Behavioral and Personality Predictors of Compassion Satisfaction, 
Compassion Fatigue, and Burnout Among Georgetown EMS Providers

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**Introduction**

Providing care for patients can be a rewarding experience for caregivers. At the most basic level of the patient-provider interaction is the ability for the caregiver to empathize with and care for the patient. Clinical empathy is commonly defined in a three-pronged manner: 1) understanding a patient’s situation and feelings, 2) communicating about this understanding, and 3) translating the understanding into therapeutic action (Mercer & Reynolds, 2002 and Halpern, 2001). The importance of provider empathy towards patients has been well documented as leading to better patient outcomes in terms of higher patient compliance and higher patient satisfaction (Glasser, et. al., 2007; Hojat, et. al., 2011; and Kim, et. al., 2004). In fact, some studies have demonstrated that an empathetic patient-provider relationship is more important to patient psychological outcomes than the type of psychotherapy a patient receives (Mercer & Reynolds, 2002). This may be because empathetic caregivers encourage trust and openness with their patients; in turn, patients are “more forthcoming about their symptoms and concerns,” allowing for more accurate diagnoses and better care (Larson & Yao, 2005).

Emotional empathy can be defined as the vicarious sharing of others’ emotions (Smith, 2006). The importance of emotional empathy in everyday interactions cannot be underemphasized as “empathy allows one to quickly and automatically relate to the emotional states of others, which is essential for the regulation of social interactions, coordinated activity, and cooperation toward shared goals,” (de Waal, 2008). In this light, it is easy to understand the implications
of empathy in a clinical setting. The most basic aspect of empathy involves being affected by the emotional state of another person, known as emotional contagion (de Waal, 2008). In a patient-provider relationship, this means a provider must first be able to detect what the patient is feeling. It is theorized that the next level of empathetic response requires an attempt “to understand the cause of the other’s emotion,” (de Waal, 2008). This allows a caregiver to accurately identify why the patient is feeling a certain way and respond in an appropriate manner.

The biological and neuronal bases of empathy are still under question. Current research suggests that “when we observe another person’s behavior, we make sense of it by activating our own representations of that behavior” on a neural basis (Marsh, 2011). This is to say that we empathize with others by activating the same brain regions that we would if we ourselves were feeling their emotion. While this is still a controversial position, there is growing evidence to support that self-generated and vicarious emotions are held in the same brain regions (de Waal, 2008).

Despite the debate about the neural origins of empathy, there is more agreement surrounding the fact that the most basic form of empathy is simple recognition of emotion (de Waal, 2008). After all, inherent in the ability to take on and respond to the emotion of others is the ability to be able to accurately identify the emotion in question. Assessing verbal cues, like emotionally evocative statements, and nonverbal cues, like facial expressions, are important parts of being able to identify and respond to others’ emotions. Past psychologists, such as Ekman and Friesen, have assessed individual differences in identifying emotion by showing
photographs of sample facial emotion expressions (Ekman & Friesen, 1976).

Following Ekman’s validation studies, there have been numerous studies examining the different outcomes related to the detection of different emotions. People who are worse at identifying disgust, for example, also experience less disgust themselves (Calder, et. al., 2000). Those worse at identifying fear show deficits on “theory of mind” tasks. Theory of mind tests “the capacity to attribute independent mental states to other, an ability that provides a basis for explaining and predicting others’ behavior,” (Corden, et. al., 2006). Difficulties with theory of mind tasks, then, would be an indication of general difficulty negotiating social situations.

Fear recognition has also been shown to correlate with prosocial behavior (Marsh, Kozak, & Ambady, 2007). Prosocial behavior, defined as behavior aimed to help others, is at the core of empathetic care giving. Taken in the context that fear is a signal of distress and weakness, it is perhaps unsurprising that those who are better at recognizing this distress cue are more likely to act to help the person in need. Does the ability to recognize fear in others also correlate with differences in caregiver compassion and clinical behavior?

While the positive effects of empathetic care for patients are well documented, providing empathetic care can be fulfilling for caregivers as well. Compassion satisfaction is defined as the positive benefits of helping the traumatized. It is thought that feeling satisfied in the role as a helper may be protective against compassion fatigue and burnout (Sprang, Clark, & Whitt-Woosley, 2007 and Conrad & Keller-Guenther, 2006).
Though feeling fulfilled and satisfied in the role as a caregiver has been linked to positive clinical outcomes, the work of a caregiver can lead to compassion fatigue and burnout. First coined by clinical psychologist Herbert Freudenberger in 1974, research on caregiver “burnout” has increased dramatically in the past few decades. Burnout is described as the result of “constant, emotional, communicative contact with individuals in need of help,” (Miller, Stiff, & Ellis, 1988). Essentially, the patient-caregiver relationship is unique in that it is largely one-sided: the caregiver is expected to listen to the patient and provide situation-appropriate care and support. Outside of the cognitive demands that are placed on caregivers to provide appropriate medical and psychological interventions based on their training and skills, caregivers are at risk of becoming too emotionally taxed by the one-sidedness of their relationships with patients.

The most widely accepted definition of burnout is a syndrome with three facets: emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach, 1982). Emotional exhaustion describes the feelings of “being overextended and depleted of one’s emotional and physical resources,” while depersonalization refers to the detachment of the caregiver from his or her role in order to cope with this stress. Placing distance between oneself and their patients may lead to a diminished sense of accomplishment as caregivers feel a lack of achievement, although a causal relationship between the three aspects of burnout remains controversial (Maslach, Schaufeli, & Leiter, 2001).

Causes of burnout have been most closely linked with job characteristics. Specifically, work overload and role ambiguity have been correlated with higher
burnout rates (Maslach, Schaufeli, & Leiter, 2001). The impacts of burnout are extensive. On an individual basis, caregivers can experience fatigue, insomnia, depression and job dissatisfaction (Miller, Stiff, & Ellis, 1988). In the work setting, this can lead to a contagious bad attitude, absenteeism, and high turnover rates (Maslach, Schaufeli, & Leiter, 2001).

 Compassion fatigue is defined “as a state of tension and preoccupation with the traumatized patients by re-experiencing the traumatic events, avoidance/numbing of reminders persistent arousal (e.g., anxiety) associated with the patient,” (Figley, 2002). It is described as a form of secondary traumatic stress and is most frequently found in caregivers who work with traumatized patients, such as psychotherapists and those who respond to traumatic events. After the Oklahoma City bombing, for example, 73.5% of counselors treating the traumatized were found to be at moderate, high, or extremely high risk of compassion fatigue. Perhaps unsurprisingly, 76.5% of counselors were found to be at moderate, high, or extremely high risk for burnout as well (Figley, 2002). It is important to note that while fatigue and burnout are often correlated with one another, compassion fatigue can be the result of a single traumatic experience, whereas burnout is the result of continuous negative experiences.

 Unfortunately, recent research has shown increasing rates of burnout and fatigue among medical students and physician as they become further along in their training and careers. Among providers who work with trauma, levels of compassion satisfaction drop over time, while levels of compassion fatigue and burnout rise over time (Collins & Long, 2003). This trend is especially apparent when comparing first
and second year medical students, still in classroom learning, to third and fourth year medical students who are almost entirely in a clinical setting. Recent research has shown that levels of empathy fall dramatically during the final two years of medical school (the clinical years), and continue to drop throughout residency (Neumann, et. al., 2011). Burnout has repeatedly been identified as a main factor influencing the decrease in self-reported empathy scores (Neumann, et. al., 2011).

Due to the nature of being a first responder, emergency medical technicians (EMTs) have the potential to be exposed to some of the most traumatizing scenes. Not only does this have the possibility of placing EMTs at higher risk for negative psychological outcomes, like compassion fatigue and burnout, but also EMTs are at higher risk for physical ailments as well. In a recent review, ambulance personnel were found to have higher levels of fatal accidents, higher levels of accidental injuries, and higher standardized mortality rates than other health care workers. Twenty-percent of ambulance workers were found to suffer from psychological problems, and in general ambulance workers were more likely to suffer from post-traumatic stress disorder (Sterud, Ekeberg, & Hem, 2006).

Despite the wide spread interest in causes and predictors of compassion satisfaction, compassion fatigue, and burnout risk among varying health care professionals, there has been limited research about such events surrounding EMTs. The Present Research

In this study, we assessed whether individual differences in emotion recognition and personality trait differences would predict differences in clinical care and compassion status of EMTs. While the effects of care giving on compassion
fatigue and burnout among physicians and other healthcare providers are well
documented, little research exists exploring these effects in the EMS population.
Additionally, while accuracy in emotion recognition has been shown to correlate
with prosocial behavior, this study attempted to correlate accuracy in emotion
recognition with differences in clinical behavior of caregivers.

Methods

Participants:

Forty participants (mean age 20.94 years, standard deviation 0.94 years)
completed this study. All participants were certified, licensed Emergency Medical
Technician- Basic (EMT-B) volunteering with Georgetown Emergency Response
Medical Service (GERMS) recruited via email. Of the participants, 12 (30%) were
male and 38 (70%) were female, reflecting the 65% female composition of the
organization as a whole. Thirty-eight participants identified themselves as
Caucasian, two as Black/African American, one as Hispanic and one as South Asian.
At the time of testing, 30 participants (75%) held the least experienced rank
“assistant EMT.” Four participants (10%) were the next level of rank (“Lead EMT”),
4 (10%) were the second most experienced rank (“Acting Crew Chiefs”), and 2 (5%) held the highest, most experienced rank known as “Crew Chief.”

Screening found that 2 participants were currently on medication for minor
depression and anxiety, respectively. Four additional participants had diagnosed
psychological disorders (mild ADHD (2), depression, and anxiety), but were not
taking medication.
Stimuli:

*Facial Emotion Recognition Task:* The stimulus set consisted of 120 photographs of different emotional expressions from Paul Ekman’s Pictures of Facial Affect series (Ekman & Friesen, 1976). The photographs are of 10 different men and women and express 6 different emotions (including 20 faces each that depicted anger, disgust, fear, happiness, sadness, and surprise). Participants were shown each face for 2 seconds and then asked to chose the emotion (of the six aforementioned emotions) which best described the face.

*Moral judgments task.* The stimulus set consisted of 100 previously validated, emotionally evocative statements (including 20 statements each that elicited anger, disgust, fear, happiness, and sadness), (Marsh & Cardinale, 2012). Participants were shown each statement in a computer-randomized order. They were instructed to judge how morally acceptable it would be for someone to say the statement to another person. They responded on a four-point scale ranging from “never acceptable” to “always acceptable.”

*Statement Recognition Task:* Participants were shown the same 100 statements as in the Moral Acceptability task. This time, participants were asked to identify the emotion that the statement would evoke if said to someone. The five choices were anger, disgust, sadness, fear, and happiness.

*Big Five Aspects Scale (BFAS):* The BFAS scale is a 100-question personality scale developed and validated in 2007. It measures the big five personality traits and two sub-categories of each trait: neuroticism (withdrawn and volatility), agreeableness (compassion and politeness), conscientiousness (industriousness and
orderliness), extroversion (enthusiasm and assertiveness), openness (intellect and openness).

*Clinical Evaluation Scale:* This scale was modified from the “Clinical Evaluation Tool” used by the Department of Nursing at Georgetown University. The scale consists of 16 questions under three domains: 1) Clinical Judgment (ie- “Demonstrates safe practices with individuals”), 2) Advocacy (ie- “demonstrates effective oral, non-verbal and written communication skills”), and 3) Caring Practices (ie- “portrays a genuine sense of caring”). Participants provided self-evaluations using this scale, responding to questions on a 1-5 scale ranging from “never meets” to “always meets.”

*Compassion Satisfaction/Compassion Fatigue Self-Test:* This scale is comprised of 66 questions addressing caregiver compassion status. Specifically, compassion satisfaction, compassion fatigue, and burnout risk are measured (Figley & Stamm, 1996). Participants responded to each question on a 0-5 scale (ranging from “never” to “very often”) describing the frequency with the participant experienced each characteristic. Sample questions include: “I think that I need more close friends,” “I have joyful feelings about how I can help the victims I work with,” and “I find it difficult separating my personal life from my helper life.”

*Peer-Evaluations:* Each participant was asked to provide the names of 2-3 other EMTs in the organization who could provide feedback regarding their performance as an EMT. Following experimentation, the peer-evaluators were contacted and asked to complete the Clinical Compassion Scale for the appropriate
participant. All names were removed from the peer-evaluation form and thus all evaluations were anonymous and confidential.

**Apparatus**

The study was conducted in the GERMS office or in the quiet area of the Blommer science library at Georgetown University. Participants completed tasks on a Macintosh laptop using the SuperLab program.

**Procedure**

Participants first viewed the facial recognition task, each viewing 120 faces in a computer randomized order. Next, participants viewed the moral judgments task followed by the statements task, again both computer randomized. Participants then completed the BFAS, followed by the clinical compassion scale, and ending with the compassion satisfaction/compassion fatigue scale. Following the computerized portion of the study, participants provided information about the study, their gender, race, and age. Lastly, participants provided names for 2-3 peer evaluators. All participants were thanked for their participation, debriefed, and paid.

**Results**

Recall that our hypothesis was that individual differences in emotion recognition would predict differences in compassion outcomes. Specifically, those who were better at recognizing fear in others (both in facial expressions and emotionally evocative statements), would consider themselves more compassionate caregivers and would be considered by peers as more compassionate caregivers. Similarly, those who more accurately identified fear
would be more satisfied in their role as a caregiver and be at low risk for
compassion fatigue or burnout.

*Compassion Satisfaction/Fatigue self-test*

Means for compassion satisfaction, compassion fatigue, and burnout risk
were calculated for each participant. Participants were then placed into varying risk
brackets, as described by Conrad & Kellar-Guenther (2006).

As a whole, participants are at “extremely low risk” of compassion fatigue
(M=25.18, SD=14.08), “extremely low risk” for burnout (M=23.0 SD=10.08), and
have “high potential” for compassion satisfaction (M=102.2, SD= 9.57).

Individual means for each participant were also sorted into perspective risk
categories (Figures 1-3). Over 60% and over 80% of participants are at extremely
low risk for compassion fatigue and burnout, respectively. Forty-seven percent of
participants have “high potential” for compassion satisfaction and 42% have “good
potential.”

![Figure 1: Levels of Compassion Fatigue](chart.png)
We found that compassion fatigue is significantly correlated with burnout risk (R²=0.682, p <0.01). Compassion satisfaction was not significantly correlated with either compassion fatigue or burnout risk (R²=-0.148, p >0.05 and R²=-0.082, p>0.05).

**Clinical Evaluation Scale**

Means for clinical judgment, advocacy, and caring practices were calculated for each participant. On a scale from 1= “never meets” to 5= “always meets,” participants generally scored themselves as “always” meeting each of the clinical constructs tested. Overall, participants rated themselves very highly in clinical
judgment (M=4.37, SD=0.41), advocacy (M=4.30, SD=0.46), and caring practices (M=4.53, SD=0.37).

Regressions were computed to test for the ability of compassion measures to predict clinical behavior. Compassion satisfaction is the strongest predictor of caring practices (\(\beta=0.427, p=0.008\)) and of advocacy (\(\beta=0.347, p=0.027\)).

**Peer Evaluations**

A total of 114 names of peer-evaluators were collected from participants. Of these, 7 were never contacted to complete for personal reasons of the evaluators and 8 were contacted but not returned. An additional 7 evaluations were declined because evaluators felt they could not accurately evaluate the participant in question. The remaining 92 peer evaluations were completed in full, with an average of 2.25 peer-evaluations completed for each participant.

Peer-evaluators generally rated participants as slightly less consistent in clinical judgment practices and advocacy practices than participants rated themselves (M=4.15 & SD=0.49, M=4.16 & SD=0.56), but rated participants as slightly more consistently caring than participants rated themselves (M=4.46 & SD=0.41). Unfortunately, peer-evaluations of clinical judgment, advocacy, and caring practices were not reliably correlated with self-evaluations on these measures (\(\alpha=0.614, \alpha=0.652, \alpha=0.578\)).

**Facial Emotion Recognition:**

Accuracy for recognizing facial expressions was calculated via methods described in Marsh, Kozak, & Ambady (2007). Three regressions were computed to assess the degree to which accuracy for recognizing anger, disgust, fear, happiness,
sadness, and surprise predicted compassion satisfaction, compassion fatigue and burnout risk. Participant characteristics (age, rank, and sex) were also included as covariates. The results of the regression analyses are shown in Table 1. Notably, two variables emerged as predictors of compassion satisfaction: accuracy for recognizing fear ($\beta=0.446$, $p=0.090$) and accuracy for recognizing happiness ($\beta=0.489$, $p=0.035$).

Rank emerged as the sole predictor of compassion fatigue ($\beta=0.371$, $p=0.044$). Lastly, the ability to recognize disgust significantly predicts reduced risk for burnout ($\beta=-0.595$, $p=0.017$).

Table 1: Predicting Compassion Satisfaction, Compassion Fatigue, and Burnout Risk from Facial Expressions and Caregiver Characteristics

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Compassion Satisfaction $\beta$</th>
<th>p-value</th>
<th>Compassion Fatigue $\beta$</th>
<th>p-value</th>
<th>Burnout Risk $\beta$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>-0.313</td>
<td>0.076*</td>
<td>-0.499</td>
<td>0.621</td>
<td>-0.114</td>
<td>0.513</td>
</tr>
<tr>
<td>Age</td>
<td>-0.104</td>
<td>0.561</td>
<td>-0.188</td>
<td>0.852</td>
<td>0.032</td>
<td>0.860</td>
</tr>
<tr>
<td>Rank</td>
<td>-0.010</td>
<td>0.956</td>
<td>0.371</td>
<td>0.044**</td>
<td>0.123</td>
<td>0.496</td>
</tr>
<tr>
<td>Anger Recognition</td>
<td>0.204</td>
<td>0.375</td>
<td>0.067</td>
<td>0.770</td>
<td>0.264</td>
<td>0.257</td>
</tr>
<tr>
<td>Disgust Recognition</td>
<td>-0.172</td>
<td>0.467</td>
<td>-0.181</td>
<td>0.442</td>
<td>-0.595</td>
<td>0.017**</td>
</tr>
<tr>
<td>Fear Recognition</td>
<td>0.446</td>
<td>0.090*</td>
<td>-0.053</td>
<td>0.835</td>
<td>0.166</td>
<td>0.523</td>
</tr>
<tr>
<td>Happiness Recognition</td>
<td>0.489</td>
<td>0.035**</td>
<td>0.194</td>
<td>0.384</td>
<td>0.316</td>
<td>0.165</td>
</tr>
<tr>
<td>Sadness Recognition</td>
<td>-0.437</td>
<td>0.116</td>
<td>-0.079</td>
<td>0.770</td>
<td>0.000</td>
<td>0.999</td>
</tr>
<tr>
<td>Surprise Recognition</td>
<td>-0.456</td>
<td>0.119</td>
<td>-0.236</td>
<td>0.408</td>
<td>-0.206</td>
<td>0.477</td>
</tr>
</tbody>
</table>

Note: Overall model (satisfaction): $F(9,39)=1.167$, $p=0.350$. Overall model (fatigue): $F(9,39)= 1.249$, $p=0.304$. Overall model (burnout): $F(9,39)=1.113$, $p=0.384$. * $p< 0.10$, ** $p< 0.05$.

Three additional regressions were analyzed for accuracy for recognizing anger, disgust, fear, happiness, sadness, and surprise as predictor variables of
clinical outcomes. The three dependent variables were peer-evaluated caring practices, peer-evaluated advocacy, and peer-evaluated clinical judgment. The results of these analyses (shown in Table 2) indicate that both anger recognition and happiness recognition are significantly predictive of caring practices ($\beta=0.388$, $p=0.092$ and $\beta=0.531$, $p=0.020$). Happiness recognition was also found to be significantly predictive of advocacy ($\beta=0.409$, $p=0.085$).

Table 2: Predicting Caring Practices, Advocacy, and Clinical Judgment from Facial Expressions and Caregiver Characteristics

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Caring Practices</th>
<th>Advocacy</th>
<th>Clinical Judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>p-value</td>
<td>$\beta$</td>
</tr>
<tr>
<td>Sex</td>
<td>0.130</td>
<td>0.444</td>
<td>0.188</td>
</tr>
<tr>
<td>Age</td>
<td>-0.242</td>
<td>0.174</td>
<td>-0.277</td>
</tr>
<tr>
<td>Rank</td>
<td>-0.027</td>
<td>0.880</td>
<td>-0.010</td>
</tr>
<tr>
<td>Anger Recognition</td>
<td>0.388</td>
<td>0.092*</td>
<td>0.232</td>
</tr>
<tr>
<td>Disgust Recognition</td>
<td>-0.181</td>
<td>0.435</td>
<td>-0.170</td>
</tr>
<tr>
<td>Fear Recognition</td>
<td>0.019</td>
<td>0.939</td>
<td>0.047</td>
</tr>
<tr>
<td>Happiness Recognition</td>
<td>0.531</td>
<td>0.020**</td>
<td>0.409</td>
</tr>
<tr>
<td>Sadness Recognition</td>
<td>-0.264</td>
<td>0.328</td>
<td>-0.076</td>
</tr>
<tr>
<td>Surprise Recognition</td>
<td>-0.208</td>
<td>0.461</td>
<td>-0.284</td>
</tr>
</tbody>
</table>

Note: Overall model (caring): $F(9,39)=1.347$, $p=0.256$. Overall model (advocacy): $F(9,39)=0.845$, $p=0.582$. Overall model (judgment): $F(9,39)=0.777$, $p=0.638$.

* $p<0.10$. Data are taken from sum of peer-evaluations.

**BFAS Personality Scale**

Means for the Big Five personality measures (1 = strongly disagree, 5 = strongly agree) and each subscale are displayed in Table 3. Then, three regressions were computed analyzing personality differences as predictor variables of compassion satisfaction, compassion fatigue and burnout risk (Table 4).

Participant characteristics (age, rank, and sex) were also included as covariates.
Notably, negative emotionality (neuroticism) emerged as a significant predictor of many compassion outcomes. Being more neurotic predicts less compassion satisfaction ($\beta=-0.469, p=0.015$), more compassion fatigue ($\beta=0.432, p=0.030$), and more burnout risk ($\beta=0.507, p=0.011$).

Table 3: Overall means for Big Five Personality aspects and subscale from BFAS

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEUROTICISM</td>
<td>3.00</td>
<td>0.74</td>
</tr>
<tr>
<td>Withdrawn</td>
<td>3.24</td>
<td>0.86</td>
</tr>
<tr>
<td>Volatility</td>
<td>2.77</td>
<td>0.79</td>
</tr>
<tr>
<td>AGREEABLENESS</td>
<td>4.09</td>
<td>0.44</td>
</tr>
<tr>
<td>Compass</td>
<td>4.36</td>
<td>0.48</td>
</tr>
<tr>
<td>Politeness</td>
<td>3.82</td>
<td>0.56</td>
</tr>
<tr>
<td>CONCIENTIOUSNESS</td>
<td>3.58</td>
<td>0.45</td>
</tr>
<tr>
<td>Industriousness</td>
<td>3.47</td>
<td>0.70</td>
</tr>
<tr>
<td>Orderliness</td>
<td>3.70</td>
<td>0.54</td>
</tr>
<tr>
<td>EXTRAVERSION</td>
<td>3.74</td>
<td>0.57</td>
</tr>
<tr>
<td>Enthusiasm</td>
<td>3.88</td>
<td>0.62</td>
</tr>
<tr>
<td>Assertiveness</td>
<td>3.60</td>
<td>0.70</td>
</tr>
<tr>
<td>OPENNESS/INTELLECT</td>
<td>3.69</td>
<td>0.39</td>
</tr>
<tr>
<td>Intellect</td>
<td>3.73</td>
<td>0.68</td>
</tr>
<tr>
<td>Openness</td>
<td>3.66</td>
<td>0.57</td>
</tr>
</tbody>
</table>

Table 4: Personality Measures and Caregiver Characteristics as Predictors of Compassion Satisfaction/Fatigue and Burnout Risk

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Compassion Satisfaction $\beta$</th>
<th>p-value</th>
<th>Compassion Fatigue $\beta$</th>
<th>p-value</th>
<th>Burnout Risk $\beta$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>-0.237</td>
<td>0.166</td>
<td>0.160</td>
<td>0.364</td>
<td>0.085</td>
<td>0.623</td>
</tr>
<tr>
<td>Age</td>
<td>-0.021</td>
<td>0.901</td>
<td>0.054</td>
<td>0.760</td>
<td>0.102</td>
<td>0.560</td>
</tr>
<tr>
<td>Rank</td>
<td>-0.055</td>
<td>0.736</td>
<td>0.462</td>
<td>0.010**</td>
<td>0.246</td>
<td>0.144</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>-0.469</td>
<td>0.015**</td>
<td>0.432</td>
<td>0.030**</td>
<td>0.507</td>
<td>0.011**</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>0.217</td>
<td>0.182</td>
<td>0.098</td>
<td>0.558</td>
<td>-0.051</td>
<td>0.758</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-0.70</td>
<td>0.414</td>
<td>0.146</td>
<td>0.502</td>
<td>0.163</td>
<td>0.445</td>
</tr>
<tr>
<td>Extroversion</td>
<td>0.090</td>
<td>0.667</td>
<td>0.141</td>
<td>0.516</td>
<td>0.037</td>
<td>0.863</td>
</tr>
<tr>
<td>Openness</td>
<td>0.258</td>
<td>0.103</td>
<td>0.071</td>
<td>0.661</td>
<td>0.233</td>
<td>0.149</td>
</tr>
</tbody>
</table>

Note: Overall model (satisfaction): $F(8,39)=2.394$, $p=0.039$. Overall model (fatigue): $F(8,39)=1.886$, $p=0.098$. Overall model (burnout): $F(8,39)=2.115$, $p=0.065$. **p<0.05.
A summary of the significant behavioral and personality trait predictors of compassion and clinical care outcomes is included below (Table 5). Blank boxes indicate non-significant results.

Table 5: Summary of Significant Predictors of Compassion and Clinical Care Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Compassion Satisfaction</th>
<th>Compassion Fatigue</th>
<th>Burnout Risk</th>
<th>Caring Practices</th>
<th>Advocacy</th>
<th>Clinical Judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>0.076*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rank</td>
<td></td>
<td>0.044**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anger Recognition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.092*</td>
<td></td>
</tr>
<tr>
<td>Disgust Recognition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.017**</td>
<td></td>
</tr>
<tr>
<td>Fear Recognition</td>
<td>0.090*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Happiness Recognition</td>
<td>0.035**</td>
<td></td>
<td></td>
<td>0.020**</td>
<td>0.085*</td>
<td></td>
</tr>
<tr>
<td>Sadness Recognition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surprise Recognition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
<td>0.015**</td>
<td>0.030**</td>
<td></td>
<td>0.011**</td>
<td></td>
<td></td>
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<tr>
<td>Agreeableness</td>
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<td></td>
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<tr>
<td>Conscientiousness</td>
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<tr>
<td>Extroversion</td>
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<tr>
<td>Openness</td>
<td></td>
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</tr>
</tbody>
</table>

Note: * p< 0.10, ** p< 0.05.

*Moral Judgment and Statement Recognition Task*

Data from both the moral judgment task and the statement recognition task did not prove to be significantly correlated with or predictive of any compassion or clinical outcomes and were thus not further evaluated.
Discussion

Consistent with initial hypotheses, differences in emotion recognition predicted differences in clinical practices and compassion status for Georgetown EMS providers. Specifically, the ability to recognize happiness and fear is predictive of compassion satisfaction. Importantly, recognition of both these facial expressions has also been implicated in empathy. A happy facial expression “signals the expresser's lack of threat and desire for affiliation,” (Marsh, et. al., 2010 and Hess, et. al., 2000). Furthermore, happy facial expressions may increase trustworthiness (Todorov, 2008). In this sense, individuals who can accurately identify happiness in others are more likely to associate with others and are likely more trusting of others, both of which are a vital to the foundation of a strong patient-provider relationship. EMTs who are better at identifying happy facial expressions would foster stronger empathetic relationships with patients, and therefore feel more satisfied in their role as a caregiver. Interestingly, happiness recognition also predicts better caring practices and patient advocacy as rated by peers. Again, from the past research on happiness and happy facial expressions, this is not surprising.

Accuracy in identifying fear was also predictive of compassion satisfaction, though only marginally significant (p=0.090). The ability to recognize fear has been implicated in prosocial behavior. Specifically, participants who were better at recognizing fear expressions pledged to donate more time and money to an unknown victim (Marsh, Kozak, & Ambady, 2007). It follows, then, that EMTs who are better at recognizing fear in others would be more likely to act prosocially towards patients. This would then lead to a more empathetic relationship with
patients, leading to better job performance and higher compassion satisfaction. Importantly, compassion satisfaction was the strongest predictor of caring practices and patient advocacy. This suggests that compassion differences among providers affects the clinical practices of providers.

The other major emotion recognition finding was that disgust recognition is predictive of protection against burnout. As far as study researchers can tell, this is a novel finding, and may be due to the nature of serving as an EMT. Individuals who become EMTs likely have a higher tolerance for disgust than the general population because the work of an EMT involves being first to respond to whatever deformity or illness patients present. The ability to respond appropriately to medical and traumatic issues relies on the ability to move past disgust. It is possible that being good at recognizing disgust in others, then, allows for the EMT to reassure patients that the EMT him/herself is not disgusted by the patient’s illness/deformity. This would help establish an empathetic relationship between provider and patient. Those who are better at patient interaction, then, would be at a lower risk for burnout.

On the other hand, poor disgust recognition is correlated with less sensitivity to disgust (Calder, et. al., 2000). With this pre-established correlation, it would be predicted that EMTs who are worse at recognizing disgust would also have a lower sensitivity to (be more tolerant of) disgust. In that sense, EMTs who are worse at disgust recognition would be expected to be less bothered by disgust and thus experience less burnout, which would be contradictory to the current study. This finding should be evaluated further in future research.
The final compassion status, compassion fatigue, was significantly predicted only by rank. Again, compassion fatigue can be described as secondary traumatic stress, when a provider begins to experience side effects of a patient’s trauma. By its nature, then, compassion fatigue can only occur when a provider has interacted with a patient who has experienced a trauma. As an organization, Georgetown EMS deals with very few significant trauma patients per year. Thus, it is not surprising that most Georgetown EMTs are at low risk for compassion fatigue. More experienced EMTs are more likely to have encountered traumatic patient at some point, and therefore would be the only group at risk of compassion fatigue. Among a more experienced group of EMTs, levels of compassion fatigue would likely increase. Overall, though, the finding that experience is predictive of compassion fatigue aligns with similar research on burnout and fatigue increases throughout medical training for medical students and physicians (Neumann, et. al., 2011).

In terms of personality traits, the emergence of neuroticism as a strong predictor of negative outcomes across all three classes of compassion was expected and replicates past work (Maslach, 2002). In fact, Maslach proposes that neuroticism is the strongest predictor of burnout, more than experience. This is contrast to the current study, which found that rank (experience) was a stronger predictor of compassion fatigue than neuroticism. The predictive nature of neuroticism is also consistent with general personality research that neuroticism predicts worse outcomes. Related to distress, emotional volatility, anxiety and depression, neuroticism is predictive of decreased family life satisfaction, decreased job satisfaction and increased job stress (Gustavsson, et. al., 1997). It is theorized
that the constant emotional arousal associated with neuroticism maintains high stress levels and eventually causes greater illness susceptibility and therefore causes worse physical outcomes as well (Charles, et. al., 2008). Considering the general trends that neuroticism decreases satisfaction and causes emotional wear, it is not surprising that neuroticism was predictive of less compassion satisfaction, more compassion fatigue, and more burnout.

The relationships between the different compassion statuses found in this study are consistent with past research. The significant correlation between compassion fatigue and burnout ($R^2=.682, p <0.01$) replicates numerous studies, including Collins & Long (2003). The negative correlations between compassion satisfaction and compassion fatigue ($R^2=-0.148$) and between compassion satisfaction and burnout ($R^2=-0.082$) found in this study are also replicated in Collins & Long (2003). The current study also found that sex and age were not significant predictors of compassion status, consistent with most past research on gender differences (Maslach, 2002). It should be noted that one regression from the current study (assessing behavioral predictors of compassion satisfaction, Table 1) did find that sex was a marginally significant predictor of compassion satisfaction ($p=0.076$).

Limitations and Suggestions for Future Research

This study was conducted on a set of 40 college-aged EMTs. Of these 40 participants, 30 (75%) were only assistant EMTs, the least experienced rank. Similarly, only 2 participants (5%) were Crew Chiefs, the most experienced rank. Effects of rank, thus, may be skewed due to the disproportionate amount of
relatively young, inexperienced EMTs. Future research should be completed on a more experience-diverse set of EMTs. Additionally, due to the nature of the EMS organization study, results can most appropriately be expanded to other college EMS organizations where exposure to trauma is generally low. Evaluating career EMTs who are more likely to experience trauma would also be important.

Peer-evaluation data could not be reliably correlated with self-evaluation data. This is likely due to the nature of the questions that were assessed. Many peer-evaluators commented that they found the questions to be assessing mainly differences in experience/rank as an EMT. Rather than differentiating between clinical practices of each individual, peer-evaluators thought that amount of experience, specifically with GERMS, was a stronger determinant of how they rated participants. If the scale reflects differences in rank rather than individual differences, self-evaluation data from this scale are also called into question. In the future, the clinical evaluation scale that was used (from the Georgetown University Department of Nursing) should be replaced with a different clinical practices scale. With different questions that more accurately assess clinical practices of individuals, hopefully peer and self-evaluations can be reliably correlated and thus analyzed further.

Conclusions

This study suggests that differences in compassion status and clinical practices are associated with the ability to accurately identify emotions displayed through facial expressions. Furthermore, experience as an EMT and neuroticism are also linked with differential compassion outcomes. Higher compassion satisfaction
is predictive of clinically better practices, adding to literature that suggests individual differences can affect patient experience and outcomes.

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References:


- good for implications of teaching empathy


