

Compassion Fatigue is Similar in Emergency Medicine Residents Compared to other Medical and Surgical Specialties

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Submission history: Submitted February 24, 2014; Revision received April 25, 2014; Accepted May 5, 2014

Electronically published May 29, 2014

Full text available through open access at http://escholarship.org/uc/uciem_westjem

DOI: 10.5811/westjem.2014.5.21624

Introduction: Compassion fatigue (CF) is the emotional and physical burden felt by those helping others in distress, leading to a reduced capacity and interest in being empathetic towards future suffering. Emergency care providers are at an increased risk of CF secondary to their first responder roles and exposure to traumatic events. We aimed to investigate the current state of compassion fatigue among emergency medicine (EM) resident physicians, including an assessment of contributing factors.

Methods: We distributed a validated electronic questionnaire consisting of the Professional Quality of Life Scale with subscales for the three components of CF (compassion satisfaction, burnout and secondary traumatic stress), with each category scored independently. We collected data pertaining to day- versus night-shift distribution, hourly workload and child dependents. We included residents in EM, neurology, orthopedics, family medicine, pediatrics, obstetrics, and general surgery.

Results: We surveyed 255 residents, with a response rate of 75%. Of the 188 resident respondents, 18% worked a majority of their clinical shifts overnight, and 32% had child dependents. Burnout scores for residents who worked greater than 80 hours per week, or primarily worked overnight shifts, were higher than residents who worked less than 80 hours (mean score 25.0 vs 21.5; $p=0.013$), or did not work overnight (mean score 23.5 vs 21.3; $p=0.022$). EM residents had similar scores in all three components of CF when compared to other specialties. Secondary traumatic stress scores for residents who worked greater than 80 hours were higher than residents who worked less than 80 hours (mean score 22.2 vs 19.5; $p=0.048$), and those with child dependents had higher secondary traumatic stress than those without children (mean score 21.0 vs 19.1; $p=0.012$).

Conclusion: CF scores in EM residents are similar to residents in other surgical and medical specialties. Residents working primarily night shifts and those working more than 80 hours per week appear to be at high risk of developing compassion fatigue. Residents with children are more likely to experience secondary traumatic stress. [West J Emerg Med. 2014;15(6):629–635]

INTRODUCTION

Compassion is a sympathetic pity and concern for the sufferings or misfortunes of others.¹ For healthcare workers

and in particular for emergency care providers, compassion is an essential foundation of their occupation, driving the sense of duty towards patients and leading to satisfaction

gained from the alleviation of pain and suffering. Without appropriate safeguards, repeated exposure to demanding interpersonal and traumatic situations can also lead to a cost of caring.² This cost of caring is known as compassion fatigue (CF), which is defined as the emotional and physical burden created by the additive trauma of helping others in distress and leading to a reduced capacity and interest in being empathetic towards future suffering.^{3,4} This is distinct from burnout, which is defined as cumulative stress and mental exhaustion from the demands of daily life caused by a depletion of the ability to cope with the environment.⁴ CF is associated with psychic exhaustion, depersonalization, and a sense of reduced personal accomplishment.³

CF is a multidimensional phenomenon that is assessed through three major components: compassion satisfaction, burnout and secondary traumatic stress.⁵ Recent literature indicates a very high incidence of burnout among medical practitioners when compared to the general population, drawing increased attention to this issue,⁶ but it is important to consider that burnout is only part of the spectrum of emotional distress encompassing CF.⁵ Emergency care providers are a threatened population, as the risk of developing CF increases substantially when individuals assume the role of “first responder,” are exposed to unexpected traumatic events or whose personal identity is closely associated with their profession.⁷ CF can potentially trigger multiple emotions and behaviors, such as sadness, grief, chemical dependency, somatic complaints, detachment, anger and changes in belief systems. These processes have a high potential of affecting the emotional well-being as well as the professional performance of those affected.⁸

The most current research demonstrates a significant incidence of CF among healthcare providers, particularly social workers^{9,10} and nurses,¹¹ but to our knowledge there are no studies describing the presence of CF among emergency medicine (EM) residents or other graduate medical education trainees, although there is evidence of widespread burnout in this population.¹²

Objectives

The primary aim of this study was to determine the prevalence and degree of CF in EM resident physicians through the measurement of its three components: compassion satisfaction, burnout, and secondary traumatic stress. Additional aims were to measure the association between CF and demographics, hourly workload, circadian disruption and family responsibilities; and finally to compare these findings against learner groups with different patient exposures and work styles.

METHODS

This study was approved by our institution’s review board, the Graduate School of Medical Education and the

program directors of each residency included in the study.

We distributed an anonymous electronic survey collecting demographic information (gender, specialty, post-graduate year of training and presence or absence of child dependents) in addition to a validated,¹³ self-administered, 30-item questionnaire, The Professional Quality of Life Scale (ProQOL) version 5.⁵ The ProQOL is the most commonly used measure of the positive and negative effects of working with people who have experienced extremely stressful events.⁵ ProQoL5 includes subscales for the three components of compassion fatigue; compassion satisfaction, burnout, and secondary traumatic stress (Appendix 1). It has been validated in several populations and shown to have high reliability and validity for assessing CF.¹³ Scoring of each subcategory ranged from 5-50. A score of 22 or less is considered “low,” “average” scores range from 23-41, and 42 or higher is considered a “high” score. The participants were asked to complete the form considering the past one month for the components of the ProQOL questionnaire and the immediate previous seven days for the questions about work load and distribution. The survey was sent to residents in the specialties of EM, family medicine, general surgery, neurology, obstetrics, orthopedics, and pediatrics. We were not able to include internal medicine residents because in our institution they were already participating in a large study on burnout.

Low compassion satisfaction will increase CF while low burnout and secondary traumatic stress will decrease it. For the purposes of the ProQoL5 scale, each component is weighted as a third of the final score. The three components of CF can be interpreted individually and in combination.⁵

Statistical analyses

We summarized continuous variables as mean, standard deviation (SD) and median with range. Categorical variables were summarized as frequency counts and percentages. We evaluated associations of the compassion satisfaction, burnout and secondary traumatic stress scores with demographic features using analysis of variance, two-sample t-tests, chi-square tests, and Fisher’s exact tests as appropriate.

We reported the scores as numerical variables and analyzed them as continuous data and ordinal data in three categories – high, average and low levels of compassion satisfaction, burnout and secondary traumatic stress as described above.⁴ Statistical analyses were performed by a statistician using SAS software (SAS Institute, Cary, NC). All tests were two-sided and p-values <0.05 were considered statistically significant.

RESULTS

We sent the survey to 255 residents, and the response rate was 74.9%. Of the 191 surveys received, three were incomplete, leaving 188 for analysis. We summarized

demographic characteristics and CF subscale scores for the 188 resident respondents in Table 1. Fifty-three percent were men, and 18% were in EM, 45% were in a non-surgical specialty (family medicine, neurology, or pediatrics), 37% were in a surgical specialty (obstetrics, orthopedics, and general surgery). Overall, 18% worked a majority of their clinical shifts overnight during the period assessed, and one-third had child dependents. Ninety-three percent of the residents worked on average less than 80 hours per week during the seven days preceding survey completion.

Compassion satisfaction

There were 111 (59%) residents with average levels and 77 (41%) residents with high levels of compassion satisfaction; no resident had low levels of compassion satisfaction (Table 2). Specialty training showed no impact on scores as there was no difference between EM, medical specialties and surgical specialties. There was no difference in compassion satisfaction between gender, hours worked and presence of child dependents.

Burnout

There were 107 (57%) residents with low levels and 81 (43%) residents with average levels of burnout; no resident had high levels of burnout (Table 2). Similar to the previous component, there was no difference in burnout between EM residents versus other medical and surgical specialties. Mean burnout scores for residents who worked greater than 80 hours in the previous week were significantly higher than residents who worked 80 hours or less (25.0 vs 21.5; $p=0.013$). Mean burnout scores for residents who primarily worked overnight shifts were significantly higher than residents who did not primarily work overnight shifts (23.5 vs 21.3; $p=0.022$). Only 13 (12%) of the residents with low burnout scores primarily worked overnight shifts compared with 20 (25%) residents with average burnout scores ($p=0.023$).

Secondary traumatic stress

There were 144 (77%) and 44 (23%) residents with low and average levels of secondary traumatic stress, respectively; no resident had high levels of secondary traumatic stress (Table 2). Again, no difference in this component was observed between EM residents and other learners. Mean secondary traumatic stress scores for residents who worked greater than 80 hours during the previous week were significantly higher than the scores for residents who worked 80 hours or less (22.2 vs 19.5; $p=0.048$). Mean secondary traumatic stress scores for residents with child dependents were significantly higher than the scores for residents without child dependents (21.0 vs 19.1; $p=0.012$).

When analyzing the results as a whole, 41% of the residents were in the category of high compassion satisfaction, moderate to low burnout and secondary

Table 1. Summary of features for 188 resident respondents and measures of the subscales of compassion fatigue.

Feature	N (%)
Gender (N=186)	
Women	88 (47)
Men	98 (53)
Specialty	
Non-surgical	85 (45)
Surgical	70 (37)
Emergency	33 (18)
Clinical hours per week (N=187)	
<40	20 (11)
41-60	48 (26)
61-80	106 (57)
>80	13 (7)
Primarily night shifts (N=187)	
No	154 (82)
Yes	33 (18)
With child dependents (N=187)	
No	127 (68)
Yes	60 (32)
Compassion satisfaction score	
Low	0
Average	111 (59)
High	77 (41)
Burnout score	
Low	107 (57)
Average	81 (43)
High	0
Secondary traumatic stress score	
Low	144 (77)
Average	44 (23)
High	0
Mean $\pm$ SD (Median; Range)	
Compassion satisfaction score	40.4 $\pm$ 5.4 (40; 27 – 50)
Burnout score	21.8 $\pm$ 5.1 (22; 11 – 39)
Secondary traumatic stress score	19.8 $\pm$ 4.5 (19; 11 – 33)

traumatic stress, and 59% had average levels of compassion satisfaction. No resident had high levels of secondary traumatic stress or burnout.

DISCUSSION

This study found average levels of compassion satisfaction, low levels of burnout and low levels of secondary traumatic stress among EM resident physicians, with no difference when comparing them to learners from other specialties. The lack of difference was consistent when workload and personal variables were examined, despite the distinctions in exposure and work style.

Table 2. Comparison of compassion satisfaction, burnout and secondary traumatic stress scores for 188 resident respondents according to demographic, specialty and work characteristics.

Component	Feature	Score	p-value
		Mean $\pm$ SD (Median; Range)	
Compassion satisfaction	Gender (N=186)		0.72
	Women	40.6 $\pm$ 5.5 (41; 27 – 50)	
	Men	40.3 $\pm$ 5.2 (40; 27 – 50)	
	Specialty		0.42
	Non-surgical	40.0 $\pm$ 5.3 (40; 27 – 50)	
	Surgical	41.0 $\pm$ 5.7 (42; 27 – 50)	
	Emergency	39.9 $\pm$ 4.7 (39; 30 – 50)	
	Clinical hours per week (N=187)		0.99
	<40	40.3 $\pm$ 4.8 (39.5; 32 – 49)	
	41-60	40.5 $\pm$ 4.4 (40; 31 – 50)	
	61-80	40.5 $\pm$ 5.5 (40; 27 – 50)	
	>80	40.1 $\pm$ 7.8 (42; 27 – 50)	
	Clinical hours per week (N=187)		0.81
	≤ 80	40.5 $\pm$ 5.1 (40; 27 – 50)	
	>80	40.1 $\pm$ 7.8 (42; 27 – 50)	
Burnout	Primarily night shifts (N=187)		0.13
	No		
	Yes	40.7 $\pm$ 5.3 (41; 27 – 50)	
		39.2 $\pm$ 5.6 (39; 27 – 49)	
	With child dependents (N=187)		0.27
	No	40.1 $\pm$ 5.3 (40; 27 – 50)	
	Yes	41.1 $\pm$ 5.4 (42; 31 – 50)	
	Gender (N=186)		0.69
	Women	21.9 $\pm$ 5.2 (22; 11 – 33)	
	Men	21.6 $\pm$ 4.8 (21; 12 – 37)	
	Specialty		0.60
	Non-surgical	21.7 $\pm$ 5.1 (21; 11 – 37)	
	Surgical	21.5 $\pm$ 5.0 (22; 11 – 32)	
	Emergency	22.6 $\pm$ 5.3 (22; 14 – 39)	
	Clinical hours per week (N=187)		0.09
	<40	21.0 $\pm$ 2.8 (21; 16 – 26)	
	41-60	21.3 $\pm$ 4.5 (20.5; 14 – 30)	
	61-80	21.6 $\pm$ 5.3 (22; 11 – 37)	
	>80	25.0 $\pm$ 6.0 (25; 16 – 33)	
	Clinical hours per week (N=187)		0.013
	≤ 80	21.5 $\pm$ 4.8 (21; 11 – 37)	
	>80	25.0 $\pm$ 6.0 (25; 16 – 33)	
	Primarily night shifts (N=187)		0.022
	No		
	Yes	21.3 $\pm$ 4.9 (21; 11 – 37)	
		23.5 $\pm$ 4.9 (23; 15 – 33)	
	With child dependents (N=187)		0.43
	No	21.9 $\pm$ 4.9 (22; 11 – 37)	
	Yes	21.3 $\pm$ 5.2 (21; 11 – 33)	

Table 2. Continued.

Component	Feature	Score	p-value
		Mean $\pm$ SD (Median; Range)	
Secondary traumatic stress	Gender (N=186)		0.67
	Women	19.8 $\pm$ 4.2 (19; 11 – 29)	
	Men	19.6 $\pm$ 4.8 (19; 11 – 33)	
	Specialty		0.14
	Non-surgical	19.4 $\pm$ 4.4 (19; 11 – 30)	
	Surgical	19.5 $\pm$ 4.6 (19; 11 – 33)	
	Emergency	21.2 $\pm$ 4.7 (21; 15 – 33)	
	Clinical hours per week (N=187)		0.23
	<40	19.2 $\pm$ 3.5 (19.5; 11 – 24)	
	41-60	19.6 $\pm$ 4.2 (19; 13 – 29)	
	61-80	19.6 $\pm$ 4.6 (19; 11 – 33)	
	>80	22.2 $\pm$ 5.7 (22; 11 – 32)	
	Clinical hours per week (N=187)		0.048
	$\leq$ 80	19.5 $\pm$ 4.4 (19; 11 – 33)	
	>80	22.2 $\pm$ 5.7 (22; 11 – 32)	
	Primarily night shifts (N=187)		0.45
	No		
	Yes	19.6 $\pm$ 4.6 (19; 11 – 33) 20.2 $\pm$ 4.1 (19; 14 – 29)	
	With child dependents (N=187)		0.012
	No	19.1 $\pm$ 4.1 (19; 11 – 30)	
	Yes	21.0 $\pm$ 4.9 (20; 12 – 33)	

As secondary findings, residents who worked more than 80 hours per week and those working predominantly overnight shifts appear to have a high risk of developing CF as they have significantly higher levels of burnout and secondary traumatic stress. Residents who have children experience higher secondary traumatic stress, meaning they have higher physical and emotional stress responses to their work. This may be explained as a psychological consequence of being exposed to traumatic situations that the resident fears may eventually affect his or her family dependents.

In our cohort we did not find differences related to surgical versus non-surgical specialty, post-graduate year of training or gender. This finding is important, as current literature examining the effect of decreased duty hours under the latest guidelines from the Accreditation Council for Graduate Medical Education (ACGME) has not yet clearly demonstrated a decrease in burnout.¹⁴

When interpreting the scale scores in combination and assessing CF, we found that 40% of EM residents had high compassion, moderate to low burnout and secondary traumatic stress. This is a favorable result and is indicative of persons who receive positive reinforcement from their work and do not suffer any noteworthy fears resulting from their work. These persons benefit from engagement, opportunities for continuing education and other possibilities for growth in their position. They are likely good influences on their colleagues

and their organization. They are probably well-liked by their patients, who in turn seek out their assistance.⁵

These are encouraging findings, which are in contrast to previous studies aimed at evaluating burnout alone.¹² Given the apparent differences between the findings related to burnout and CF, it is important to differentiate both entities. Burnout arises from daily life, both personal and at work, when achievement intentions are not met leading to failure in coping strategies, while CF arises from repetitive traumatic exposures and when rescue care-taking efforts are unsuccessful. Burnout is gradual, related to reactions and leads to withdrawal from professional duties, whereas CF is acute, secondary to relationships and decreases capacity for future empathy.⁷ Our results showing no differences in burnout among residents from different specialties contrasts previous data demonstrating a higher incidence of burnout among attending physicians in particular specialties.⁶ Shanafelt, et al. found the highest rates of burnout among emergency physicians (nearly 70%), followed by general internal medicine, neurology, and family medicine. Significantly lower rates were observed in specialties such as pediatrics, dermatology and preventive medicine.⁶

It is important to note that our survey construct asked for hours worked during the previous week, rather than the average hours worked over a four-week period as mandated by ACGME. Therefore, our results should not

be interpreted within this context to be in violation of the ACGME duty hour guidelines.

A high score on either burnout or secondary traumatic stress can be a herald of clinical depression¹⁵; fortunately the EM resident respondents did not score highly in either of these two fields. We found an association between burnout and the number of hours worked in the previous week, and also higher burnout among those residents who worked predominantly night shifts. These findings may represent an area where residency programs and administrators can intervene; for example, individuals at high risk of burnout or CF may benefit from support mechanisms such as post-incident debriefing, counselors and chaplains.⁷ At the same time there is a unique opportunity for the implementation of policies to prevent the development of this syndrome through personal and environmental tools. Strategies such as the development of person-workplace boundaries, mindfulness techniques and organizational evaluation by and interventions from therapists familiar with CF appear to be helpful.¹⁶

Coping methods for CF include enhancement of social support networks, including friends, family and colleagues; adoption of proper sleep hygiene; healthy eating habits and regular exercise.¹⁷

LIMITATIONS

This study has a number of limitations. First, non-response bias could affect the results, although the proportion of residents completing the survey was high (75%). Second, the design of the ProQOL questionnaire aims to address the past one month of symptoms; however for the work load variables we used the immediate past one week time frame as a way to standardize the variability from rotation to rotation; this may have created a bias towards acute symptoms. Further, we were not able to compare variables of those who answered versus those who did not because of the anonymity of the survey, and there is a possibility that the residents with the greatest risk of burnout and compassion fatigue may be less likely to take the survey. We did not evaluate many demographic variables in this study, and personal factors, such as home support, personal coping strategies, and training program factors, may also be associated with well-being. Finally, this study cannot address causality or directionality of the observed associations, given its cross-sectional design.

CONCLUSION

EM residents have rates of CF, including the components of compassion satisfaction, burnout and secondary traumatic stress, similar to residents from surgical and medical specialties. Residents working predominantly overnight shifts and those working more than 80 hours per week appear to be at high risk of developing CF related to higher burnout and secondary traumatic stress. Participants of the study with child dependents appear to have a higher incidence of secondary traumatic stress. Further research is necessary for inquiry

about additional modifying factors and the consequences of CF on patient care, and for the implementation of personal strategies and institutional policies for the prevention and management of compassion fatigue.

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Conflicts of Interest: By the WestJEM article submission agreement, all authors are required to disclose all affiliations, funding sources and financial or management relationships that could be perceived as potential sources of bias. This study received a grant from the Saint Mary's Hospital Sponsorship Board and Research Committee Fostering Mayo/Franciscan values.

REFERENCES

1. Stevenson A. Oxford Dictionary of English. *OUP Oxford*; 2010.
2. Figley CR. Compassion Fatigue: Coping with Secondary Traumatic Stress Disorder in Those who Treat the Traumatized. *Brunner/Mazel*; 1995.
3. Adams RE, Boscarino JA, Figley CR. Compassion Fatigue and Psychological Distress Among Social Workers: A Validation Study. *Am J Orthopsychiatry*. 2006;76(1):103–108.
4. Potter P, Deshields T, Divanbeigi J, et al. Compassion Fatigue and Burnout. *Clin J Oncol Nurs*. 2010;14(5):E56–E62.
5. Stamm BH. The concise ProQOL manual. Pocatello ID ProQOL Org. 2010.
6. Shanafelt TD, Boone S, Tan L, et al. Burnout and satisfaction with work-life balance among us physicians relative to the general us population. *Arch Intern Med*. 2012;172(18):1377–1385.
7. Boyle DA. Countering Compassion Fatigue: A Requisite Nursing Agenda. *Online J Issues Nurs*. 2011;16(1):1–1.
8. Sabo B. Reflecting on the Concept of Compassion Fatigue. *Online J Issues Nurs*. 2011;16(1):1–1.
9. Bride BE. Prevalence of Secondary Traumatic Stress among Social Workers. *Soc Work*. 2007;52(1):63–70.
10. Bourassa DB. Compassion Fatigue and the Adult Protective Services Social Worker. *J Gerontol Soc Work*. 2009;52(3):215–29.
11. Hooper C, Craig J, Janvrin DR, et al. Compassion Satisfaction, Burnout, and Compassion Fatigue Among Emergency Nurses Compared With Nurses in Other Selected Inpatient Specialties. *J Emerg Nurs*. 2010;36(5):420–427.
12. Ripp J, Fallar R, Babyatsky M, et al. Prevalence of Resident Burnout at the Start of Training. *Teach Learn Med*. 2010;22(3):172–175.
13. Figley CR, Stamm BH. Psychometric review of compassion fatigue self test. *Meas Stress Trauma Adapt*. 1996;127–128.
14. Gelfand DV, Podnos YD, Carmichael JC, et al. Effect of the 80-hour workweek on resident burnout. *Arch Surg*. 2004 1;139(9):933–940.
15. Toker S, Biron M. Job burnout and depression: Unraveling their

- temporal relationship and considering the role of physical activity. *J Appl Psychol*. 2012;97(3):699–710.
16. Showalter SE. Compassion Fatigue: What Is It? Why Does It Matter? Recognizing the Symptoms, Acknowledging the Impact, Developing the Tools to Prevent Compassion Fatigue, and Strengthen the Professional Already Suffering From the Effects. *Am J Hosp Palliat Med*. 2010;27(4):239–242.
17. Eastwood CD, Ecklund K. Compassion Fatigue Risk and Self-Care Practices Among Residential Treatment Center Childcare Workers. *Resid Treat Child Youth*. 2008;25(2):103–122.