 ± 7.3	20.5 ± 8.6
	No	141 (97)	39.7 ± 5.5	20.4 ± 5.2	19.7 ± 4.6
Name Calling	Yes	31 (21)	38.2 ± 4.7	23.0 ± 5.0[++]	21.6 ± 5.1[+]
	No	114 (79)	40.1 ± 5.6	19.8 ± 5.2	19.2 ± 4.4
Threat Lawsuit	Yes	41 (28)	38.9 ± 5.6	22.1 ± 5.2[+]	20.9 ± 4.5
	No	104 (72)	40.0 ± 5.4	19.9 ± 5.2	19.3 ± 4.7
Exposed to any violence	Yes	127 (88)	39.5 ± 5.6	21.0 ± 5.3[++]	20.0 ± 4.7[+]
	No	18 (12)	41.3 ± 3.7	17.3 ± 3.6	17.7 ± 3.7

Note: M = sample mean; *SD* = sample standard deviation. Low and High scores reported as t-scores. Cut-off for each subscale low/high score based on author recommended t-score. There were no incidents of sexual groping or spitting by family/visitors, so these categories were omitted.

[**]$p < .01$, [***]$p < .001$, 1-way ANOVA.
X_a significant difference from participants who report tolerance to violence about the same as their coworkers, $p < .05$, 1-way ANOVA with Hochberg GT2 post-hoc comparisons.
[+]$p < .05$, [++]$p < .01$, [+++]$p < .001$, Independent *t*-test.

(138) = 2.56, $p = .012$), spitting ($t(143) = 2.68$, $p = .008$), name calling ($t(143) = 2.06$, $p = .041$), and threat of lawsuit ($t(143) = 3.61$, $p < .001$), and to verbal abuse from family members/visitors ($t(143) = 2.97$, $p = .003$; Table 3).

Burnout was higher in healthcare workers exposed to the following violent behaviors from patients: verbal abuse ($t(143) = -2.84$, $p = .005$), general threats ($t(143) = -3.30$, $p = .001$), sexual innuendo ($t(143) = -3.37$, $p = .001$), spitting ($t(143) = -3.31$, $p = .001$), name calling ($t(143) = -2.33$, $p = .021$), and threat of lawsuit ($t(143) = -3.35$, $p = .001$), and the following violent behaviors from family members/visitors: verbal abuse ($t(143) = -3.02$, $p = .003$), name calling ($t(143) = -3.01$, $p = .003$), and threat of lawsuit ($t(143) = -2.36$, $p = .02$; Table 3).

Secondary traumatic stress was higher in healthcare workers exposed to the following violent behaviors from patients: general threats ($t(143) = -2.13$, $p = .035$), sexual innuendo ($t(143) = -2.59$, $p = .011$), spitting ($t(143) = -2.35$, $p = .02$), name calling (t

(143) = -2.39, $p = .018$), and threat of lawsuit ($t(113) = -2.35$, $p = .02$; Table 3), and the following violent behaviors from family members/visitors: sexual innuendo ($t(143) = -2.80$, $p = .006$), and name calling ($t(143) = -2.52$, $p = .013$; Table 3).

There was an effect on reporting violent events by CS ($F(3,141) = 4.80$, $p = .003$) with those who had reported some of the incidents demonstrating lower levels of CS than those who did not report any of the incidents ($p = .003$). Additionally, there was an effect on reporting behaviors and BO ($F(3,141) = 7.76$, $p < .001$), with those reporting some of the incidents experiencing higher levels of BO ($p = .006$).

4. Discussion

All three ProQOL dimensions were significantly associated with exposure to violence. In particular, all three were associated with patient threats, name calling, and threats of lawsuit. Additionally, sexual

innuendo from any source, patient threats, in general and of lawsuit, and family member/visitor name calling, and verbal abuse were predictive of ProQOL in this sample. It is interesting that spitting was the only physical act associated with all 3 ProQOL dimensions and no physical acts were predictive of ProQOL. This mirrors previous findings in which exposure to non-physical forms of workplace violence were associated with deleterious psychological effects [1,3,6]. This is significant. Although incidence of exposure to violence was not assessed in this study, it is likely that emergency department staff members are exposed to threats, name calling, verbal abuse and sexual innuendo more often than physical violence.

In most healthcare settings it is probably safe to assume that when employees are exposed to physical violence a managerial/administrative response is initiated. Responses might include pastoral care involvement, occupational health or Employee Assistance Program referrals, formal or informal debriefs, and other opportunities for the impacted employee to talk, heal, and receive needed support. Such responses, however, are typically not initiated for the employee exposed to non-physical violence, potentially due to its frequency, and potentially due to a perception that exposure to non-physical violence does not have negative sequelae. In reality, the more frequent, non-physical violence that is minimized has a major psychological impact on those affected, yet the less frequent, physical violence tends to garner formalized responses. The fact that multiple studies have not found significant relationships between exposure to physical violence and psychological consequences [1,3,6] (to the degree that have been found with exposure to non-physical violence) might indicate that either frequency of exposure is more detrimental than severity of exposure, or that these responses are effective in mitigating the negative psychological sequelae of exposure to workplace violence. Either way, it is evident that response patterns need to change to better reflect the needs of healthcare workers exposed to violence.

With respect to the nurses in this sample, it is interesting to point out that those with the most experience reported higher compassion satisfaction, lower burnout, and secondary traumatic stress than those with less experience. Similar findings have been previously reported [17]. Two hypotheses are that over time nurses develop ways to limit the deleterious effects of exposure to stress, pain, and suffering or that nurses who were most negatively impacted self-select out of emergency nursing.

4.1. Limitations

This study's generalizability is limited by the inclusion of staff members at a single trauma centre, and the use of a self-report questionnaire which is subject to response bias. The cross-sectional design is also limiting in that it only garners information from participants at a single point in time, rather than exploring these phenomena longitudinally. Additionally, a recent examination of the ProQOL's psychometric properties, recommends recoding of items to the burnout subscale and removal of two items on the secondary traumatic stress scale in order to increase reliability and validity [20].

4.2. Implications

When strategizing about ways to decrease burnout among emergency department workers, the following findings can help guide interventions. Burnout is significantly associated with exposure to violence; it is also significantly associated with low tolerance to violence and low sense of safety in the workplace. Putting measures in place that increase employee perceptions of safety might not only protect them from violence, but also decrease burnout. The Occupational Safety and Health Administration (OSHA) recommends the following environmental and organizational prevention strategies: metal detectors, controlled access, physical separation, cameras, adequate lighting, panic buttons, adequate staffing, short wait times, security presence, and

prevention and response policies and systems [21]. Implementing physical and organizational changes such as these may increase employee sense of safety either directly or indirectly through a perception that safety is important to departmental leaders.

These results indicate that increasing individual tolerance to violence might have some protective quality with respect to decreasing burnout and increasing compassion satisfaction. OSHA has identified the following patient characteristics as risk factors for violence: access to firearms, substance use, stress, pain, cognitive impairments, altered mental status, and a history of violence [21]. Many patients presenting to the emergency department for care meet one or more of these criteria. While violence directed towards emergency department employees is not acceptable, it is not out of the ordinary, nor should it be unanticipated. On the contrary, given the risk factors for violence in healthcare it should be expected. Embracing the idea that violent patient behavior is possible at any moment in the emergency department might incentivize employees to make individual and departmental changes to decrease its likelihood by seeking out or organizing training in conflict resolution, verbal de-escalation, and hazard awareness; all of which are identified violence prevention strategies [21].

With greater awareness of hazards and risk factors for violence, staff members can more diligently assess for these and respond accordingly; that is to say if violent behavior is understood as a symptom of certain patient conditions it can be anticipated and staff members can adjust their own behavior accordingly. This is what increasing one's tolerance to violence might look like. It involves a change in mindset and messaging from "violence is not ok and should not be tolerated" to "some patients are going to be violent and this is how we can prepare for and prevent it."

5. Conclusions

In this study, exposure to violence, tolerance to violence, reporting violence, and perceptions of safety were all related to compassion satisfaction and compassion fatigue. These results suggest that if exposure to violence is decreased, or perhaps if organizational responses to non-physical violence align with responses to physical violence, compassion satisfaction will increase and compassion fatigue will decrease. Decreasing exposure to workplace violence must remain a goal in healthcare environments. This cannot remain the only goal, however. The fact that exposure to non-physical forms of violence are more likely to result in psychological symptomology has important implications. A second goal needs to be more research to understand this relationship. Finally, and perhaps most importantly, another goal needs to be greater attention to and response systems in place for victims of non-physical violence. Manager support in general has been shown to be a predictor of employee ProQOL [17]. Victims of non-physical violence are clearly not receiving the support services they need and managers and other organizational leaders can help change that.

Conflicts of interest

Funding

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