

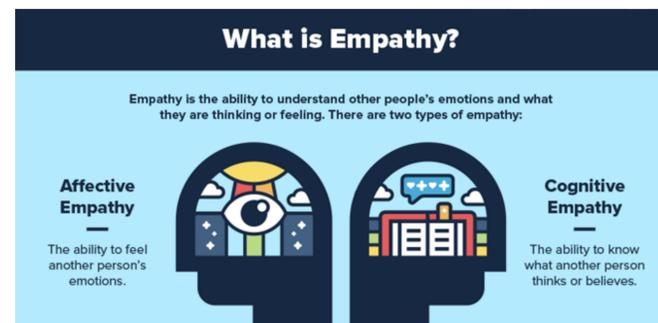
Handle with Care: Associating Empathy and Stress Among Emergency Medical Services

Hunter Owen; Kip Callahan; Aaron Dunn; Lauren Fowler

University of South Carolina School of Medicine Greenville; Second Affiliated Program; Third Affiliated Researcher Institution

Background

- Empathy's Importance - Enables us to recognize one another's complex emotional states so we can respond accordingly. Understanding the perspective of others increases patient willingness to disclose personal information and even reduces patient anxiety¹. This ability improves patient compliance, with empathetic physicians having improved outcomes of diabetic patients².



<https://saaslist.com/blog/improve-empathy-at-work/>

- 2 Systems - Emotional and Cognitive. Emotional is an individual's ability to experience the feelings of another. Cognitive empathy is the capacity to take the point of view of another and understand their perspective³.
 - Jefferson Scale of Physician Empathy (JSPE) is a 20-item questionnaire that was developed to assess an individual's cognitive empathy, with questions focused on the importance of perspective taking⁴.
 - Toronto Empathy Questionnaire (TEQ) is a 15-item questionnaire that focuses on emotional empathy by asking about the individuals own emotional response to the feelings of others⁵.
- Stress Impacts - Working long shifts without a consistent schedule, stationed at gas stations without access to beds, and highly variable patient severity all increase EMS personnel stress. Previous research has shown that prolonged levels of stress can decrease the signal rate of mirror neurons, decreasing empathy⁶. It's been shown that low levels of stress is related to higher empathy among physicians and nurses, but this relationship hasn't been explored among EMS⁷.

Methods

For this study 20 paramedics and 10 EMT's volunteered from the Greenville County EMS to be evaluated 30 minutes before and after their shifts for empathy and stress, with empathy measures taken before shift and stress measures taken both before and after.



Results

- Means and SDs of empathy scores of all participants, broken down by gender and certification, are shown in Table 1. Pearson's correlation demonstrated that **gender and certification were not significantly related to empathy levels** ($p > .05$).
- Means and SDs of PSS and cortisol of all participants, broken down by gender and certification, are shown in Table 2. Spearman's correlation revealed a **significant relationship between empathy and pre-shift cortisol levels**, demonstrating that **people who have higher empathy levels have higher physiological stress prior to the start of their shift**:
 - TEQ $\rho(29) = .460, p < .05$
 - JSPE $\rho(29) = .564, p < .001$

Table 1 – Average TEQ and JSPE by Gender and Certification

	Male		Female		EMT		Paramedic	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
TEQ	40.7353	9.15512	44.8333	6.00505	43.5500	5.60481	41.8421	9.29165
JSPE	101.5882	9.06958	106.5000	7.98294	106.1000	8.07534	102.3158	9.14727

Table 2 – Average Pre-Shift PSS and Cortisol by Gender and Certification

	Male		Female		EMT		Paramedic	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
PSS	21.647	2.620	23.083	4.358	23.100	4.886	21.784	2.439
Cortisol	0.574	0.1893	0.643	0.2521	0.673	0.2363	0.577	0.202

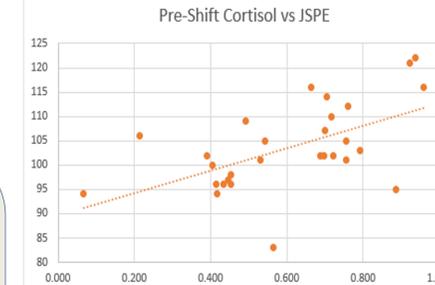


Figure 1 – Correlation of Cortisol to JPSE

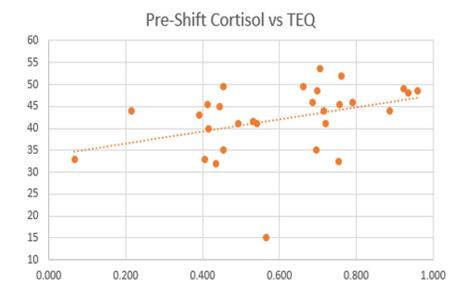


Figure 2 – Correlation of Cortisol to TEQ

Discussion

Previous studies have shown no difference between genders using the TEQ⁸ but have shown significantly increased levels of empathy in women using the JSPE⁹ which was not observed in this study.

This study found that people with higher levels of both cognitive and emotional empathy experience higher levels of physiological stress going into their shift. After their shift has ended, stress was no longer significantly different between high and low empathy individuals.

This positive correlation between physiological stress and empathy is contrary to previous research among physicians and nurses¹⁰. Further research is needed to explore why EMS personal appear to have a different relationship between physiological stress and empathy than other healthcare professionals.

References

