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Re-Conceptualizing Compassion Fatigue: A Confirmatory Factor Analysis

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RE-CONCEPTUALIZING COMPASSION FATIGUE: A CONFIRMATORY FACTOR
ANALYSIS

by:

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ABSTRACT

Those who are not directly in danger themselves can and do experience negative effects, sometimes at higher rates than those directly exposed. These individuals who experience indirect exposure are often those who work in "helping" professions. Helping professionals include psychologists, physicians, nurses, social workers, and first responders, among others. Joinson (1992) described a phenomenon unique to helping professionals, which was termed compassion fatigue.

Compassion fatigue describes these negative affects experienced by helping professionals as a cumulative process. These negative changes can be related to mood and/or a transformation in cognitions. Further, these changes are the result of the empathy and emotionally intense contact with people who experienced a traumatic event, which results in maladaptive psychological consequences that influence the ability to perform the role of a "helper" (Bride, Robinson, Yegidis, & Figley, 2004; Figley, 1995; McCann & Pearlman, 1990; McHolm, 2006; Pearlman & Saakvitne, 1995; Stamm, 1995).

To measure compassion fatigue, the Professional Quality of Life Scale (Stamm, 2005, 2010) has emerged as the most widely used assessment of compassion fatigue. However, not enough theoretical information and psychometric data on the ProQOL exist to support compassion fatigue as *the* construct to explain the experiences of those in helping professions. The present study examines the most widely used measure of compassion fatigue, the Professional Quality of Life Scale (ProQOL-5; Stamm, 2010). Specifically, the current study examines the factor validity of the ProQOL-5 using confirmatory factor analysis. In light of the lack of model fit, the construct of compassion fatigue offers a unique and worthy view of the

negative consequences of helping others. As a result, the current study proposes a novel

approach to clarify a method for measurement and clear-up conceptual overlaps between related

constructs. This novel method uses the framework of the information processing model of

Whiting (1969).

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LIST OF ACRONYMS/ABBREVIATIONS

AIC   Akaike's Information Criterion

BO   Burnout

CF   Compassion Fatigue

CFA   Confirmatory Factor Analysis

CFI   Comparative Fit Index

CFST   Compassion Fatigue Self-Test

DSM   Diagnostic and Statistical Manual of Mental Disorders

ML   Maximum Likelihood

ProQOL   Professional Quality of Life Scale

PTSD   Post-Traumatic Stress Disorder

RMSEA   Root Mean Square Error of Approximation

SRMR   Standardized Root Mean Square Residual

STS   Secondary Traumatic Stress

INTRODUCTION

The human response to traumatic events has been a topic of great interest in recent years. The topics of discussion and research at the forefront have been the reactions to traumatic events experienced during combat. Approximately 18.5 percent of U.S. services members who have returned from Iraq and Afghanistan are currently diagnosed with posttraumatic stress disorder or depression (Tanielian et al., 2008).

Mental health professionals are aware of the consequences of PTSD. These consequences include an increased likelihood of unemployment and failure to return to work after a traumatic event, psychosocial difficulties at home, and decreased relationship functioning (MacDonald, Colotla, Flamer, & Karlinsky, 2003; Resnick & Rosenheck, 2008; Schnurr, Lunney, Bovin, & Marx, 2009; Smith, Schnurr, & Rosenheck, 2005). The inter- and intra-personal consequences observed in combat veterans diagnosed with PTSD have brought to light that other populations who are exposed to traumatic events as a function of their work environment may experience similar consequences.

With regards to others who are exposed to traumatic events as a result of their work, the literature has focused on oncology nurses, police officers, firefighters, Emergency Medical Services personnel, 9-1-1 emergency dispatchers, social workers, and emergency room nurses, among many others (Berger et al., 2012; Corneil, Beaton, Murphy, Johnson, & Pike, 1999; Cowan, 2012; Kaladow, 2011; Walsh, Taylor, & Hastings, 2012). While the aforementioned groups may not experience a traumatic event directly, we know that direct experience of a traumatic event is not necessary to manifest negative consequences as reflected in the Diagnostic and Statistical Manual 5th Edition Posttraumatic Stress Disorder (PTSD) criteria. In defining exposure to a traumatic event, the DSM-5 includes four exposures: The first of which is, "experiences first-hand

repeated or extreme exposure to aversive details of the traumatic event" (American Psychiatric Association, 2013). The DSM-5 work group on PTSD further stated, "…detailing what constitutes a traumatic event…a recurring exposure that could apply to police officers or first responders." (American Psychiatric Association, 2013). As such, it is recognized that indirect exposure to traumatic events can and does have psychological consequences (Baird & Kracen, 2006; Figley, 1995; Pearlman & Saakvitne, 1995; Stamm, 1999).

<center>Rates of Exposure and Illness</center>

The idea that traumatic experiences were "generally outside the range of usual human experience" was eliminated from the DSM-III because epidemiological research indicated that traumatic exposure was, unfortunately, not an unusual experience (4th ed., text rev.; DSM–IV; American Psychiatric Association, 1994). The rate of direct exposure to potentially traumatic events in the general population is relatively high. Ogle, Rubin, Berntsen, and Siegler (2013) surveyed a nonclinical sample of 3,575 older adults and found that approximately 90% of participants experienced one traumatic event over the course of their life. Similarly, in Sweden, the lifetime prevalence of experiencing at least one traumatic event was 80.8% (Frans, Rimmo, Aberg, Fredrikson, 2005). The European Study of the Epidemiology of Mental Disorders Survey indicated that the mean number of potentially traumatic events that people experienced was 3.2. Globally, most people will experience a potentially traumatic event at some point in their lifetime, however, only a fraction of individuals who directly experience a traumatic event develop PTSD (Christiansen & Elkit, 2008; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Voges & Romney, 2003).

For example, 3,271 civilians who evacuated World Trade Center towers 1 and 2 were surveyed 2-3 years after the September 11th attacks and found that 15% of survivors screened

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positive for PTSD (DiGrande, Neria, Brackbill, Pulliam, & Galea, 2011). Similarly, seven months after the attack on the Pentagon, 14% of 77 survivors who participated in a study qualified for a diagnosis of PTSD (Grieger, Fullerton, & Ursano, 2003). Looking at those who were not just survivors of terrorist attacks but also survivors of war or mass violence, prevalence rate of PTSD was 2.3%, 37.4%, 28.4%, 15.8%, and 17.8% in South Africa, Algeria, Cambodia, Ethiopia, and Gaza, respectively (Atwoli et al., 2013; De Jong et al., 2001). When traumatic events, such as those described above are removed, the 12-month prevalence rates of PTSD are 3.5% and 1.1% in the United States and Europe, respectively (Darves-Bornoz et al., 2008; Kessler, Chiu, Demler, & Walters, 2005).

<u>History of Traumatic Stress</u>

The origin of the word "trauma" comes from the Greek word *traumat -* was used to describe a physical injury or wound (Merriam-Webster's online dictionary, 2014). Almost 27 centuries ago, we saw an alternative, non-physical description of trauma.

The Iliad and The Odyssey, written by Homer circa 700 B.C.E, may be the first documented case of what today is called Posttraumatic Stress Disorder (PTSD) (Shay, 1994). The hero of The Iliad, Achilles, was documented to have experienced stress reactions similar to that of soldiers from the Civil War period to the Gulf War period. Odysseus, the hero of the Odyssey, is described as having flashbacks and survivor's guilt upon his return from the Trojan War (Figley, 1993; Shay, 1994). William Shakespeare's Henry the IV, Park I (1597), Samuel Pepys documentation of the Great Fire of London in 1600, and a letter written by Charles Dickens dated June 9, 1865, after the railway accident in Kent include rhetoric that describes emotional isolation and numbing, depression, intrusive memories and thoughts, survivor's guilt, and heightened startle

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reaction (Goodson, 2010; Saigh, 1992; Trimble, 1985). It is during the period of the Civil War in the United States of America in which physicians such as Drs. Jean-Martin Charcot, John Erichsen, and Jacob Mendes DaCosta begin to connect that after a trauma, people have experiences that them to be ill. Furthermore, physicians were not able to find physical origins for these symptoms that were causing changes that resembled neurological damage and observations of irregular sympathetic nervous system activity (Figley, 1978; Scrignar, 1988; Van der Kolk & Saporta, 1993). Building on the hypothesis that the symptoms experienced by those after a trauma had no physical origin, Pierre Janet, 1919, hypothesized that memory was involved (Janet, 1925; Van der Kolk & Saporta, 1993; Van der Kolk & Van der Hart, 1989). "…certain happenings would leave indelible and distressing memories-memories to which the sufferer was continually returning, and by which he was tormented by day and by night." (Janet, 1919-25, 2:205). Janet envisioned memory as an act of creation as opposed to a static recording of events (Van der Kolk & Van der Hart, 1989). Janet hypothesized that the maladaptive memories need to be restructured in order to resolve the memory's influence on the patient's current behavior and emotional distress (Janet, 1889; Van der Hart & Horst, 1989).

Integrating the clinical observations of the past, Kardiner (1941), conducted one of the first systematic studies that described traumatic stress as a condition called chronic war neurosis. He described chronic war neurosis as 1) Irritability; 2) Startle Pattern; 3) Fixation on the Trauma; 4) Atypical Dream Life; and 5) Proclivity to an Explosive Aggressive Reaction. The work of Adler (1943), and Grinker and Spiegel (1945) supported Kardiner's definition of traumatic stress (Saigh, 1992; Scrignar, 1988; Van der Kolk & Saporta, 1993). Kardiner's definition has influenced the definition of traumatic stress today (Quosh & Gergen, 2008).

Negative reactions to trauma were recognized and included in the first edition of the Diagnostic and Statistical Manual (*DSM-I*) under the name Traumatic Neurosis (1st ed.; *DSM-I*; American Psychiatric Association, 1952). A traumatic event was described as either combat or civilian catastrophe (fire, earthquake, explosion) (*DSM-I*). *DSM-II* labeled the disorder "transient situational disturbance" (2nd ed.; *DSM-II;* American Psychiatric Association, 1968). Little change to the definition of a traumatic stressor was included except that it is an acute reaction to overwhelming environmental stress. Examples of these overwhelming environmental stressors included unwanted pregnancy, combat, and receiving a death sentence. The disorder was overhauled in the third edition of the *DSM*. The disorder returned to the third edition of the DSM (*DSM-III)* as an anxiety disorder, labeled Posttraumatic Stress Disorder (PTSD), as a result of the lobbying efforts of the Vietnam Veterans Working Group (VVWG) (3rd ed.; *DSM-III*; American Psychiatric Association, 1980; Quosh & Gergen, 2008). The diagnostic criteria of *DSM-III* evolved to incorporate an acute or chronic reaction in response to traumatic stress and allowed the presence of premorbid and concurrent pathology, whereas previous conceptualizations did not recognize chronic stress reactions and restricted the diagnosis to those without prior or simultaneous disorders (*DSM-I, 1952; DSM-II, 1968; DSM-III*, 1980; Brett, Spitzer, & Williams, 1988).

DSM-III defined a traumatic event as a catastrophic stressor that was outside the range of usual human experience and was extended beyond the traumatic experience of combat to rape, severe assault, and unusually serious automobile accident, natural, accidental, or purposeful events. A dichotomy was created between traumatic stressors and other stressors. Traumatic events or stressors were said to be distinctly different from the very painful stressors that make up normal facets of life such as serious illness, death of a loved one, or an ordinary traffic accident (*DSM-III*, 1980). Adding to our definition of a traumatic event, *DSM-III-R* emphasized that PTSD occurs in

response to events of a particular and specific type which include serious or actual injury to oneself or loved one (hearing that a loved one has been kidnapped or actually witnessing the torture of a close relative or friend), sudden destruction of one's home or community, and witnessing mutilation or violent death (3rd ed. revised; *DSM-III-R*; American Psychiatric Association, 1987).

The definition of what is a traumatic event/stressor changed with the fourth edition of the *DSM* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994). *DSM-IV* saw a de-emphasis on the objective nature of the stressor to emphasis that people may perceive and respond differently to similar events (Breslau & Kessler, 2001; *DSM-IV*, 1994). The *DSM-IV* created criterion A, which includes criterion A1, states the range of qualifying stressors: "extreme traumatic stressor involving direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to another person; or learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate" and A2, requires that the "person's response involved intense fear, helplessness, or horror." This change resulted in the expansion of what experiences can be used by clinicians to diagnose PTSD, for example, in the previous definition, only a violent death qualified; in *DSM-IV* learning about the death of a close relative or friend from any cause, including natural causes as long as the death was sudden and unexpected and the individual had the reactions listed in the A2 criterion is a qualifying event. Being diagnosed with a life-threatening illness is also included in the *DSM-IV* definition whereas it was previously not included.

The most recent revision to the *DSM, DSM-5,* sees the elimination that a traumatic event produces a response that involves "intense fear, helplessness, or horror" (5th ed.; DSM–5; American Psychiatric Association [APA], 2013). *DSM-5* specifies traumatic events as follows: a

person has been exposed to a catastrophic event involving actual or threatened death or injury, or a threat to the physical integrity of him/herself or others (such as sexual violence); indirect exposure includes learning about the violent or accidental death or perpetration of sexual violence to a loved one; repeated, indirect exposure (usually as part of one's professional responsibilities) to the gruesome and horrific consequences of a traumatic event (e.g. police personnel, body handlers, etc.) is considered traumatic.

Agreement over what constitutes a traumatic event has been one of the most challenging aspects of developing criteria for Posttraumatic Stress Disorder (Friedman, 2013). What do we know about what constitutes traumatic events? The American Psychological Association (APA) on its website says, "Trauma is an emotional response to a terrible event like an accident, rape or natural disaster." ("Trauma", n.d.) Based on the above-listed revisions and the brief definition provided by APA, we may have an easier time describing what does not qualify as a traumatic event/stressor.

- A traumatic event/stressor does not have to produce reactions of "intense fear, helplessness, or horror."
- Is not limited to experiences of military service/combat
- Does not include death if death is expected or anticipated
- Does not include exposure via electronic media (unless work related)
- Is not limited to first-hand experience(s) to gruesome and horrific consequences of a traumatic event
- Is not an abnormal facet of life.

As previously mentioned, agreement over what constitutes a traumatic event has been one of the most challenging aspects of developing criteria for Posttraumatic Stress Disorder (Friedman,

2013). While we may not have a clear definition of what a traumatic event is, we can predict what types of events are more likely to produce an outcome of a diagnosis of PTSD.

<u>Who gets PTSD?</u>

Several studies have examined the prevalence rate (lifetime and current) and conditional probabilities of PTSD based on event type. These event types include direct and indirect exposure.

<u>Direct exposure</u>

Sexual Assault

Several studies, including the Detroit Area Survey of Trauma and the National Comorbidity Study, report rape (attempted and completed) and molestation have the highest risk of PTSD (Breslau, Kessler, Chilcoat, Schultz, Davis, & Andreski, 1998; Creamer, Burgess, & McFarlane, 2001; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). This is evident in the conditional probability rates. Three studies found the conditional probability of a PTSD diagnosis is between 16.5% (Olaya, Alonso, Atwoli, Kessler, Vilagut, & Haro, 2014), 39.3% (McLaughlin et al., 2013), and 44.4% (Perkonigg, Kessler, Storz, & Wittchen, 2000).

Lifetime prevalence rates range from 7.5% (George & Winfield-Laird, 1986) to 80% (Breslau, Davis, Andreski, & Peterson, 1991) with most studies finding a prevalence rate of PTSD between 30.8% (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993) and 57.1% (Kilpatrick, Saunders, Best, & Von, 1987).

Compared to lifetime prevalence rates, prevalence rates of current PTSD are less variable. Current PTSD rates range from 13.0% (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993) to 16.5% (Kilpatrick, Saunders, Best, & Von, 1987).

Physical Assault

After sexual assault, physical assault has the second highest conditional probability. The conditional probabilities of developing PTSD after exposure to physical assault by a romantic partner was 29.1% and 25.2% by a caregiver (McLaughlin, 2013), which are both greater than the 1% found in a study by Olaya et al. (2014).

Prevalence rates of lifetime PTSD ranged between 38.5% (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993) and 16.4% (Olaya, et al., 2014). This rate is the first and third highest among events examined, respectively.

The prevalence rate of current PTSD was between 17.8% (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993), which was the highest in events examined (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993) and 13.3%, which was close behind sexual assault (13.6%) (Norris, 1992).

Witnessing Someone Killed or Badly Injured

The National Comorbidity Study reported that witnessing someone who was killed or badly injured was the second most common event associated with PTSD (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Being exposed to a tragic death resulted in an odds ratio of 1.92 [CI = 1.22-3.01, $p < .01$] for developing PTSD (Frans, Rimmö, Åberg, & Fredrikson, 2005).

Homicide was found to have a lifetime prevalence rate of 22.1% and current PTSD rate of 8.9% (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Exposure death yielded similar lifetime rates of PTSD at 20.6% (Olaya, Alonso, Atwoli, Kessler, Vilagut, & Haro, 2014) and a

conditional probability of 27.3% in women and 10% in men (Perkonigg, Kessler, Storz, & Wittchen, 2000).

Crime

Crime victims were significantly more likely to meet criteria for lifetime PTSD than those who had experienced non-crime (25.8% vs. 9.4%) and reported meeting criteria for current PTSD at a rate of 9.7% versus 3.4% for non-crime (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Kilpatrick, Saunders, Best, & Von (1987) found similar rates of lifetime PTSD (27.8%) and current PTSD (7.5%). McLaughlin and colleagues (2013) found those who are a victim of the crime of kidnapping have a conditional probability of PTSD of 39%.

Multiple Exposures

Another traumatic exposure that has been observed to predictably influence rates of PTSD is exposure to multiple events. Studies involving adolescents have found that those who were exposed to multiple traumatic events experienced more symptoms of PTSD and the symptoms increased linearly with each successive traumatic exposure (Suliman, Mkabile, Fincham, Ahmed, Stein, & Seedat, 2009). Additionally, several reports have found that multiple exposures to traumatic events increases the risk of developing PTSD (Ozer, Best, Lipsey, & Weiss, 2003; Walsh, Danielson, McCauley, Saunders, Kilpatrick, & Resnick, 2012; Kilpatrick, Resnick, Milanak, Miller, Keyes, & Friedman, 2013). Multiple exposures were found to increase the probability of developing PTSD and the odds of developing a comorbid disorder increases with the number of exposures (Copeland, Keeler, Angold, & Costello, 2007; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Kilpatrick, Resnick, Milanak, Miller, Keyes, & Friedman, 2013; Macdonald, Danielson, Resnick, Saunders, & Kilpatrick, 2010). Krupnick et al. (2004) found that

the highest number of diagnoses were in participants who had experienced either sexual or physical abuse, or multiple single events. This was also supported by a 2005 study that took place in a community mental health setting. Howgego et al. (2005) found 74% ($n = 20$) reported exposure to multiple traumatic events and 33.3% ($n = 9$) met DSM IV diagnostic criteria for PTSD.

Indirect exposure

Interestingly, indirect exposure increases the prevalence rate of PTSD. A study one year after the attack on the World Trade Center, September 11th, 2001, examined the mental health consequences in patients seeking primary care at the Associates in Internal Medicine (AIM) practices of the Division of General Medicine at the College of Physicians & Surgeons of Columbia University Medical Center (Neria et al., 2008).

One-quarter of the patients ($n = 929$) reported knowing someone who was killed in the attack on 9/11. These patients were compared to patients who did not experienced 9/11-related loss. Findings indicated that the prevalence rate of PTSD was 17.1% in patients who knew someone killed and 7.7% in those who did not experience loss (Neria et al., 2008). This demonstrates that those with indirect exposure had an increased prevalence rate of PTSD compared to those with direct exposure. Similarly, this indirect rate is higher than direct exposure rates across multiple studies (14%; 15%; 7.5%) (Grieger, Fullerton, & Ursano, 2003; DiGrande, Neria, Brackbill, Pulliam, & Galea, 2011; Galea et al., 2002).

Similarly, when examining different types of events the higher prevalence rate of PTSD in those with indirect exposure remains higher than direct exposure. Specifically, two separate studies examined indirect victims of a homicide death of a family member were 71.1% (Freedy, Resnick, Kilpatrick, Dansky, & Tidwell, 1994) and 28.1% (Amick-McMullan, Kilpatrick, Veronen, &

Smith, 1989). Both these rates are higher than the rate of PTSD in individuals who had direct exposure to a mass shooting in Killeen, Texas on October 16, 1991 (13.3% injured eyewitnesses; 35.3% non-injured eyewitnesses) (North, Smith, & Spitznagel, 1994).

This preponderance of evidence led to the addition of criterion A2, A3, and A4 in the revised Diagnostic and Statistical Manual 5th edition (DSM-5) (APA, 2013; Friedman, 2013). The DSM-IV-TR PTSD criterion A stated:

A. The person has been exposed to a traumatic event in which both of the following were present:

1.) The person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others.

2.) The person's response involved intense fear, helplessness, or horror. Note: In children, this may be expressed instead by disorganized or agitated behavior.

DSM-5 PTSD A1 criterion expands the A1 criterion from directly experiencing or witnessing a traumatic event to directly DSM-5 PTSD criterion A is as follows:

A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:

1.) Directly experiencing the traumatic event(s).

2.) Witnessing, in person, the event(s) as it occurred to others.

3.) Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of family member or friend, the event(s) must have been violent or accidental.

4.) Experiencing repeated or extreme exposure to aversive details of the traumatic

event(s) (e.g., first responders collecting human remains; police officers repeatedly

exposed to details of child abuse). Note: Criterion A4 does not apply to exposure

through electronic media, television, movies, or pictures, unless this exposure is work

related.

DSM-5 criterion A sees the elimination of the A2 criterion in *DSM-IV-TR* and the addition

of A2, A3, and A4. These changes highlight the fact that, "the disturbance, regardless of its trigger,

causes clinically significant distress or impairment in the individual's social interactions, capacity

to work or other important areas of functioning" (APA, 2013, Fact Sheet, p. 1). However, these

changes fail to encompass and incorporate what research has revealed about indirect exposure.

How? If we closely examine the wording of the *DSM-5* PTSD A4 criterion from reputable sources

such as the National Center for PTSD, it is observed that information regarding what constitutes

indirect exposure is being disseminated as, "…the gruesome and horrific consequences of a

traumatic event" (Friedman, n.d.). Merriam-Webster online dictionary (2014) defines the word

"gruesome" "as causing horror or disgust, inspiring horror or repulsion". The inclusion and the

definition of the word "gruesome" is in direct conflict with the research that supported the

exclusion of the *DSM-IV-TR* A2 criterion in the *DSM-5* (Breslau & Kessler, 2001; Friedman,

Resick, Bryant, & Brewin, 2011; Karam et al., 2010; O'Donnell, Creamer, McFarlane, Silove, &

Bryant, 2010; Osei-Bonsu et al., 2012).

Furthermore, the A4 criterion text, published in the *DSM-5,* states, "Experiencing repeated

or extreme exposure to aversive details… e.g., first responders collecting human remains; police

officers repeatedly exposed to details of child abuse." This text provides an example of the type of

details (aversive), population (first responders), and activity (collecting human remains, details child abuse).

This wording of the A4 criterion is troublesome and may indicate that many mental health providers, including those who wrote criterion A4, are not well-versed in the expansive duties of first responders (Everyone Goes Home, n.d). San Joaquin County Emergency Medical Services Agency EMS Policy No. 5103, in the document tilted "Determination of Death in the Field," explicitly states, "EMS personnel shall not transport dead bodies by ambulance except in the extremely rare occurrence that a patient is determined to be dead during transport. In such situations, EMS personnel shall deliver the body to the intended hospital."

One of the premiere journals, JEMS (Journal of Emergency Medical Services), states the following, "In the majority of circumstances the obviously dead, or pronounced dead should not be transported by EMS." (Maggiore, 2007). By the same token, the choice of the word "aversive" reflects poor comprehension. The word "aversive" is defined as "tending to avoid or causing avoidance of a noxious or punishing stimulus" (Merriam-Webster's online dictionary, 2014). The occupations that are given as examples, first responders and police officers, are required by a condition of their occupation to not avoid noxious or punishing stimulus. This wording points to the lack of understanding. Furthermore, the wording creates a similar condition of the *DSM-IV-TR* A2 criterion that was eliminated. Specifically, the wording suggests that for the experience to be considered an event that meets diagnosis for PTSD, the first responder or police officer must have avoided the, "…repeated or extreme exposure…" (*DSM-5*). Additionally, by error of omission, criterion A4 does not include doctors, nurses, clergy, and other occupations that experience, "...repeated or extreme exposure to aversive details."

To reiterate, those who are not directly in danger themselves can and do experience PTSD, sometimes at higher rates than those directly exposed. As clinicians, the study of these individuals who are indirectly exposed or experience secondary traumatic stress warrants our attention, in particularly, those who are at an increased risk.

The criteria for PTSD as it stands is failing to account for certain groups, specifically failing for high-risk groups. The high-risk groups are those who have a combination of indirect exposure and multiple exposures to potentially traumatic events. Why this combination? The highest prevalence rates of PTSD were found in those who experienced multiple events compared to single events, and indirect exposure was higher compared to direct exposure (Amick-McMullan, Kilpatrick, Veronen, & Smith, 1989; DiGrande, Neria, Brackbill, Pulliam, & Galea, 2011; Freedy, Resnick, Kilpatrick, Dansky, & Tidwell, 1994; Galea et al., 2002; Grieger, Fullerton, & Ursano, 2003; Kilpatrick, Resnick, Milanak, Miller, Keyes, & Friedman, 2013; Neria et al., 2008; North, Smith, & Spitznagel, 1994; Ozer, Best, Lipsey, & Weiss, 2003; Suliman, Mkabile, Fincham, Ahmed, Stein, & Seedat, 2009; Walsh, Danielson, McCauley, Saunders, Kilpatrick, & Resnick, 2012;).

High frequency of indirect exposure best describes individuals who work in the helping professions; these are, doctors, nurses, police, firefighters, EMT's, clergy, psychologists, mental health counselors and countless others (Figley, 1992). Individuals in helping professions differ from those not in the helping professions in that individuals in helping professions are exposed to potentially traumatic events as a function of their occupation. The exposure of helping professionals to events are predictable and foreseeable (Figley, 1992; McCann & Pearlman, 1990;

McFarlane & Bryant, 2007). Helping professionals are continuously exposed to others traumatic events as well as events that may be less than traumatic, but certainly very stressful.

Several studies have demonstrated that it is more typical for a police officer, firefighter, EMT, to "break down" after repeated experiences of traumatic incidents than a specific incident (Carlier, Lamberts, & Gersons, 2000; Huizink et al., 2006; Sterud, Ekeberg, & Hem, 2006; Turner & Lloyd, 1995). As a result, efforts should not strictly focus on reactions after a single event. Attention to the accumulated risk of repeated exposures over a period of time should not be ignored (Carlier, Lamberts, & Gersons, 2000).

As it is written currently, the *DSM-5* PTSD criteria does not account for the research that indicates a sensitization process that is shaped by the cumulative or repeated exposure that results in a progressive reactivity or sensitivity to trauma-related cues (Cloitre et al., 2009; Elzinga & Bremner, 2002; Marshall & Garakani, 2002; Turner & Lloyd, 1995).

The *DSM-5* PTSD criteria disregards the findings by requiring exposure to aversive details when in fact by a function of their job, helping professionals are not able to avoid exposure. This is evident when one considers the following regarding exposure. In District 2 of the Durham, North Carolina Police Department in a 28-day period (05/11/2014-06/07/2014) 64 violent crimes were committed (City of Durham, North Carolina, 2014). District 2 employs 13 patrol officers per shift, which means that in that 28-day period each patrol officer was exposed to 4.92 violent crimes (personal communication, July 7, 2014). A study of hospice nurses revealed that on average a hospice nurse experiences seven patient deaths per month (Abendroth & Flannery, 2006). In Albany, New York, the city reported 1,197 fatalities involving motor vehicle accidents in 2012 (http://www.safeny.ny.gov/12data/Albany-12.pdf). In a report of the number of ambulances and advanced life support first response services in New York, there are an estimated 22 ambulances

across 5 services which means each ambulance has responded to approximately 54 fatalities in 2012 (https://www.health.ny.gov/professionals/ems/pdf/agency_list_aalffrs.pdf). 56% of EMS personnel reported encountering situations that they believed were personally life threatening (Regehr, Goldberg, & Hughes, 2002).

For each of these incidents in Albany, NY and Durham, NC, an emergency dispatcher answered the call for help so that police and or EMS could respond. It is easy for lay people to understand that EMT's, firefighters, police, and nurses are exposed to traumatic events, it is more difficult for lay people to understand the exposure to traumatic events of emergency dispatchers (Umeh, 1999). 9-1-1 emergency dispatchers do more than collect name, address, phone number. For instance, 9-1-1 dispatcher David Mancinin working for New Haven, Connecticut helped save a 4-year-old from drowning by instructing and reassuring the mother of the child to give the child chest compressions until paramedics arrived (Montgomery, 2011). On a day in March, 9-1-1 dispatcher Tom Pottiger working for Dauphin County, Pennsylvania, answered the call to hear a frantic woman trapped in a house fire. Pottiger said he had to calm the woman and talked her into going to a room where she would be safe until firefighters arrived. While on the phone Pottiger reported that he heard the woman gasping for air and then not breathing (Miller, 2014). A 9-1-1 dispatcher in Denver, Colorado, answered the call to hear a woman on the other end saying that her husband was talking about the end of the world and that he wanted her to shoot him and was scaring their three small children. The dispatcher heard the woman scream and "…twelve minutes into the call, the sound of "an apparent gunshot" was heard and "the victim was not heard on the call again.." (Slifer, 2014). A 9-1-1 dispatcher in Dallas, Texas, answered the call to hear the last nine minutes of Deanna Cook's life. The 9-1-1 dispatcher who answered the call listened to Deanna Cook plead and beg for her life and heard the final threat before the call went silent (Lopez, 2013).

Those who come to the help of others (e.g., EMT's, doctors, nurses, emergency dispatchers) were thought to be trained not to react to the devastation of human life, limb, and mental suffering of the deceased or survivors (Mitchell & Dyregrov, 1993). A document published by the American Psychiatric Association in 1954 entitled "First Aid for Psychological Reactions in Disasters" cautioned emergency workers about the risk of extending one's self to the limits. The document suggests that the emergency worker is protected, "…lest you become as ill as those who need your help." (American Psychiatric Association, 1964, p. 20). This suggests that any symptoms that are not as severe as those of the patient are discounted (American Psychiatric Association, 1964).

We know today that this is not the case; as previously discussed, helpers are subjected to stressors that produce an array of psychological, social, and physical reactions. More focus is being placed on the mental health of those who come to the help of others. The Journal of American Medical Association published several responses to the title *Physicians' Feelings About Themselves and Their Patients* (2002). Auster (2002) said,

"It is important for physicians to recognize that caring for patients with any

condition with the potential for even partially limiting activities important to

the individual may provide reminders of the physician's own vulnerability. This

can put the physician at risk for feelings that, unless recognized, could impair

patient care."

Qualitatively, the prevalence rates of disorders found in first responders are not astronomically above and beyond what is observed in the general population. However, several studies have found that multiple exposure places an individual at risk for developing a disorder; therefore, one would expect the rates of PTSD and ASD to be higher (Copeland, Keeler, Angold,

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& Costello, 2007; Green et al., 2000; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Kilpatrick, Resnick, Milanak, Miller, Keyes, & Friedman, 2013; Macdonald, Danielson, Resnick, Saunders, & Kilpatrick, 2010; Perkonigg, Kessler, Storz, & Wittchen, 2000). In other words, 93-81% of Police Officers, 87% of Firefighters will not meet DSM-5 criteria for a diagnosis of PTSD, and 83% of 9-1-1 emergency dispatchers will not meet DSM-5 criteria for a diagnosis of ASD.

Problems with the current conceptualization of PTSD

This is not to suggest that first responders are not suffering. Regardless of direct or indirect exposure to one traumatic event or repeated traumatic events, not everyone who is exposed develops a diagnosable disorder. It does call to question our current conceptualization of exposure to traumatic events as a dichotomy of PTSD or no PTSD. Bonnano (2004) indicated, "Although chronic PTSD certainly warrants great concern, the fact that the vast majority of individuals exposed to violent or life-threatening events do not go on to develop the disorder has not received adequate attention" (Bonnano, 2004, p. 24). Much larger proportions develop symptoms but do not meet the full criterion for a diagnosis (Norris & Slone, 2013). Under current standards, their reactions are less-than-clinical levels of breadth and intensity of symptoms; therefore they are not able to receive services reimbursable by insurance (APA, Does Your Insurance Cover Mental Health Services; MentalHealth.gov).

Dr. Richard Gist (2008) indicates that there is a distinction between a sign and a symptom, "A sign is an indicator that something is going on; a symptom is an indicator that something's gone awry." In the case of PTSD, the symptoms that we recognize as being associated with PTSD, such as hypervigilance, exaggerated startle response, withdrawal from friends and loved ones, are, in the beginning, only signs that a person is having a maladaptive response to a traumatic event. These signs are not considered symptoms until they fail to resolve on their own, and therefore

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causes dysfunction in activities of daily living (Gist, 2008). It is at that time when distress becomes "…broad, persistent and intense that it reaches a diagnosable threshold" (Gist, 2008). The Diagnostic and Statistical Manual is what determines if an individual has reached the diagnosable threshold. Unfortunately, as previously illustrated, many people do not reach the diagnosable threshold, but their signs are causing impairment in activities of daily living, which include, impairment in social and occupational functioning.

This is illustrated in a study conducted by Trachik, Marks, and Bowers (2015) that found 55% of 9-1-1 dispatchers endorsed the sign of, "Because of my helping, I have felt on edge about various things;" 66% endorsed the sign of, "I am preoccupied with more than one person I have helped;" 45% endorsed the sign of, "I had difficulty falling or staying asleep;" 62% endorsed the sign of, "I tried to avoid feelings about the call;" 89% endorsed the sign of, "Because of my work as a helper, I feel exhausted." These signs are maladaptive; these symptoms are disruptive. The study by Trachik, Marks, and Bowers (2015) describes signs and symptoms that are commonly endorsed by dispatchers, but we must also consider the consequences of such stress.

Dispatchers reported psychological problems such as cynicism, low self-esteem, and sleepiness on the job an average of 15.8 weeks a year (Pendergrass & Ostrove, 1984). Other physiological and psychological consequences include, exhaustion, headache, sexual dysfunction, weight gain/loss, and burnout (Burgess, 2005). These consequences of stress are common reasons why people present for treatment to healthcare providers .

The notion that health care providers and first responders and other professionals who must exhibit compassion in their job provide assistance to those in need, yet, the health care providers and first responders, who experience, either directly or indirectly, trauma, as a function of their job, are not able to receive assistance for stresses experienced as a function of their job, is

worrisome. The fact that these high-risk groups of individuals are not meeting the clinical level of dysfunction as outlined in the DSM or meeting insurance policies requirements for reimbursement means that they cannot get help is reprehensible.

To summarize, many individuals develop symptoms shortly after exposure to traumatic events; this is a normal response (Rothbaum & Foa, 1993). It is important to remember that although exposure to traumatic events are more likely to lead to development of PTSD - it does not necessarily mean that an individual will develop PTSD. Therefore, PTSD is a possible outcome but not an inevitable outcome following trauma exposure (Bonanno, 2004; Yehuda, McFarlane, & Shalev, 1998).

<p style="text-align:center"><u>Distinguishing between sub groups of PTSD</u></p>

There are still significant amounts of people who are experiencing maladaptive responses to traumatic or secondary traumatic stress that deserve our attention as well. Unfortunately, current diagnostic schema allows for the reimbursement of treatment of 'PTSD-Positive' individuals, which means that people who are 'PTSD-Negative' do not require treatment and do not experience maladaptive responses. Evidence would suggest as seen in a study conducted by Carlier and Lamberts (1997) that 34% had posttraumatic stress symptoms or subthreshold PTSD, that there are a sub-group of individuals who are not 'PTSD-Positive' but do experience maladaptive responses, thus not "completely" PTSD-Negative. Furthermore, because of the constraints placed upon psychologists who want to help their comrades in helping, they may assign *DSM* criteria to subclinical patients liberally or overestimate a person's symptoms. This may be done in order to be able to assist and receive compensation for the treatment provided. An empirical investigation by Pomerantz and Segrist (2006) showed half of the participants would do just that. If a psychologist can assist a person and receive compensation what is wrong? For one, it is unethical

(Standard 6.01) (APA, 2010), two, illegal per insurance fraud regulations (AHIMA, 2008) and three, there may be unforeseen repercussions, such as stigmatization, for the patient by receiving a diagnosis of a mental disorder (Pomerantz & Segrist, 2006). One of these groups of people are those belonging to the high-risk group of first responders. As a function of their occupation, first responders predictably experience traumatic events.

Bonnano (2004), draws attention to the fact that sparse attempts to distinguish between subgroups of individuals not showing, what is referred to in this paper as 'PTSD-Positive,' have been made. The focus of this thesis is to attempt to distinguish between subgroups of individuals who, under the current conceptualization, are classified as 'PTSD-Negative.' Specifically, focusing on the subset of individuals who experience maladaptive responses as a function of their occupation. Working in the "helping professions" such as healthcare and first responders is known to be uniquely stressful and must respond to the needs of their patients (those they help) as a function of their job. These individuals are often placed in emotionally charged situations and must expend their emotional resources (Uskun, Ozturk, Kisioglu, & Kirbiyik, 2005). One of these resources is compassion. The etymology of the word compassion is derived from the Latin, *com*, which means "together with," and *pati,* which means "to suffer", literally 'to suffer with' (Harper, 2014; Merriam-Webster's online dictionary, 2014). "To suffer with" explains well Merriam-Webster's English definition of compassion, which is, "sympathetic consciousness of others' distress together with a desire to alleviate it". Recently, the importance of compassion in caregiving professions has begun to be documented most notably in the nursing profession (Apker, Propp, Zabava, & Hofmeister, 2006; Burnell, 2009; Kozier, Erb, & Blais, 1992; Olsen, 1991; Straughair, 2012; Van der Cingel, 2009; Von Dietze & Orb, 2000; Watson, 2008).

Compassion is said to be a nurse's most precious asset (Burnell, 2009). Delivery of compassionate quality care is seen as a necessity in caregiving professions. Compassion differs from the definitions of empathy and sympathy in that compassion incorporates the dimension of deliberate action (Nussbaum, 1996; Van der Cingel, 2009; Von Dietze & Orb, 2000). To be compassionate is to recognize that a person is suffering and one must deliberately participate in another's suffering (Nussbaum, 1996). Von Dietze and Orb (2000) say that compassion is not easy as they demonstrate by citing Nouwen, McNeill, and Morrison (1982).

> "Compassion asks us to go where it hurts, to enter into places of pain, to share in brokenness, fear, confusion and anguish. Compassion challenges us to cry out with those in misery, to mourn with those who are lonely, to weep with those in tears. Compassion requires us to be weak with the weak, vulnerable with the vulnerable, and powerless with the powerless. Compassion means full immersion into the condition of being human" (Nouwen, McNeill, & Morrison, 1982, p. 4 in Von Dietze & Orb, 2000, p. 169).

Compassion as a function of the job

Compassionate care is not just the action of taking away a persons' suffering it is about joining that person in the experience (Van der Cingel, 2009; Von Dietze & Orb, 2000). While not every caregiving professional acts or feels compassionate at the level described by Nouwen, McNeil, and Morrison (1982) compassion is a function of the job and the individual has made the conscious decision to enter into such a profession. If there remains a question of whether compassion truly is a function of a caregiver's job, one can look to Harrawood's (1996) article *Emergency Medical Services Law and Risk Prevention*

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Strategies in which he strongly suggests that a strategy to prevent potential liability is to implement processes assuring the delivery of compassionate quality care.

Continuous exposure to trauma and the demands of being compassionate are not easily sustained over a long period of time, as evidenced in a study by Van Der Ploeg and Kleber (2003) and as evidenced by the high turnover rate of 9-1-1 dispatchers. Nationally, a dispatcher's career averages two to three years, which is supported by articles in newspapers across the country detailing the significant loss of emergency communication center (ECC) employees (Bush, 2013; Gallagher, 2014; Petty, 2012; Whitaker, 2013).

The inability to be compassionate is especially interesting to the mental health care community because being compassionate is a key job function. Not being able to be compassionate can influence the caregiving professional's ability to do their job effectively (McFarlane & Bryant, 2007; Rassin, Kanti, & Silner, 2005; Shuler & Sypher, 2000). The inability to be compassionate after experiencing trauma has been termed Compassion Fatigue (CF) (Figley, 1995; Pearlman & Saakvitne, 1995; Stamm, 1995).

In the case of first responders and healthcare professionals, we know that individuals in these roles are likely to experience trauma as a function of their work. Additionally, we know that a reaction to that trauma is the inability to accurately perceive or react in a manner that is compassionate. Compassion Fatigue affects the caregiver, whether it be the VA psychologist treating returning OEF/OIF/OND veterans with PTSD, the hospice nurse caring for dying loved ones, the 9-1-1 emergency dispatcher answering an emergency call, or the Emergency Room Doctor treating a trauma patient in cardiac arrest. However, a caregivers' failure to be compassionate can lead to doing their job

poorly, which can result in the loss of their job and loss of someone's life. As a result, this is an area worthy of study (McFarlane & Bryant, 2007).

Compassion Fatigue is an area worthy of further investigation because it may add to the broader conceptualization of stress response, thus impact how mental health professionals advise the rest of the "caregiving" community. The risk group, or professions, that experience a high rate of traumatic stress and exposure as a function of their workplace are predictable populations. What are currently not predictable are the outcomes of individuals who do not meet diagnostic criteria for PTSD. The essence of primary prevention is to realize who is at risk and learn something about it and then do something about it (Cowen, 1985). If this is an area where the risk group is predictable and the risk reaction is predictable then our time spent investigating the maladaptive sub-clinical consequences is time well spent (Frans, Rimmö, Åberg, & Fredrikson, 2005; Kilpatrick, Resnick, Milanak, Miller, Keyes, & Friedman, 2013; Krupnick, Green, Stockton, Goodman, Corcoran, & Petty, 2004; Macdonald, Danielson, Resnick, Saunders, & Kilpatrick, 2010) It is, therefore, important to study and determine whether this is a reaction to traumatic stress that occurs at a high enough rate to warrant extensive attention and intervention. Therefore, is important to study and determine whether Compassion Fatigue is a reaction to traumatic stress and exposure, and as such are in need of a psychometrically validated measure to study the construct.

Compassion Fatigue is particularly interesting to study in groups who have a unique combination of stress and occupational demand that requires one to act socially appropriate and compassionate all of the time. This includes nurses, doctors, EMT's, and 9-1-1 dispatchers because they meet standards that would say they are at a high risk for

developing adverse stress reactions such as PTSD and ASD but they have a unique requirement, unlike a coroner who attends a crime scene and is exposed to a gruesome crime scene or a family law attorney who works with domestic violence, sexual assault, and rape victims, or a therapist who works with trauma patients, they do not have the opportunity to take a few minutes to emotionally decompress in-between clients (Huff, 2006). There is an immediate need to constantly be socially adept (Harrawood, 1996). The nurse, doctor, EMT, dispatcher do not have control over the next person who "walks in their door". A coroner can take an informal 20-minute break to emotionally decompress, an attorney and therapist can dictate how many clients they see a day or can ask their secretary to inform the next client that they are running 10 minutes late so that they can emotionally prepare themselves for the next client. The nurse, doctor, EMT, and dispatcher cannot impose an informal break to decompress.

> The phone rings in the emergency dispatcher center, on the other end is a mother screaming that her child was just hit by an SUV after it swerved onto the sidewalk. The dispatcher obtains critical information from the caller such as location, name, age, chief complaint, recommends a response level to responding units, gathers crucial information for responders, and provides pre-arrival instructions to the caller prior to the arrival of emergency units (National Academies of Emergency Dispatch, 2011). The dispatcher dispatches the closest available EMS unit. The phone rings again. It is a 15-year-old calling that his 45 year-old father is laying on the floor and he doesn't think that he is breathing. After treating and transporting the pediatric multi-system trauma patient to the emergency room the EMT's must respond to their next call of a 46 year-old male in cardiac arrest with a bystander

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currently doing CPR per instructions provided by the dispatcher. After the nurses

and doctors who accepted the pediatric multi-system trauma patient from the

EMT's treat the patient, they cannot take the time and sit in the break room to

decompress, they must continue their rounds to attend to the patient in the next bed.

The dispatcher must speak with the next caller with the same compassion as s/he

did the first 15 calls of the shift. The EMT must treat the next patient with the same

compassion as s/he did the first 5 calls of their shift. The nurses and doctors must

act just as compassionate toward the patient in the next bed as they did toward the

first few patients at the beginning of their shift (Harrawood, 1996).

The ability to have the time to make meaning and process a potentially traumatic event

may be important to the well-being of those who are exposed to potentially traumatic

events as a function of their job (Bardeen, Fergus, & Orcutt, 2014; Faulbach et al., 2009;

Park, Riley, & Snyder, 2012; Plumb, Orsillo, & Luterek, 2004). However, this relationship

and others cannot be explored until the construct of Compassion Fatigue has been

validated.

9-1-1 emergency dispatchers are one population that should be studied to

understand Compassion Fatigue as a construct. It is presumed that, because they are not

physically in the field, their exposure to stressful events is further removed than their

counterparts, therefore less likely to experience negative effects of their job (Miller, 2006).

Emergency dispatchers must manage their emotions as well as those on the other end of

the telephone. While a dispatcher's job may last only seconds or minutes, like their

counterparts on the 'front lines', dispatchers must collect, decode, manage, multi-task,

make rapid and effective decisions, all under the pressure of time and life and death of the

person in need. Unlike, those on the 'front lines', dispatchers must accomplish the aforementioned often times with limited information, hostile, agitated, and distressed callers with no way of providing immediate in-person assistance (Burke, 1995; Burke, 2005; NAED, 2011).

Development of the Construct of Compassion Fatigue

As previously stated, the current diagnostic system does not account for the adverse reactions experienced by those exposed to indirect multiple traumatic events as a function of their job. The concept of Compassion Fatigue was developed to account for these individuals' experiences. In 1995 Figley, Stamm, and Pearlman each published a book that expanded upon the research of Joinson, a nurse who first coined the term compassion fatigue in 1992 while studying burnout in nurses who worked in emergency departments. Joinson suggested that nurses who are empathetic, caring individuals, may absorb the traumatic stress of those they help. The concept of CF was subsequently described as a unique form of burnout that affects people in caregiving professions' (Joinson, 1992, p. 116).

While each suggested a different type of measurement and definition of the negative effects of secondary exposure to traumatic stress, collectively, they agreed that there are negative effects on caregivers who provide care to traumatized individuals (Figley, 1995; Pearlman & Saakvitne, 1995; Stamm, 1995). Compassion Fatigue can be summarized as a cumulative process that occurs over time and/or a transformation in cognitions by those who use empathy and have emotionally intense contact with people who experienced a traumatic event, which results in maladaptive psychological consequences that influence the ability to perform the role of a "helper" (Bride, Robinson, Yegidis, & Figley, 2004; Figley, 1995; McCann & Pearlman, 1990; McHolm, 2006; Pearlman & Saakvitne, 1995; Stamm, 1995). Three initial constructs to represent the negative

effects on caregivers were compassion fatigue (Figley, 1995), secondary traumatic stress (Stamm, 1995), and vicarious traumatization (Pearlman & Saakvitne, 1995), and later a fourth, compassion satisfaction (Stamm, 2002) and a fifth, burnout (Figley, 1995, 2002a, 2002b; Gentry, Baranowsky, & Dunning, 2002; Jenkins & Baird, 2002; Stamm, 2002, 2005, 2010) were incorporated.

Compassion Fatigue is not a diagnosis but rather a descriptive term for the negative effects experienced by an individual in a "helping" profession as a result of their secondary exposure to traumatic events (Stamm, 2010). The inability to be compassionate is a troublesome maladaptive reaction that influences the ability to perform their job effectively as reflected in the "…outcomes of emotional distress, pain, and suffering, and may manifest in increased rates of absenteeism, reduced service quality, low levels of efficiency, high attrition rates, and workforce dropout" (Nimmo & Huggard, 2013, p. 37). Figley (1995), examined the effects of working with victims of trauma has on individuals such as police officers and first responders. Figley (1995) stated, "compassion fatigue is a natural and disruptive by product of working with traumatized and troubled clients… is identical to secondary traumatic stress disorder and is the equivalent of PTSD" (p. 15). He further describes compassion fatigue as "the cost of caring." Compassion Fatigue is a consequential outcome of working with those who are traumatized, which subsequently results in behaviors and emotions in the professional such as the diminished capacity to empathize, feelings of anxiety, and effectiveness in the ability to care for others (Adams, Boscarino, & Figley, 2006; Figley, 1995, 2002a, 2002b; Nimmo & Huggard, 2013; Tolle & Graybar, 2009). Compassion Fatigue can occur after an individual has been exposed to a single event (Conrad & Kellar, 2006). Two theoretical models emerged which attempted to describe the development of Compassion Fatigue. The first, Figley's model of Compassion Stress and Fatigue, as measured by The Compassion Fatigue Self-Test (CFST; Figley, 1995) and the reconceptualized

version by Stamm, the Professional Quality of Life (ProQOL) model (Stamm, 2005, 2010). The Compassion Fatigue Self-Test (CFST; Figley, 1995) is a 40-item self-report measure designed to assess the risk for both compassion fatigue and burnout in clinicians. Respondents are asked to indicate the frequency with which they believe certain characteristics are true of themselves or their situation. Higher scores on the compassion fatigue and burnout subscales indicate higher risk for experiencing these stress responses (Figley, 1995). Stamm (2005, 2010) continued to develop the CFST, which resulted in a renamed instrument, the Professional Quality of Life Scale (ProQOL-IV and ProQOL-5), a 30-item self-report measure designed to assess Compassion Fatigue, Burnout, and Compassion Satisfaction.

Similarly to Compassion Fatigue, Stamm (1995) originally conceptualized Secondary Traumatic Stress (STS) as a reaction after a single exposure to a traumatic event. STS is grounded in the field of traumatology and was conceptualized to place more emphasis on the outward behavioral symptoms rather than the intrinsic cognitive changes (Bride, Robinson, Yegidis, & Figley, 2004; Figley, 1995). Stamm (2005, 2010) has incorporated STS into her model by subsuming it under the construct of CF. In this conceptualzation; the symptoms of STS are thought to be a part of CF along with the symptoms of burnout (BO). Stamm (2005, 2010) further describes STS as, "work-related secondary exposure to people who have experienced extremely or traumatically stressful events. The negative effects of STS may include fear sleep difficulties, intrusive images, or avoiding reminders of the person's traumatic experiences. STS is related to Vicarious Trauma as it shares many similar characteristics." (p. 13). Bride, Hatcher, and Humble (2004), describe STS as a construct built upon the components of Posttraumatic Stress Disorder. The Secondary Traumatic Stress Scale (STSS) developed by Bride, Hatcher, and Humble (2004)

evaluates the symptoms of arousal, avoidance, and intrusion in order to determine the negative effects that arise when professionals work with traumatized individuals.

On the other hand, Vicarious Trauma (VT), is conceptualized to be a transformative process that occurs due to the empathetic engagement with patient's traumatic experiences. This is a cumulative process that leads to harmful changes in the professionals' views of themselves, others, and the world (McCann & Pearlman, 1990; Pearlman & MacIan, 1995). VT is associated with disruptions to schema in five areas that each represent a psychological need and harmful effects of empathically engaging with the traumatic material of patients (Pearlman & Saakvitne, 1995). The Traumatic Stress Institute Belief Scale - Revision L (TSI-BSL) consists of 80-items that assess the five areas described by Pearlman and Saakvitne (1995), which are safety, trust, control, esteem, and intimacy (Jenkins & Baird, 2002).

As previously mentioned, Stamm (2005, 2010) conceptualized Compassion Fatigue as the negative result of working with those who suffer traumatic events. The construct of Compassion Satisfaction (CS), as seen on the ProQOL-IV and ProQOL-5, represents the positive aspects of working with those who experience traumatic events. "Compassion satisfaction is about the pleasure you derive from being able to do your work well. For example, you may feel like it is a pleasure to help others through your work. You may feel positively about your colleagues or your ability to contribute to the work setting or even the greater good of society." (Stamm, 2010, p. 12).

While Burnout, Compassion Fatigue, and Compassion Satisfaction are similar in that the negative item symptoms of BO may overlap with CF and the positive item symptoms of BO may overlap with CS, BO is different from CF and CS (Conrad & Kellar-Guenther, 2006). The concept of burnout or job burnout was originally conceptualized as the negative results of a b road range of work-related stressors and situations in human services employees that accumulate over a

prolonged period of time (Maslach, 1976; Maslach, Schaufeli, & Leiter, 2001). Burnout in the healthcare and first responder industries are two industries that experience high rates of burnout because of the care they provide to traumatized populations (Felton, 1998; Newell & MacNeil, 2011). Like CF, individuals suffering from BO have a reduced quality of life, reduced quality of care for their patients, and the ability to be effective in their job (Adams, Boscarino, & Figley, 2006; Cheung & Chow, 2011; Figley, 1995, 2002a, 2002b; Nimmo & Huggard, 2013; Stamm, 2010; Tolle & Graybar, 2009). However, for BO, these consequences manifest after prolonged exposure, while CF can be experienced after a single exposure (Conrad & Kellar-Guenther, 2006; Tolle, & Graybar, 2009). Stamm (2010) states, "burnout is associated with feelings of hopelessness…they can reflect the feeling that your efforts make no difference…" (p. 13).

<div align="center">Psychometric Properties of the ProQOL</div>

While the constructs of CF, STS, and BO are distinct, they all attempt to explain the impact that working with people who experience traumatic events as a function of their job has on those who work in these care-giving professions. Unfortunately, as it currently stands, the aforementioned measures do not represent all five of the consequences of being exposed to the traumas of others, as a function of their job (Sprang, Clark, & Whitt-Woosley, 2007). A meta-analysis by Cieslak et al. (2014) revealed that the ProQOL is the most widely used measure to assess Compassion Fatigue (CF), Burnout (BO), and both CF and BO. Of the 41 studies included in the analysis, 65.85% (k=27) of the studies utilized the CF items of the ProQOL, which corresponded to 5,343 respondents or 64.72% of the total sample completing the ProQOL. Additionally, the ProQOL was used the most to assess BO (60.98%; 5,409 (65.51% of the total sample)). Finally, 34.15% (k=14) used the ProQOL to assess both STS and BO (Cieslak et al., 2014). A good measurement tool, like the ProQOL, is only as good as its general foundation; this

foundation is built from a measure being psychometrically sound of the construct targeted for observation. This is supported by evidence or lack of evidence of validity and reliability. Reliability refers to the accuracy of a measurement in either consistency or stability and validity refers to the ability of the instrument to measure the attributes of the construct in question (AERA, APA, & NCME, 1999). "The main objective of psychometrics may be phrased as mathematical modeling of human behavior." (Samejima, 1997, p. 471). However, "The goal of the analysis of psychological data, however mathematical, is psychology, not mathematics" (Thissen & Steinberg, 1988, p. 385). Measurement permits accurate, objective, and communicable descriptions of phenomena that links abstract concepts to empirical indicators (Carmines & Zeller, 1979; Guilford, 1954). Construct validity, as enumerated by Cronbach and Meehl (1955), is the degree to which an instrument measures the construct it is intended to measure. Cronbach and Meehl (1955) suggest a theoretical network can be established that generates testable predictions and if the network and predictions are congruent, then the construct in question can be adopted, but is never demonstrated to be correct. "Confidence in a theory is increased as more relevant evidence confirms it, but it is always possible that tomorrow's investigation will render the theory obsolete." (Cronbach & Meehl, 1955, p. 298). Because the ProQOL has been widely used, as demonstrated by Cieslak et al. (2014), information pertaining to concurrent and predictive validity, convergent and discriminant validity, internal consistency (Cronbach's Alpha (α)) is available.

Reliability

Reliability refers to the accuracy of a measurement in either consistency or stability and validity refers to the ability of the instrument to measure the attributes of the construct in question (AERA, APA, & NCME, 1999). Stability reliability and Equivalence reliability are two tools that can aid in the evaluation of a measure to be reliable (DeVon et al., 2007).

Stability reliability, or test-retest reliability, is a measure of reliability obtained by administering the same test more than once, over a period of time. The scores from Time 1 and Time 2, can be correlated and the closer the scores from Time 1 and Time 2, the greater the test-retest reliability. In essence, test-retest reliability is examining the stability of the measure over time, as such, attributes about the participant contribute to the consistency of the measure from one period of time to another (Thorndike, 1997). Lasting and specific attributes, for example, burnout, contribute to consistency in scores because burnout may be a stable trait; however, a temporary and specific attribute, for example, compassion fatigue, may give rise to inconsistency in scores (Conrad & Kellar-Guenther, 2006; Thorndike, 1997; Tolle, & Graybar, 2009). A temporary attribute produces inconsistency in scores because the event may affect performance at time 1, but not at time 2 (Thorndike, 1997). Simply, Kline (2013) uses the example of weighing a rock. If the rock were to be weighed on two separate occasions, the weight of the rock should not change between time 1 and time 2. To add on to Kline's (2013) analogy, we would expect the weight of the rock to change if an event were to occur such as someone applying a jackhammer to the rock, thus, breaking up the rock and changing the weight. As previously explained, burnout is a prolonged sense of hopelessness and quality of life, which is similar to the qualities of a trait, as such, it should be expected that measuring burnout on two separate occasions should not change; whereas, compassion fatigue may better encompass a state, therefore it should be expected that scores on time 1 and time 2 may not be similar (Adams, Boscarino, & Figley, 2006; Cheung & Chow, 2011; Conrad & Kellar-Guenther, 2006; Figley, 1995, 2002a, 2002b; Nimmo & Huggard, 2013; Stamm, 2010; Thorndike, 1997; Tolle & Graybar, 2009). Stamm (2005) reported that the ProQOL produces stability of scores over time, as illustrated by "adequate test-retest reliability and small standard error of the estimate." (p. 8). Interestingly, Stamm (2005) does not provide

additional information regarding test-retest reliability, nor does she report the values of the correlations obtained for test-retest reliability analysis. In general, researchers have identified "adequate" reliability to be accepted as a correlation of 0.7, which shows an agreement between scores obtained on Time 1 and Time 2 of approximately 49% (Kline, 2013). Because the correlations between Time 1 and Time 2 can not be examined, it is not possible to assess if the test-retest reliability is adequate. Furthermore, if burnout is to be conceptualized as a trait and compassion fatigue as a state, two separate test-retest reliability estimates should be reported, similar to that seen on the STAI, a measure of state- and trait- anxiety, with a higher correlation among trait anxiety between time points, and a lower correlation among state anxiety measure between time points (Barnes, Harp, & Jung, 2002).

Another aim of reliability is to make a measure internally consistent (Kline, 2013). Equivalence reliability, or internal consistency (Cronbach's Alpha), must be high if a test is to valid (Nunnally, 1978). The majority of the information provided regarding the psychometric properties of the ProQOL has come from reports of internal consistency. Cronbach's Alpha describes the extent to which there is general agreement between multiple items that measure the same concept or construct, for a particular sample (Cronbach, 1951). Alpha values inform how well items on a scale go together, alpha values do not have the ability to draw meaning about the construct. For example, there are 10 items per construct on the ProQOL-IV, each item contributes to a composite score which is intended to measure CS, CF, or BO for the ProQOL-IV and CS, STS, and BO for the ProQOL-5. Table 1, provides reported alpha levels for studies that used the ProQOL-IV. Table 2, provides reported alpha levels for studies that used the ProQOL-5.

Table 1: Reported Internal Consistency (α) of Studies using the ProQOL-IV

Study	CS	CF	BO
Abendroth, 2005	0.86	0.81	0.69
Linley & Joseph, 2007	0.83	0.70	0.61
Lounsbury, 2006	0.88	0.84	0.70
Palestini et al., 2009	0.83	0.86	0.85
Stamm, 2005	0.87	0.80	0.72
Severn, Searchfield, & Huggard, 2012	0.84	0.81	0.69
Prati & Pietrantoni, 2010	0.83	0.71	0.80
Meadors, Lamson, Swanson, White, & Sira, 2009	0.91	0.81	0.66
Eastwood & Ecklund, 2008	0.83	0.81	0.73
Craig & Sprang, 2010	0.86	0.77	0.71
Burtson & Stichler, 2010	0.88	0.81	0.75

Table 2: Reported Internal Consistency (α) of Studies using the ProQOL-5

Study	CS	STS	BO
Shakespeare-Finch, Wehr, Kaiplinger, and Daley, 2014	0.91	0.85	0.79
Stamm, 2010	0.88	0.81	0.75
Lee, Veach, MacFarlane, & LeRoy, 2014	.90	.79	.79

Stamm (2005, 2010) and others have claimed that the ProQOL-IV and ProQOL-5 has adequate internal consistency (Abendroth, 2005; Eastwood & Ecklund, 2008; Linley & Joseph, 2007; Loundsbury, 2006). Furthermore, "over 200 published papers…more than 100,000 articles on the internet" are "proof" of the measures reliability (Stamm, 2010, p. 13). It is not enough to refer to the abundance of other studies to establish the psychometric qualities of a measure, furthermore the notion that an alpha of at least α=0.70 is an indication that a scale and its constructs have good reliability, is misleading (Cortina, 1993). For example, Lounsbury (2006) Additionally, Linley and Joseph (2007) reported α=0.61, which corresponds to 37% confidence and 63% error. Is 63% error indicative of a reliable measure? No (Guilford, 1956; Nunnally, 1978; Streiner, 2003a, 2003b). It is important to note that coefficient alpha is based on the researcher's individual sample (Cortina, 1993; Streiner, 2003a, 2003b). As such, it is important to explore the internal consistency in several populations, including emergency dispatchers. Researchers must be aware that estimates of alpha cannot be relied upon as a "gold seal of approval" regarding a tests reliability (Streiner, 2003a, 2003b).

Just as the fact that many researchers have utilized the ProQOL does not equate to evidence of reliability, it cannot be used as evidence of validity. Validity is established with rigorous psychometric analysis. Construct validity, as enumerated by Cronbach and Meehl (1955), is the degree to which an instrument measures the construct it is intended to measure. Cronbach and Meehl (1955) suggest a theoretical network can be established that generates testable predictions and if the network and predictions are congruent, then the construct in question can be adopted, but is never demonstrated to be correct. "Confidence in a theory is increased as more relevant evidence confirms it, but it is always possible that tomorrow's investigation will render the theory obsolete." (Cronbach & Meehl, 1955, p. 298). Kline (2013) provides an important illustration of construct validity. Kline explains that the notion of 'species' is a construct. 'Species' do not exist as it cannot be directly studied or observed, in essence, it is constructed by the mind. It is useful to create these different categories of 'species' so that the relationships of different organisms can be understood. The different organisms are observed and studies are conducted to demonstrate that the definition of the construct best represents the organisms (Kline, 2013). In short, construct validity aims to determine the extent to which an observation or score on a measure best represents the theoretical construct that generalizes behavior or phenomenon as it is understood at that time (Zumbo, 2007). Construct validity encompasses many types of validity as explained in terms of the ProQOL as follows:

- The ProQOL is able to distinguish between compassion fatigue, secondary traumatic stress, burnout, and compassion satisfaction and other unrelated concepts, i.e., schizophrenia (concurrent validity).

- Scores on the ProQOL will correlate with other measures that reflect similar constructs (convergent).

- Scores on the ProQOL will not correlate with scores on other measures that are not examining similar concepts (discriminant validity).

- Scores on the ProQOL will predict performance on a future criterion variable (predictive validity

- The items on the ProQOL will measure different behavior domains that comprise the different subscales represented by the correlations of scores on factors (factor validity).

Several studies have attempted to review the validity of the ProQOL, these attempts are discussed below. It is important to remember that Cohen (1992) suggests that correlations of .00-.20 are considered "small" or low, correlations of .21-.40 are considered "medium" or moderate, and correlations of .41 and above are considered "large," strong, or high. In light of these classifications, a correlation coefficient of $r > .60$ indicates good statistical evidence for the presence of validity (Innes & Straker, 1999; Kozlowski & Moore, 2012).

Concurrent Validity

Jenkins and Baird (2002) investigated the concurrent validity of the trauma-related constructs of secondary traumatic stress (STS) also called compassion fatigue, and vicarious traumatization (VT). The authors used the Compassion Fatigue Self-Test for Psychotherapists (CFST) which is the previous version of the ProQOL, TSI Belief Scale, Revision L (TSI-BSL) as a measure of vicarious trauma, Maslach Burnout Inventory (MBI, 1981) as a measure of burnout, and the Symptom Checklist-90-Revised (SCL-90-R) and the Global Severity Index (GSI) as

measures of general symptoms of psychological distress, and finally, TSI Life Events Checklist as a measure of personal victimization history.

Jenkins and Baird (2002) hypothesized strong concurrence of the CFST-SUM and CFST-CF (measure of STS) with the TSI-BSL (measure of VT), which was supported at $p < .001$ ($r = .58$, .58, respectively). Vicarious Trauma (VT) relates to cognitive schemas and Secondary Traumatic Stress (STS) relates to the behavioral posttraumatic-focused symptoms; however, both describe the effects of experiencing the trauma of others as a function of their job (Bride, Robinson, Yegidis, & Figley, 2004; Figley, 1995; McCann & Pearlman, 1990; Pearlman & MacIan, 1995). This significant correlation is almost indicative of a representation of concurrent validity. These correlations reveal that concurrent validity between the measures of VT and the totality of the Compassion Fatigue Self-Test, as well as VT and STS is nearly supported (Innes & Straker, 1999; Kozlowski & Moore, 2012).

Additionally, the authors hypothesized a moderate concurrence of trauma-related and burnout measures with psychological distress. The trauma-related measures, which are CFST-SUM, CFST-CF, and TSI-BSL, correlated strongly ($r(97) = .65$, $p < .001$; $r(97) = .61$, $p < .001$; $r(97) = .64$, $p < .001$) with the SCL-R-90 and GSI (measure of psychological distress). This data just provides support for concurrent validity between trauma-related measures and psychological distress above and beyond what was hypothesized. Conversely, the data suggests that concurrent validity is not supported for measures of burnout and psychological distress, as revealed by the small correlation ($r(97) = .27$, $p < .01$ for CFST-BO) between CFST-BO and psychological distress, and a medium ($r(97) = .38$, $p < .001$ for MBI-SUM) correlation between the overall MBI measure of burnout, which are both below the 0.6 mark suggested by Innes and Straker (1999) and Kozlowski and Moore (2012). The lack of a strong correlation between MBI-SUM and

psychological distress may suggest that the individual factors of the MBI (MBI-EE, MBI-DP, MBI-PA) correlate more strongly with psychological distress. Jenkins and Baird (2002) reported a significant medium correlation ($r(97) = .41$, $p < .001$) between psychological distress and the emotional exhaustion scale (MBI-EE); the burnout factors of depersonalization (MBI-DP) and personal accomplishment (MBI-PA) were not significantly correlated with psychological distress. In reviewing the correlations, the MBI-SUM, MBI-EE, MBI-DP, or the MBI-PA do not appear to have concurrent validity with the measure of psychological distress.

Further, the authors hypothesized a strong concurrence of CFST-BO with MBI-SUM; interestingly, a medium correlation ($r(97) = .38$, $p < .001$) was observed between these two measures of burnout. The lack of a strong correlation and lack of a correlation that is indicative of concurrent validity between CFST-BO and MBI-SUM may suggest that CFST-BO correlates more strongly with one of the 3 factors of the MBI better than it does the total scale. CFST-BO may be measuring one factor of burnout, whereas the MBI measures 3 factors of burnout (MBI-EE, MBI-DP, MBI-PA) (Maslach, 1981). To understand if the CFST-BO better measures one of these factors of burnout, the correlations between CFST-BO and each of the MBI factors can be reviewed. Jenkins and Baird (2002) reported a significant small to medium correlation ($r(97) = .24$, $p < .05$) between CFST-BO and emotional exhaustion scale (MBI-EE); a significant small correlation ($r(97) = .20$, $p < .05$) between CFST-BO and the depersonalization scale (MBI-DP); a nonsignificant correlation ($r(97) = -.19$, $p > .05$) between CFST-BO and the personal accomplishment scale (MBI-PA). After reviewing the correlations, CFST-BO does not appear have concurrent validity with one factor or all factors of the MBI, which is the gold standard burnout measure (West, Dyrbye, Satele, Sloan, & Shanafelt, 2012). These data do not support the

concurrent validity of the scale, as all values are below the recommended 0.6 correlations threshold.

In addition, Adams, Boscarino, and Figley (2006) examined the concurrent validity of the CF-Short Scale and CF-Long Scale. The CF-Short Scale was constructed after a factor analysis of the CF Scale-Revised (CF-Long Scale), which is a predecessor to the ProQOL. Correlations between the sum of the CF-Short Scale as well as its individual scales of work burnout (8-items) and secondary trauma (5-items), and CF-Long Scale were conducted. Results indicated that the CF-Long Scale and CF-Short Scale were highly and significantly correlated, $r(234) = .83$, $p < .001$, which indicated evidence to support the concurrent validity of these two scales. In addition, the CF-Long Scale and Work Burnout sub scale of the CF-Short Scale were highly and significantly correlated, $r(234) = .80$, $p < .001$, which indicated that concurrent validity is supported. Further, the CF-Long Scale and Secondary Trauma sub scale of the CF-Short Scale were strongly and significantly correlated $r(234) = .64$, $p < .001$, which also indicated that concurrent validity is supported. The support for concurrent validity reveals that the separate scales may be appropriately used in place of the CF-Long Scale.

Adams, Boscarino, and Figley (2006) also examined concurrent validity of between the CF-Short Scale and GHQ-12, between the CF-Long Scale and GHQ-12, between the Work Burnout scale and GHQ-12, and between the Secondary Trauma scale and the GHQ-12 (General Health Questionnaire). The results of the correlations found that all correlations were significant at $p < .001$ and correlations were medium to large of $r = .49$, .46, .48, .42, respectively. These results are not consistent with the notion of concurrent validity being supported at $r = .60$, as a result, caution should be used when assessing whether or not the aforementioned scales are measuring similar constructs.

Unfortunately, there is no data to report regarding the Concurrent validity of the ProQOL. In place of evidence relating directly to the ProQOL, the concurrent validity of the CFST, the measure that the ProQOL was adopted from, can be assessed. The criteria of $r > .60$ was utilized as recommended by Innes and Straker (1999) and Kozlowski and Moore (2012), to evaluate the statistical evidence of studies that have examined concurrent validity of the Compassion Fatigue Self-Test, and its subscales. Overall, there is evidence, albeit barely meets the threshold, of concurrent validity between the overall measure of CFST and CFST-CF subscale, and a measure of psychological distress. Further, there is a lack of concurrent validity between the CFST subscale of Burnout and psychological distress and lack of concurrent validity between CFST-BO and the gold standard measure of Burnout. However, concurrent validity is supported between the long and short version of the CFST. Regardless of this support for concurrent validity, if the CFST does not demonstrate statistical evidence of concurrent validity between the original measure and the gold standard measures, should the evidence of concurrent validity be applauded? No. These results do not suggest that the CFST should be utilized instead of the standard measure of psychological distress and burnout based on the low and lack of statistical evidence.

Convergent Validity

Lee, Veach, MacFarlane, and LeRoy (2014) recently published results assessing the predictors for compassion fatigue using the ProQOL-5. Four of the eight predictors in the final model, which accounted for 48% of the variance in compassion fatigue, were significant ($p < .001$); these were, Trait Anxiety, Compassion Satisfaction, Burnout, and Caucasian Ethnicity. These predictors suggested that high Trait Anxiety, high Compassion Satisfaction, and high Burnout, and identifying as being an ethnicity other than Caucasian as being at the highest risk for Compassion Fatigue. While it would appear counter-intuitive that high Compassion Satisfaction and High

Burnout both contribute to Compassion Fatigue, but based upon Stamm's (2002, 2005, 2010) conceptualization of Compassion Fatigue, it is possible to have high levels of Burnout/Compassion Fatigue and Compassion Satisfaction co-occurring. However, further investigation needs to be conducted because Burnout may be best conceptualized as a trait while Compassion Satisfaction may also be a trait, therefore, it may be unlikely that two traits that are opposite in emotion related to an individual's job can co-occur at the same time and predict the same outcome.

Additionally, the positive relationship found in the study by Lee and colleagues contradicts the previous work by Slocum-Gori, Hemsworth, Chan, Carson, and Kazanjian (2013), which observed a negative correlation ($r = -0.53$, $p < .001$) between Burnout and Compassion Satisfaction. Although Lee et al. (2014) and Slocum-Gori et al. (2013) both observed positive relationships between Burnout and Compassion Fatigue, which predicts in the direction one would expect (Stamm, 2005, 2010). The rationale for this positive relationship between BO and CF may be a result of the work by Spielberger Spielberger, Gorsuch, Lushene, Vagg, and Jacobs (1983) on state and trait anxiety. If BO is conceptualized as a trait and CF as a state, Spielberger and colleagues (1983) indicated that people with high trait anxiety are more likely to experience high state anxiety. It should be noted that Lee et al. (2014) and Slocum-Gori et al. (2013) sampled different occupations (Genetic Counselors, Hospice Palliative Care Workers, respectively), which may account for the different findings in the relationship between BO and CS. This highlights the importance of reviewing the validity of the ProQOL for specific populations, for example, emergency dispatchers.

Discriminant Validity

As per Campbell and Fiske (1959), the multi-trait multi-method matrix is the best assessment of discriminant validity. Stamm, 2005 reported to have assessed and found support for

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the discriminant (and convergent) validity of the ProQOL using a multi-trait multi-method matrix; however, the research community does not have access to the results of the multi-trait multi-method matrix. Therefore, an independent investigation or interpretation concerning the discriminant validity of the ProQOL cannot be conducted. Instead an examination of the discriminant validity conducted on the CFST-CF is reviewed

The study by Jenkins and Baird (2002) also examined discriminant validity, which is understood to reflect the concept that scores on a measure will not correlate with scores on a different measure that is not examining similar concepts. The theoretical concepts behind the CFST-CF and CFST-BO suggest that these subscales have a small correlation; however, the results indicated that CFST-CF and CFST-BO were highly correlated ($r(97) = .65$, $p < .001$) and more highly correlated with this measure of burnout compared to the MBI measures of burnout. Correlation of the items would be expected because they are both factors of the same scale; however, the correlation is less than $r = .90$ meaning the possibility of redundancy is reduced (Abetz, Arbuckle, Allen, Mavraki, & Kirsch, 2005). Despite the reduction in redundancy, discriminant validity between CFST-CF, CFST-BO and MBI-SUM is not supported as the correlation coefficient is greater than $r = .30$ (Innes & Straker, 1999; Kozlowski & Moore, 2012). The results of Jenkins and Baird (2002) are in line with those found by Sabo (2006) who cited difficulty in establishing the discriminant validity of the Secondary Traumatic Stress Scale (STSS), a measure of STS (similar to that of the CFST-CF), with experiences of depression, burnout, and PTSD, similar to what the high correlation between the CFST-CF and CFST-BO in Jenkins and Baird (2002) indicated.

Conversely, a small correlation ($r(97) = .24$, $p < .05$) was observed between CFST-BO and the measure of vicarious trauma (TSI-BSL). This result indicates that discriminant validity is

supported between CFST-BO and VT. Medium correlations between VT and the MBI factors individually of burnout (r = .44 (MBI-SUM), .30 (MBI-EE), .30 (MBI-DP), -.24 (MBI-PA)) support discriminant validity between these measures.

Furthermore, the results of Jenkins and Baird (2002) may suggest that the trauma-related measure of VT better discriminates then the trauma-related measure of STS/CF does with the CFST-BO measure of Burnout. This result is to be expected as the trauma-related measures of STS/CF and CFST-BO belong to the same measure.

Unfortunately, Jenkins and Baird (2002) conducted the only study that has published information specifically addressing the discriminant validity of a measure that is directly related to the ProQOL. Given the lack of studies examining this topic, the aforementioned study is the only study that can be relied upon and the results do not provide the most informative information of discriminate validity. What is learned by examining this data is that there is poor discriminant validity within the CFST, which can only be further assessed with factor analysis; therefore meaningful conclusions cannot be drawn. However, it is important to note that the evidence of discriminant validity between CFST-BO and Vicarious Trauma is promising in that the CFST measure of Burnout is likely not assessing the same underlying construct of Vicarious Trauma. Again, this information cannot be directly applied to the psychometric properties of the ProQOL, patterns can only be inferred because the ProQOL is the updated version of the CFST

Predictive Validity

In terms of predictive validity, Adams, Boscarino, and Figley (2006) also investigated the predictive validity by first estimating a series of ordinary least-squares (OLS) regressions with the dependent variable of GHQ-12 (General Health Questionnaire), and the independent variables of demographics, stress exposure, psychological resource, CF-Long Scale, CF-Short Scale, Work

Burnout Scale, and Secondary Trauma Scale. It should be noted that OLS regressions do not provide the best method for investigating predictive validity because OLS weights consistently have poor generalizability, exhibit more sampling variation, and the results based on OLS methods decline more quickly as the number of correlated predictors grow (Rabinowitz, Rule, & Pruzek, 1998). Nonetheless, this study will be included in the discussion of predictive validity as it is one of the only studies that assess predictive validity (Bride, Radey, & Figley, 2007).

When included at the exclusion of the other, each CF scale (CF-Long Scale, Work Burnout Scale, Secondary Trauma Scale, CF-Short Scale) accounted for 37%, 38%, 40%, and 40%, of the variance in GHQ-12, respectively. Interestingly, when the subscales of Work Burnout and Secondary Trauma were included individually as distinct variables, they explained a greater portion of the variance (42%) then when they were included jointly as part of the CF-Short Scale. Additionally, the variables that accompanied work burnout in predicting GHQ-12 were different than those that accompanied Secondary Trauma and different from the CF-Short Scale. Although the model that included Work Burnout and Secondary Trauma as distinct variables explained the greatest amount of variance, in terms of predictive validity, it is important to highlight that the beta weights for CF-Long Scale, Work Burnout Scale, Secondary Trauma Scale, CF-Short Scale were all significant at $p < .001$, but more importantly, the relationships between the independent and dependent variable were as expected; higher score on the CF Scales resulted in a higher score on the GHQ-12. However, Adams, Boscarino, and Figley (2006) do not report the correlation coefficients, which is essential information to review the predictive validity. The correlation coefficient aims to assess whether there is a strong, consistent, and predictable relationships between scores (Gardner & Neufeld, 2013; Innes & Straker, 1999; Kozlowski & Moore, 2012; Portney & Watkins, 2008). Information regarding the predictive validity of the ProQOL and its

predecessors is virtually non-existent. At this time, the data regarding the predictive validity is inconclusive.

Factor Validity

As previously highlighted, BO and CF are related in that research suggests that they may predict similar outcomes. Jenkins and Baird (2002) reported that there has been a lack of conceptual clarity about what constitutes CF and how it differs from other adverse outcomes related to work, for example, burnout. Although Burnout and Compassion Fatigue appear similar, they differ in that CF is a sudden and acute onset that can emerge as a result of a single exposure to an event, whereas, BO is related to a gradual or progressive development (Figley, 1995). Furthermore, BO can be described as the work becoming unpleasant, unfulfilling, and meaningless, energy turns into exhaustion, and involvement turns into cynicism, efficiency turns into ineffectiveness (Maslach, Schaufeli, & Leiter, 2001).

The items on the ProQOL-5 do not reflect this distinction, as described in this paper's discussion of concurrent, convergent, and discriminant validity. This may become even more apparent upon examination of the content of some items and the theoretical construct the item intended to measure. It would appear that item 8, which is on the Burnout scale, "I am not as productive at work because I am losing sleep over traumatic experiences of a person I help" better describes STS. Items 7 ("I find it difficult to separate my personal life from my life as a helper") and 13 ("I feel depressed because of the traumatic experiences of the people I help"), which are on the STS scale, appear to better explain the phenomenon of Burnout. Items 3, 6, 12, 18, 22, 24, and 27, which are on the CS scale appear to also better explain Burnout ("I get satisfaction from being able to [help] people," "I feel invigorated after working with those I help," "I like my work as a helper," "My work makes me feel satisfied," "I believe I can make a difference through my work,"

"I am proud of what I can do to help," and "I have thoughts that I am a "success" as a helper."). Additionally, item 2, which is on the STS scale, does not make sense, "I am preoccupied with more than one person I help". It is unclear how this item is related to STS or any of the other subscales. Along with item discrepancies, the wording of eight items, items 8, 9, 10, 13, 19, 21, 29, were changed. Factor analytic studies highlight this discrepancy.

Adams, Boscarino, and Figley (2006) examined the psychometric properties of the CFSR using principal-components analysis with a varimax rotation, which is a procedure that attempts to classify an item so that no item is a member of more than one group, meaning the classifications are mutually exclusive or orthogonal. This orthogonal transformation converts a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables called principal components (Blunch, 2008). The CFS-R is comprised of 30-items, 22 of which are reported to measure compassion fatigue and 8 of which are reported to measure burnout (Gentry, Baronowsky, & Dunning, 2002). Principal Component Analysis (PCA) revealed two components. Component 1 consisted of 8-items related to work burnout and Component 2 consisted of 5-items related to secondary trauma (Adams, Boscarino, & Figley, 2006). After having summed the items from the Work Burnout scale (8-items) and the Secondary Trauma scale (5-items), good internal reliability was observed with Cronbach's alpha of .90 and .80, respectively. When all items were combined to create a 13-item scale (CF-Short Scale), Cronbach's alpha was .90.

Factor analysis on later versions of the CFSR, notably the ProQOL have identified discrepancies in the number of identified factor structures. Pietrantoni and Prati (2008) subjected the ProQOL-IV Italian version to Factor Analysis Procedures. They identified three factors with seven items being discarded. The first factor was Compassion Satisfaction, which included items

from the CS scale, as well as, two items from the BO scale (Variance explained = 22.18%). The second factor, Compassion Fatigue, included six items from the STS/CF scale and two items from the BO scale (Variance explained = 11.39%). The third factor was Burnout, which included four items from the BO scale and two items from the STS/CF scale (Variance explained = 5.35%). Similarly, in a study of 764 emergency workers by Cicognani, Pietrantoni, Palestini, and Prati (2009), three factors were identified and eight items from the original ProQOL-IV were discarded. The three factors were Compassion Satisfaction, which was comprised of items from the CS scale, as well as, two items from the BO scale (Variance explained = 17.659%); second factor, Burnout, included four items from the BO scale and three items from the STS/CF scale (Variance explained = 11.919%); third factor, Compassion Fatigue, included five items of the STS/CF scale and one item from the BO scale (Variance explained = 10.493%). Additionally, Craig and Sprang (2010), conducted an exploratory factor analysis (EFA) using Varimax rotation, which indicated a 24-item, three factor structure of the ProQOL-IV. The three-factor structure obtained by using an oblique rotation consisted of Compassion Satisfaction, Burnout, and Compassion Fatigue (alpha reliabilities 0.83, 0.73, 0.81, respectively). This resulted in nearly 40% of the variance.

Pietrantoni and Prati's (2008) findings of three factors supports Stamm's (2002, 2005, 2010) conceptualization of professional quality of life consisting of both negative and positive dimensions. In addition, the three factors may suggest that Burnout and Secondary Traumatic Stress/Compassion Fatigue are distinct constructs (Cicognani, Pietrantoni, Palestini, & Prati, 2009; Craig & Sprang, 2010; Pietrantoni & Prati, 2008). However, unlike the previously mentioned factor analyses, the following two analyses found support for a two-factor model.

Musa and Hamid (2008), using varimax rotation, found 17 items loaded on the first factor, Secondary Traumatic Stress/Compassion Fatigue (α=0.87), and six items loaded on the factor,

Compassion Satisfaction (CS) (α=0.72). Smit (2006), conducted a second order exploratory factor analysis. Factor one represented the construct of Compassion Satisfaction, and factor two represented Secondary Traumatic Stress/Compassion Fatigue. The findings of two factors illustrates the notion that Burnout and Secondary Traumatic Stress/Compassion Fatigue are not easily separated in the ProQOL-IV, providing further support that there is a lack of conceptual clarity surrounding CF as a construct.

The findings by Craig and Sprang (2010) are of particular interest because they utilized an oblique rotation. The oblique rotation allows the components to be correlated, whereas the components of varimax rotation are uncorrelated (Blunch, 2008). By allowing the components to be correlated, it may better reflect the findings previously discussed regarding the inter-relatedness between the concepts of Secondary Traumatic Stress, Burnout, Compassion Satisfaction, and Compassion Fatigue.

Conversely, Samson, Iecovich, and Shvartzman (2016) subjected the ProQOL-5 Hebrew version to both Confirmatory and Exploratory Factor Analyses and reported the CFA produced a lack of adequate fit (CFI = -0.68, GFI = -0.64, TLI = -0.805, RMSEA = 0.08, and SRMR = 0.1945). Similar to the results reported by Shen, Yu, Zhang, and Jiang's (2015) and Craig and Sprang (2010) the EFA produced 3-dimensions. The first dimension represented compassion satisfaction, which included 14-items. Specifically, 4-reversed items from the original BO scale and the 10 original items on the CS scale, were included on the CS dimension. The second dimension represented 10-items, which included 8-items from the original STS factor and 2-items from the original BO section. The third dimension represented burnout, which included 3-items from the original BO scale. The lack of adequate fit on the CFA and the identification of 3-dimensions on the EFA

represent the need for an investigation into the validity of the current, English-version, of the ProQOL-5.

<div align="center">Professional Quality of Life – Version 5 (ProQOL-5)</div>

The Professional Quality of Life Scale (ProQOL; version 5, Stamm, 2010) is the most commonly used measure of Compassion Fatigue (Stamm, 2010). The ProQOL-5 is the updated version of the ProQOL-IV (version 4, Stamm, 2005) and a modification of the Compassion Fatigue Self-Test developed by Figley (1995). *Figure 1* is a diagram of how Stamm (2010) explains professional quality of life. Stamm posits that professional quality of life is comprised of Compassion Satisfaction, the positive, and Compassion Fatigue, the negative. Stamm explains further that Compassion Fatigue breaks into two components; the first are, "…feelings of exhaustion, frustration, anger, and depression typical of burnout." (2010, p. 8). The second are, "…negative feelings driven by fear and work-related trauma." (2010, p. 8). Stamm (2010) makes it clear that the ProQOL is not a diagnostic tool; instead, it can be used to provide insight regarding natural consequences of trauma work.

ProQOL-5 is a self-report measure that examines the positive and negative effects of helping others who experience trauma as a function of their job. The scale consists of 30-items and is comprised of three scales, Compassion Satisfaction (CS), Burnout (BO), and Secondary Traumatic Stress (STS) that consists of ten items each. Respondents use a five-point scale,

ranging from Never (1) to Very Often (5) to indicate the frequency each item was experienced in the previous 30 days.
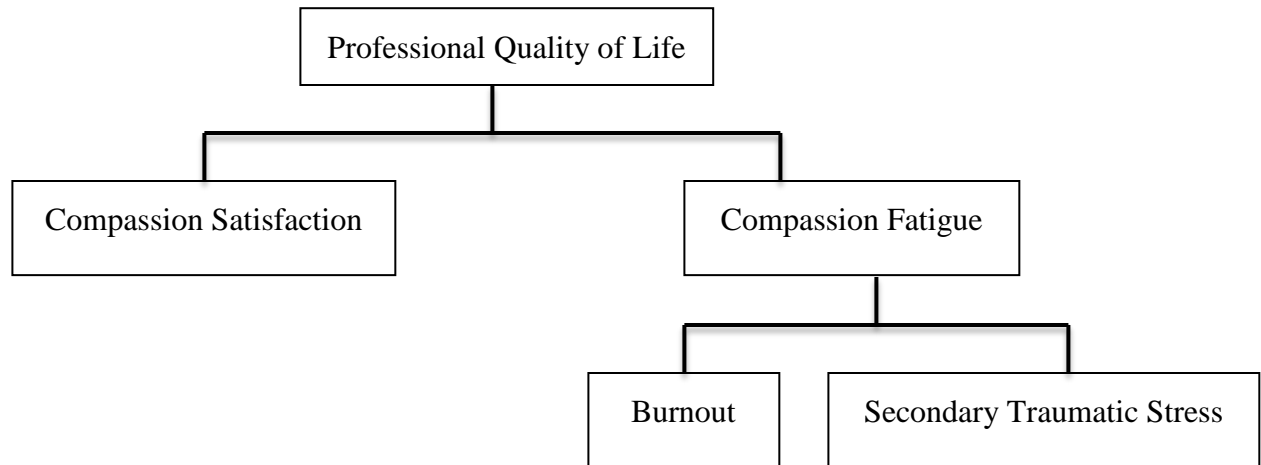
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              ┌─────────────────────────────┐
              │ Professional Quality of Life │
              └─────────────────────────────┘
                  │                     │
    ┌──────────────────────┐    ┌──────────────────────┐
    │ Compassion Satisfaction │  │  Compassion Fatigue  │
    └──────────────────────┘    └──────────────────────┘
                                    │              │
                          ┌──────────┐  ┌──────────────────────────┐
                          │ Burnout  │  │ Secondary Traumatic Stress │
                          └──────────┘  └──────────────────────────┘
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Figure 1 Diagram of Professional Quality of Life Stamm (2010

Shortcomings of the ProQOL-5

Although Stamm states, "over 200 published papers…more than 100,000 articles on the internet" and nearly half of the published research papers have utilized the ProQOL or "one of its earlier versions." (Stamm, 2010, p. 13) as evidence of the psychometric efficacy of the ProQOL, after reviewing the literature, while limited, three points can be drawn. First, it is not appropriate to claim that a measure is psychometrically sound on the basis that there is an abundance of people utilizing the measure. Second, concurrent validity is lacking, the convergent validity is muddled by the confusions over state versus trait, the discriminant validity is inadequate, the predictive validity is largely nonexistent, and the factor validity data is mixed. Third, why not abandon the ProQOL measure altogether? Needless to say, the ProQOL has several shortcomings, which include, conceptual, operational, psychometric, empirical, and has not been validated for use in

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several populations, including emergency dispatchers. Additional work pertaining to the reliability and validity of the ProQOL is warranted because there is a clear interest in the concept of Compassion Fatigue as illustrated by the large numbers utilizing and writing about the construct; however, it is difficult to conduct research on outcomes when the construct is not well explicated.

Valid and reliable outcome investigations cannot take place without adequate explication of constructs (Nezu & Nezu, 2007). Inadequate explication of the construct, meaning that, "…the construct of interest is not adequately described or detailed operationally." (Nezu & Nezu, 2007, p. 13), severely limits the validity of one's inferences and creates confusion regarding the link between treatment and outcome. Nezu and Nezu (2007) stated, "At the end of the day, we all want consumers of our research…to feel confident that our conclusions are sound, reasonable, and based on the best science available to us." (p. 3). When the professionals do not have a clear understanding and grasp of the construct, it is difficult to believe that others, whether it be journal reviewers, clinicians, or other researchers, will feel confident in our abilities. This is particularly important in organizations that have an inherent mistrust of mental health professionals. Organizational culture is a pattern of shared basic assumptions that are invented, discovered, or developed by a group that becomes the collective way to perceive, think, and, feel (Schein, 1990). Currently, the organizational culture of first responders is mistrust of people who are not first responders and view seeking help as a sign of weakness (Paoline, 2003; Woody, 2005). Yes, researchers and clinicians are using the best available research and tools to understand and measure CF, but what is currently available is not good enough. If researchers and clinicians are going to make an impact in the area of understanding and assisting people who are exposed to the traumatic events of others as a function of their job, then the best possible tools need to be available to researchers and clinicians. In order for research programs and interventions to take advantage of

the construct of compassion fatigue in a way that is useful, this thesis proposes that the theoretical underpinnings of compassion fatigue must be reconsidered. To accomplish this task, greater clarity and an adequate explication of the construct will need to be generated by way of better measurement.

As previously stated, problems with the ProQOL lie in the conceptual, operational, psychometric, and empirical arenas. Better measurement does not lie in reconciling each arena individually. Individually, they are merely prerequisites necessary for understanding the complexity of the construct (Sechrest, 2005). "Validity is not a property of the test or assessment as such, but rather of the meaning of the test scores" (Messick 1995, p. 741 in Sechrest, 2005). The scores, after all, must be reconciled with the "…productive interplay between theory and research…" (Blalock, 1979, p. 881). As such, meaningful interpretation of scores by researchers and clinicians can only be made in the context of knowing that a construct exists, and it is the construct that causes scores. This link between behavior and a consequence, for this research, Compassion Fatigue, is wrongly being led by a notion that the measure (the ProQOL) causes the score, rather than the construct (Compassion Fatigue) that causes the score. The ProQOL is merely a vessel that enables researchers and clinicians to observe an indirect. Unfortunately, the ProQOL has become so interwoven with the construct of Compassion Fatigue that in order to begin untangling the two, we must understand *how* they are stitched together.

One way to approach the problem is to understand the internal components of a scale. The ProQOL-5 has its roots in Figley's model of Compassion Stress and Fatigue, as measured by The Compassion Fatigue Self-Test (CFST; Figley, 1995). The Compassion Fatigue Self-Test (CFST; Figley, 1995) is a 40-item self-report measure designed to assess the risk for both compassion fatigue and burnout in clinicians. Respondents are asked to indicate the frequency with which they

believe certain characteristics are true of themselves or their situation. Higher scores on the compassion fatigue and burnout subscales indicate higher risk for experiencing these stress responses (Figley, 1995). Figley (1995) developed the CFST under the framework that Compassion Fatigue is a sudden and acute phenomenon, whereas, burnout is a gradual wearing down where the professional feels overwhelmed by their work and incapable of producing positive change. This description provides reason to believe that there are two factors within the CFST; however, factor analysis of the CFST suggested one stable factor that reflected depressed mood in relationship to work accompanied by feelings of fatigue, disillusionment, and worthlessness (Figley, 1995; Figley & Stamm, 1996). With some revision to the items, the ProQOL is positioned as a three-factor model (Stamm, 2010). In essence, the measurement of compassion fatigue is suggested as a two-factor model, is found to best fit a one-factor model, and is revised into a suggested three-factor model. While the theoretical construction of the scale may be accurate (which has not be conclusively determined to date), in factor analysis, each item on a scale needs to load appropriately onto the factor for which it belongs (Clark & Watson, 1995). A component of the validity shortcomings may be attributable to the fact that even if the theoretical factor structure is correct, but if the items do not fit the construct then the theory cannot be accurately tested and defined. These measurement issues prohibit us from addressing the construct validity, accurately. In essence, the items themselves or the wording of the items may be contributing to the ambiguity in establishing validity; therefore, this thesis will address whether the ProQOL is accurately measuring, as well as representing Compassion Fatigue. Therefore, a confirmatory factor analysis (CFA) will be conducted.

Specifically, it is hypothesized that 1) Models conceptualized using "state" and "trait" theory will fit the data and 2) Conceptualizing Professional Quality of Life and Compassion

Fatigue using "state" and "trait" theory will produce better fitting models (Models 6 and 7) than

models (Models 1-5) constructed using Stamm's (2005, 2010) theory.

METHOD

Participants

Data was collected as part of a study that investigated the relationship between stress, compassion fatigue, and quality of life for 9-1-1 emergency dispatchers. Participants of this study were recruited during the 2014 NAVIGATOR Conference in Orlando, Florida. During the conference, a total of 205 people participated in the survey. Of the 205 participants, 133 (64.6%) were women. Among the sample, participants ranged in age from 18 to over 60 years old. Additionally, the majority of the sample identified as being White/Caucasian (80.1%), identified as being married (57.1%), and identified their highest level of education to be an Associates Degree (31.4%). In terms of participants experience working as an emergency dispatcher, participants have worked as a dispatcher for 13 to 19 years and have worked in their current service for 4 to 8 years. Additionally, participants primarily worked the day shift and dispatched for Police and Fire and Medical calls.

Instruments

Demographic Information

The demographic survey asked about personal and professional information (Appendix A). The personal demographic portion of the survey included: age, gender, race/ethnicity, and highest level of education, current partner status, and primary caregiver of any dependent children or any elderly parents or other dependent adults. The professional demographic portion of the survey included: number of years worked as an emergency dispatcher, years worked in

current service, type of dispatching, shift assignment, length of shift, number of days worked in a 7 day period, and number of personnel on duty per shift.

Professional Quality of Life: Compassion Satisfaction and Compassion Fatigue (ProQOL, version 5, 2010)

Professional Quality of Life Scale (ProQOL) (Stamm, 2010) is a self-report measure that consists of 30 items and is comprised of three scales consisting of ten items each (Appendix A). Respondents rate their experiences, both positive and negative as they pertain to their job as an emergency dispatcher by indicating how frequently they had experienced these characteristics in the last 30 days. The three scales include: Compassion Satisfaction (CS); Burnout; and Secondary Traumatic Stress (STS). Burnout and STS are two subscales of Compassion Fatigue, however, the subscales may not be combined to yield a total score (Stamm, 2005). The ProQOL-5 manual indicates the participant should rate each item on a scale of 1 (Never), 2 (Rarely), 3 (Sometimes), 4 (Often), 5 (Very Often), due to administrative error, participants rated each item on a scale of 1 (Never), 2 (Rarely), 3 (A Few Times), 4, (Somewhat Often), 5 (Often), 6 (Very Often). This rating scale is similar to the rating scale that was used for the SASRQ. The researcher of the current article transformed the rating scale from a 6-point scale to a 5-point scale to be in accordance with the ProQOL-5 manual.

<div align="center">Procedure</div>

The research study was executed from April 30th – May 2nd, 2014. Conference attendees were invited in-person to learn about the study. After learning about the study, each participant was informed of their rights as a participant in this study, ensuring that their participation was completely consensual and ensuring their awareness that they may end their participation in this

<div align="center">59</div>

study at any time during the study, without risk of penalty. After they agreed to take part in the study, the participant completed the study materials at the laptop computer station where the survey was completed using "Survey Monkey

After agreeing to take part in the study, participants were directed to an introductory survey. This included requests for demographic information. Following the request for demographic information the *Professional Quality of Life Scale* (ProQOL), an adaptation of the *Potentially Traumatic Events/Calls* (PTE), *Perceived Control Over Stressful Events Scale* (PCOSES-17), and the *Stanford Acute Stress Reactions Questionnaire* (SASRQ) were completed. After completion of the above materials participants were given a post- information sheet. If the participant had no further questions, the study ended.

<p style="text-align:center"><u>Analytic Strategy and Data Preparation</u></p>

Analytic Strategy

"Factor analysis is at the heart of the measurement of psychological constructs." (Nunnally, 1978; p. 113). The lack of existing factor analytic models examining the ProQOL-5 warrants investigation to support the numerous researchers who are interested in the construct of Professional Quality of Life and Compassion Fatigue. Confirmatory factor analysis was chosen in order to determine the appropriateness of the ProQOL-5 items for measuring compassion satisfaction and compassion fatigue. CFA was used to evaluate the fit of the measurement structure by comparing the fit of seven models to the data. Each model represents a different approach to explaining the data. The two models specified to account for the conceptualization of state and trait latent factors are designated as the proposed models and are labeled Model 6 and Model 7 (Appendix B). Other explanations are designated as competing models (Models 1-5; Appendix B).

A series of seven different nested models, including the two proposed models, were computed with the R v3.3.2 statistical programming language (R Core Team, 2016). The CFA was computed with the 'lavaan' v0.5-22 package (Rosseel, 2012), AIC model selection and multimodel inferences of ΔAIC, AICw_i, model likelihood, and evidence ratios were computed with the AICcmodavg v2.0-4 (Mazerolle, 2016), and path diagrams and visual analyses were created using semPLOT v1.0.1 (Epskamp, 2014). Additionally, all model parameters were set to freely estimate.

Chi-square difference tests were used to compare the proposed models to each competing model (Cheung, 2009). The null-hypothesis is that the proposed model is correct and the alternate hypothesis is that the competing model is correct; therefore, support for the proposed model would be the result of failing to reject the null-hypothesis (Cheung, 2009). Given that chi-square is influenced by sample size (i.e., overly sensitive to small differences) additional fit indices were examined (Jöreskog & Sörbom, 1996; Kline, 2005; Tabachnick & Fidell, 2013). Specifically, the four goodness of fit indices examined include: the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), Standardized Root Mean Square Residual (SRMR), and Akaike's Information Criterion (AIC). Hu and Bentler's (1999) two-index presentation strategy was used to evaluate model fit. This strategy recommends examining the combination of RMSEA and SRMR with the rules of RMSEA of 0.06 or lower and a SRMR of 0.09 or lower, and CFI and SRMR with the rules of CFI of 0.96 or higher and a SRMR of 0.09 or lower. The model with the lowest AIC will be considered the best fitting model (Cheung, 2009). Additionally, change in AIC (ΔAIC) and Akaike weights will be calculated to help interpret which model is the best fitting model.

When comparing nested models the following evaluation recommendations will be used. With regard to RMSEA, overlap in 90% confidence intervals will be compared. Evidence suggests

that the models fit equally well if the confidence intervals overlap. With regard to CFI, progressive change in CFI (ΔCFI) larger than .01 between models is indicative of a significant difference in fit (Cheung & Rensvold, 2002).

Therefore, the present analysis aimed to conduct a CFA to construct a model based on the conceptualization that Professional Quality of Life and Compassion Fatigue, as a construct, may best be understood and interpreted by "state" and "trait" dimensions. Appendix B depicts the models constructed for this CFA and the following is a description of each model.

Competing Models

Model 1 (*Figure B2*) is the "Mother Model." This model will be used as well as the Independence model for basis of all comparisons.

Model 2 (*Figure B3, Revised Stamm 2-Factor Model*) is a two-factor model that comprises Compassion Satisfaction (10-items) and Compassion Fatigue (20-items).

Model 3 (*Figure B4, 3-Factor Model*) is Stamm's (2005) original three-factor model that includes Compassion Satisfaction (10-items), Burnout (10-items), and Secondary Traumatic Stress (10-items).

Model 4 (*Figure B5, 2010 Original Model*) is Stamm's (2010) revised three-factor model that includes Compassion Satisfaction (10-items) as a latent variable of Professional Quality of life, and Compassion Fatigue as a latent variable of Professional Quality of Life, which comprises two-second order factors of Burnout (10-items) and Secondary Traumatic Stress (10-items).

Model 5 (*Figure B6, Revised CF and BO*) is based on the theoretical underpinnings of each of the latent factors. In review of the literature, this model posits that Professional Quality of Life is best understood as a two-factor model of which the latent variables are Burnout and Secondary Traumatic Stress; renamed to Revised Burnout (R-BO) and Revised Secondary Traumatic Stress (R-STS). Items are hypothesized to have better fit on their new latent variable (e.g., STS item-13 "I feel depressed…" is better understood as a Burnout item). Twenty items comprise R-BO: 9-items from the original BO factor, 9-items from the original CS factor, and 2-items from the original STS factor. Ten items comprise R-STS: 8-items from the original STS factor, 1-item from the original BO factor, and 1-item from the original CS factor.

Specified Models

The Roman philosopher Cicero described that an anxious temper is different from feeling anxious; not all who are sometimes anxious are of an anxious temperament, and not all those who have an anxious temperament always feeling anxious. Spielberger (1983) in his development of the State Trait Anxiety Index would add that individuals who exhibit elevations in trait-anxiety are likely to exhibit state-anxiety more frequently than individuals who exhibit lower trait-anxiety. The notion of frequency is one attribute of many that Chaplin, John, and Goldberg (1988) summarized may be central to the distinction of state and trait: temporal stability, duration, and locus of causality, frequency, situational score, intensity, and controllability. Chaplin et al. (1988) found in the original study and in the replication study that stability and causality were the only significant predictors; however, they caution that the essence of a state is not simply unstable but that it also occurs less frequently, lasts for shorter periods of time, externally caused, and is more situationally tractable. In addition, Chaplin et al. (1988) bring our attention to the importance of syntactic coding ("…convert descriptions of

syntactic trees or syntactic principles into a rule based grammar – preferably context-free—

which does nothing else but produce exactly those trees which conform to that description," in

essence the way that sentences are formed (Kracht, 1995, p. 1)). Chaplin et al. (1988) found that

state terms more frequently ended in the suffix *ed* compared to trait terms and thereby

highlighting the importance of sociocultural concepts of language. Two models were constructed

to utilize the differentiation of state and trait provided by Chaplin et al. (1988).

The items on the ProQOL should reflect that Compassion Fatigue is a state described as

temporary, brief, and externally caused. Burnout is a trait described as stable, long lasting,

internally caused, and must be observed frequently and across a wide range of situations

compared to states before being attributed to the individual. Given these definitions, the

following models were constructed.

The first of the proposed state and trait models is Model 6 (*Figure B7*; State and Trait).

Model 6 contained two hypothesized latent variables comprised of state or trait symptoms that

stem from the overall construct called Professional Quality of Life. Currently, Professional

Quality of Life is comprised of three factors, Compassion Satisfaction, Burnout, and Secondary

Traumatic Stress. The lack of consistent findings in previous factor analytic studies and a review

of the literature suggest that conceptualizing the items into state and trait factors may better

represent Professional Quality of Life. The "State" factor, which is referred to as PQL State, is

comprised of 14-items (8-items from the original STS factor; 5-items from the original BO

factor; 1-item from the original CS factor). The "Trait" factor, which will be referred to as PQL

Trait, is comprised of 16-items (2-items from the original STS factor; 5-items from the original

BO factor; 9-items from the original CS factor).

Based upon Chaplin, the seventh model (Model 7; *Figure B8*. State and Trait Syntax) was developed based on the same idea, but items were allocated to either state or trait based on the syntactic coding rather than how the item has been conceptualized. The state factor for Model 7 will be referred to as Syntax State, which is comprised of 15-items (7-items from the original STS factor; 5-items from the original BO factor; 3-items from the original CS factor). The trait factor for Model 7 will be referred to as Syntax Trait, which is comprised of 15-items (3-items from the original STS factor; 5-items from the original BO factor; 7-items from the original CS factor).

Data Preparation

The planned analysis was estimated using Maximum Likelihood (ML) method for estimation.

Sample Size and Missing Data

The original sample included 206 participants, of which data is available for 186 participants. Sixteen participants did not complete the survey, but a participant ID was generated. Four participants completed the demographic portion of the survey, but did not complete the remainder of the survey. Using the guidelines of MacCallum, Widaman, Zhang, and Hong (1999) samples in the range of 100-200 is acceptable. Two participants had 6-items missing and were therefore excluded. Twelve participants were missing one-item and each missing item had not more than two participants missing data for that item. For these 12 participants, the missing data was handled using mean substitution.

Multicolinearity

Tests to assess the data for meeting the assumption of colinearity indicated that multicolinearity was not a concern (Compassion Satisfaction, Tolerance = .65, VIF = 1.55; Burnout, Tolerance = .98, VIF = 1.02; Secondary Traumatic Stress, Tolerance = .68, VIF = 1.47)

Factorability of R

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .89, above the recommended value of .6, and Bartlett's test of sphericity was significant $(\chi^2(435) = 2670.75, p < .001)$.

RESULTS

Results of the CFA are presented in Table 3. The chi-square for all models were significant (p's < .001) indicating poor fit. For all models tested the values of RMSEA were not indicative of good fitting models (RMSEAs < .06). Similarly, SRMR values did not indicate good fit (SRMRs > .09) for all models tested. Additionally, CFI values did not indicate good fit (CFI > .96) for all models tested. The model with the lowest AIC value was Model 3 (3-Factor Model), which was used to calculate the change in AIC (ΔAIC) for model comparison. Models with ΔAIC greater than 10 are suggested to be sufficiently poorer than the best AIC model. Therefore, models with ΔAIC greater than 10 are considered implausible (Burnham & Anderson, 2002, 2004; Burnham, Anderson, & Huyvaert, 2011). Change in AIC indicates that the Mother Model, Models 2, 5, 6, and 7 are very unlikely to be good fitting models. Additionally, Burnham, Anderson, and Huyvaert (2011) recommend the use of quantitative measures to assist in model selection based on all models in the set; therefore, Akaike weights (AICw_i), evidence ratios, and model likelihood (not reported) were calculated. AICw_i indicate that Model 3 has a 73.1% chance of being the best model among the candidate models. Model 4 was the next most likely model to be the best among candidate models at 26.9%. Based on the evidence ratio between Model 3 and 4, Model 3 is 7.43 times more likely than model 4 to be the better model.

Despite the AIC index indicating that Model 3 was the best model of the candidate models, the preponderance of the evidence across fit indices suggests poor fit to the data. This is further supported in the fit indices of the orthogonal models. Additional support is provided by the inability to calculate standard errors for parameter estimates (Rosseel, 2012). As a result of poor fit across both proposed and competing models, further examination is not warranted of the hypothesis that models specified as state and trait latent factors would fit the data better.

Table 3: Results of CFA on the ProQOL-5

Model	χ^2	df	RMSEA	SRMR	CFI	AIC	ΔAIC	AICw_i
Mother Model	1622.571*	404	0.127	0.157	0.496	13235.952	708.181	1.215E-154
Model: 2 Revised Stamm 2-Factor	931.512*	402	0.084	0.115	0.781	12548.893	21.122	1.894E-05
Model 3: 3-Factor Model	904.390*	399	0.083	0.105	0.791	12527.771	Reference Model	0.731
Model 4: 2010 Original Model	904.390*	398	0.083	0.105	0.791	12529.771	2.000	0.269
Model 5: Revised CF and BO	1242.524*	402	0.106	0.159	0.652	12859.905	332.134	5.521E-73
Model 6: State and Trait	1162.786*	402	0.101	0.148	0.685	12780.167	252.396	1.140E-55
Model 7: State and Trait Syntax	1436.037*	402	0.118	0.180	0.572	13053.418	525.646	5.263E-115

*Note: * $p < .001$*
RMSEA of 0.06 or lower and a SRMR of 0.09 or lower
CFI of 0.96 or higher and a SRMR of 0.09 or lower

DISCUSSION

This study of 186 emergency dispatchers failed to provide support for the two central hypotheses. The results of these central hypotheses are reviewed below.

Hypothesis 1

The first hypothesis was concerned with whether the newly proposed two-factor model based on state and trait theory would fit the data. The chi-square, RMSEA, SRMR, CFI, and AIC values were all indicative of poor fitting models. Furthermore, recall that the ΔAIC values indicated that models 6 and 7 were very unlikely to be good fitting models. Additional analyses using orthogonal specifications for models 6 and 7, not reported here, had similar findings to the oblique specifications. Therefore, both newly proposed models poorly fit the data regardless of model specification.

Hypothesis 2

The second hypothesis was concerned with whether the two-factor state and trait theory models (Models 6 and 7) would fit the data better than the other specified models (Models 1-5). This hypothesis could not be evaluated. Comparison of these models could not proceed because both hypothesized models (6 and 7) and all competing models poorly fit the data, regardless of model specification (e.g., orthogonal or oblique).

Although hypothesis 1 was not supported and hypothesis 2 could not be evaluated, the more surprising findings lie in the fit indices for models 1-5. Recall that models 1 thru 5 include Stamm's original (Model 3) and revised (Model 4) models. The preponderance of the evidence suggests that

Stamm's original and revised models poorly fit the data. These poorly fitting models do not align with statements, by Stamm (2005, 2010), that the ProQOL possess qualities of good validity.

<center>Conclusions</center>

To our knowledge, this is the first study to conduct a confirmatory factor analysis (CFA) on the ProQOL, and with a sample of emergency dispatchers. The results of the CFA demonstrated poor fit across all models. These models included Stamm's (2005, 2010) original and revised models that underlie the ProQOL-IV and -5, and models hypothesized to fit better based on the theoretical underpinnings that differentiate states and traits. Contrary to Stamm's blanket statement of the validity of the scale, clearly, CF is more difficult to conceptualize as evidenced by the lack of validity. In other words, the most frequently used measure failed to yield evidence of construct validity. Despite this finding, giving up on the ProQOL or the construct of compassion fatigue is not what is being advocated. That is to say, the main issues of validity are not addressed or satisfied. These main issues of validity are explored, as follows: First, a brief overview of the validity data related to the CF factor of the ProQOL, second, a discussion about the overall construct of CF, third, the translation to measurement of the instrument, and finally, a discussion about how to improve validity and the construct.

Validity Data of the Compassion Fatigue Factor of the ProQOL

Ideally, the ProQOL would meet all of the following requirements of validity: concurrent; convergent; discriminant; predictive; and factorial. Brief overviews of validity studies are provided below.

Concurrent Validity

With regard to concurrent validity, the ProQOL scales should be related to theoretically similar scales (concurrent validity). Unfortunately, these relationships have not been fully evaluated. Jenkins and Baird (2002) and Adams, Boscarino, and Figley (2006), report information about the concurrent validity of the Compassion Fatigue Revised and Compassion Fatigue Self-Test, both earlier versions of the ProQOL. The concurrent validity of the Compassion Fatigue Self-Test and Compassion Fatigue Revised failed to meet the statistical gold standard of $r > .60$ when compared to a measure of psychological distress. Similarly, the individual subscale of Burnout failed to meet the standard for concurrent validity when compared to a well-validated measure of BO (Innes & Straker, 1999; Kozlowski & Moore, 2012). Given that concurrent validity was not reached for the previous versions of the ProQOL we cannot expect the current version of the ProQOL to overcome its inherent foundational flaw.

Stamm's (2010) theoretical model of Compassion Fatigue posits the inter-relatedness amongst the constructs. As a result, we might expect to find evidence of convergent validity between the factors. At this time, it is unclear if convergent validity is supported. Specifically, Lee, Veach, MacFarlane, and LeRoy (2014) and Slocum-Gori, Hemsworth, Chan, Carson, and Kazanjian (2013) observed contradictory relationships between BO and CS. Lee, Veach, MacFarlane, and LeRoy (2014) observed a positive relationship between Burnout and Compassion Satisfaction; whereas Slocum-Gori, Hemsworth, Chan, Carson, and Kazanjian (2013) observed a negative correlation between BO and CS. If convergent validity was supported, the correlation coefficient in both studies should be moderately too highly positive (Post, 2016).

Discriminant Validity

With regard to discriminant validity, correlation coefficients greater than $r = .30$ are considered not supportive of discriminant validity (Innes & Straker, 1999; Kozlowski & Moore, 2012). Specifically, the ProQOL should distinguish between compassion fatigue (CF), secondary traumatic stress (STS), burnout (BO), compassion satisfaction, and other unrelated concepts Jenkins and Baird (2002) measured CF using the Compassion Fatigue Self-Test (CFST) and observed a correlation coefficient between CFST-CF and CFST-BO of $r(97) = .65$, $p < .001$. The correlation between CFST-CF and CFST-BO is higher than $r = .30$, which indicates that the measure did not demonstrate sufficient discriminant validity.

Predictive Validity

Whether the ProQOL is able to predict performance on a future criterion variable (predictive validity) is inconclusive. Again, Adams, Boscarino, and Figley (2006) report on the Compassion Fatigue Revised scales' predictive power of psychological wellbeing (GHQ; General Health Questionnaire, Goldberg, 1978). The authors reported the portion of variance accounted for by the different independent variables. Although a positive relationship was observed, as expected, between the independent and dependent variables, the authors failed to include the correlation coefficients, which are essential for evaluating predictive validity. The correlation coefficients are essential to assess the presence of consistent and predictable relationships between scores (Gardner & Neufeld, 2013; Innes & Straker, 1999; Kozlowski & Moore, 2012; Portney & Watkins, 2008).

Finally, the limited studies that report on the factorial validity of the Compassion Fatigue Revised and ProQOL are mixed. In total, a combination of seven studies has examined the factorial

validity of the ProQOL. These seven studies have used the statistical techniques of principal component analysis, exploratory factor analysis, and confirmatory factor analysis, and the most recent study published in 2005.

EFA and PCA

Three studies report results from EFA's. Smit (2006) conducted a second-order EFA that yielded 2-dimensions. The first dimension represented items of compassion satisfaction and the second dimension represented a combination of items from the STS and BO subscales. The combination of STS and BO items on the second dimension suggests the ProQOL does not adequately differentiate between these symptoms. This is consistent with the high correlation between CFST-CF and CFST-BO reported by Jenkins and Baird (2002).

In contrast, Shen, Yu, Zhang, and Jiang's (2015) EFA results on the Chinese version of the ProQOL produced 3-dimensions of 25-items. The 25-items were dispersed across the dimensions of Compassion Fatigue (8-items), Burnout (7-items), and Compassion Satisfaction (10-items). Specifically, all items from the CS dimension remained, whereas, items 2 and 28 from CF were eliminated and items 4, 17, and 29 were eliminated from the BO dimension because their loadings were less than 0.30. Items 10, 15, 21, and 27 cross-loaded on the factors of CF/BO, CS/BO, CF, BO, and CS/BO respectively. The item was placed on the dimension with the higher loading. Further, items 1 and 11 loaded on all three dimensions. An expert panel determined the dimension on which they were placed. Item 1 was placed on the BO dimension and item 11 was placed on the CF dimension.

Craig and Sprang (2010) identified 3-dimensions of 24-items, but do not report the factor loadings for the EFA. Instead they report the follow-up principal component analysis of the

measure. The screen plot analysis indicated 3-factors fit the data. Specifically, the PCA observed 13-items on the CS factor, 7-items on the CF component, and 4-items on the BO component.

Similarly, Samson, Iecovich, and Shvartzman (2016) conducted an EFA after the CFA produced a lack of adequate fit. The EFA produced 3-dimensions. The first dimension represented compassion satisfaction, which included 14-items. Specifically, 4-reversed items from the original BO scale and the 10 original items on the CS scale. The second dimension represented 10-items, which included 8-items from the original STS factor and 2-items from the original BO section. The third dimension represented burnout, which included 3-items from the original BO scale.

In contrast to the PCA results reported by Craig and Sprang (2010) and the EFA results reported by Samson, Iecovich, and Shvartzman (2016), Adams, Boscarino, and Figley (2006) identified 2-components on the compassion fatigue self-report. Specifically, 8-items related to burnout ("I have felt trapped by my work") loaded on component 1 and 5-items related to secondary trauma ("Troubling dreams similar to clients") loaded on component 2. The authors discuss the reduced 13-item 2-component scale reduces the overlap between secondary trauma and burnout and removes items that can be interpreted as direct personal trauma versus vicarious trauma. However, a limitation of their results is that exposure to survivors of violence was not significantly related to CF (r (206) = .123, $p > .05$)). This is concerning because the measure is theorized to assess compassion fatigue in helping professions. Given the lack of a significant relationship between exposure to events, as a result of working in a helping profession, and CF, it is unclear what the PCA components are reflecting.

CFA

The Italian version of the ProQOL-IV identified 3 factors, and 7-items were discarded (Pietrantoni & Prati, 2008). The authors elected to eliminate two items prior to data analysis because a lack of applicability for the Italian cultural context. 3 Models were tested for fit. The first model examined the original 3-factor model. The values of RMSEA (0.072), NNFI (0.067), and CFI (0.698) indicated a lack of fit. Prior to testing the second model, an additional 6-items were eliminated. Five of these eliminated items were from the Burnout scale and one item from the Compassion Fatigue scale. The fit indices of RMSEA (0.051), NNFI (0.865), CFI (0.880) indicated a more satisfactory fit than the original model. They tested a third model, which moved items that were deemed too more appropriately reflect the theoretical construct of a different scale. The authors moved one item from the BO scale to CF scale and 3-items from the CF scale to BO scale. The model 3 fit indices of RMSEA (0.039), NNFI (0.922), and CFI (0.931) were greatly improved compared to model 1 and 2. Additionally, the fit indices of model 3 reached more optimal standards of fit. However, the correlations between the factors of CS and BO (r (883-939) = -0.09, $p < .001$) and BO and CF (r (883-939) = 0.61, $p < .001$) were significant. These significant correlations reflect Jenkins and Baird (2002) and findings of Smit (2006).

Two CFA's on the English version of the ProQOL-IV reported different findings. Cicognani, Pietrantoni, Palestini, and Prati (2009) identified 3-factors with 8-items discarded, whereas Musa and Hamid (2008) identified 2-factors.

Shen, Yu, Zhang, and Jiang (2015) also conducted a CFA on the 25-items identified in the EFA. The fit indices of GFI (0.97), CFI (0.97), and RMSEA (0.02) indicated a good fitting oblique model; however, correlations between the three factors were high (-0.54, -0.43, and 0.40).

In the same study reported above, Samson, Iecovich, and Shvartzman (2016) also subjected the ProQOL-5 Hebrew version to a CFA. They reported a lack of adequate fit for the Hebrew version of the ProQOL-5. Specifically, CFI (-0.68), GFI (-0.64), and TLI (-0.805) were not close to the threshold of 0.95, RMSEA (0.08) was not below 0.06, and SRMR (0.1945) was not below 0.08.

Finally, a CFA on the ProQOL-5, the subject of the current study, yielded results that do not support the statement by Stamm (2010) that the ProQOL-5 has improved validity. Upon close examination, the preponderance of the evidence would suggest that the current study's CFA would be unlikely to yield favorable results. However, there are limitations of the current study that are worthy of discussion that may have also contributed to the unsuccessful CFA.

Limitations

For example, this study only examined emergency dispatchers. The results may only generalize to this very specific population. Emergency dispatchers may not "fit" the original notion of a helping profession. For instance, emergency dispatchers, unlike nurses, only have auditory exposure and contact with the caller is for a short period of time (i.e., several minutes). As a result the exposure and subsequent outcomes may be different from helping professions that experience visual *and* auditory exposure and for a longer period of time. For a broader explanation see Marks, Bowers, Trachik, James and Beidel (in preparation) that examines the differences between emergency dispatchers and combat veterans. Their results suggest that emergency dispatchers may experience a different but equally impactful negative outcome. Consequently, the items on the ProQOL-5 may not capture the experience of emergency dispatchers. As a result, a successful CFA cannot be expected.

Other issues include range restriction of several variables. The sample lacked full representation across years of experience. Given that the average dispatchers career lasts 2-3 years, the current sample does not reflect this average. Specifically, roughly 86.7% of the participants reported four or more years on the job and 63.9% reported nine or more years on the job. Additionally, 79.5% and 53.9% have worked at their current service for four or more and nine or more years, respectively. These percentages far exceed the reported average career of two to three years (Whitaker, 2013). Given the high turnover rate, the individuals that participated in this study may possess unique or resilient characteristics that enabled them to exceed the average career length of an emergency dispatcher. As a result, this sample may be more resilient, which would account for the average CF score of 21.85 (5.81). Additionally, the age range was also very limited. This demonstrates that the sample was overwhelmingly comprised of experienced dispatchers, which may also limit the generalizability of the CFA.

Construct of Compassion Fatigue

We must understand Compassion Fatigue's current definitional state to evaluate the value of the construct. Meadors, Lamson, Swanson, White, and Sira (2009) explored the similarities and differences between constructs related to compassion fatigue. Specifically, they examined posttraumatic stress disorder (PTSD), secondary traumatic stress (STS), compassion fatigue (CF), and burnout. They report that a factor analysis was not able to detect the differences between the constructs, although this may be attributable to low sample size. Correlation analyses revealed that STS subscales of intrusion, avoidance, and arousal were significantly strongly correlated with CF ($r(142) = .74, .72, .69$, respectively, $p < .01$). Similarly, PTSD was strongly correlated with compassion fatigue $r(142) = .72, p < .01$). Finally, Burnout and compassion fatigue were correlated $r(142) = .56, p < .01$. Additionally, when correlations were examined by profession (e.g., nurse,

doctor, chaplain, and child life specialist) results varied widely. Ideally, a construct would remain consistent regardless of the group it is applied; however, the discrepancy may result from a lack of conceptual clarity. Meadors, Lamson, Swanson, White, and Sira (2009) were unable to provide definitive answers regarding the similarities and differences between constructs related to compassion fatigue. Their difficulty providing similarities and differences between constructs demonstrates the lack of conceptual clarity of CF.

Owen and Wanzer (2014) provide additional support for the lack of conceptual clarity of CF. Specifically, Owen and Wanzer (2014) provide an overview of the lack of conceptual clarity in their evaluation of the inconsistent use of definitions for compassion fatigue. Owen and Wanzer (2014) reviewed the recent literature to formulate a definition of CF in military healthcare professionals. 18 articles were included in the IOS (identifying, organizing, and synthesizing) strategy for data collection and analysis. Of the 18 articles, 2-articled were randomized controlled trials and the remaining 16 included case control and cohort studies, systematic review of descriptive and qualitative studies, descriptive or qualitative studies, and opinion of authorities or reports from expert committees. Across the studies, the authors observed seven main themes: (1) occupational hazard, (2) psychological distress, (3) sense of helplessness, (4) fear, (5) loss of purpose, (6) empathy, and (7) inability to recognize own needs. In light of finding seven main themes, the authors observed a wide-range of support for each theme. Theme 1 was supported in 94% of the articles, theme 2 was supported in 76% of the articles, theme 3 – 22%, theme 4 – 11%, theme 5 – 5%, theme 6 – 39%, and theme 7 – 11%. The two most common themes of having an element of a profession that presents a risk to one's physical or mental welling (occupational hazard) and experiencing a negative emotional state (psychological distress) were supported in a majority of the articles. The authors clearly make the case that CF is not well defined. Specifically,

"...there was no consistent definition of compassion fatigue as many researchers used a variety of terms, ideas, and perceptions to conceptualize this term" (Owen & Wanzer, 2014, p. 5).

The lack of definitional uniformity and clarity makes it difficult to build on the vast number of empirical studies. Further, the lack of definitional uniformity and clarity clouds the ability to compare and relate the results from these various studies. In other words, CF and the ProQOL suffer from the incorrect specification of how the construct should relate to its measurement (MacKenzie, 2003). In light of this it is not surprising that there is a lack of validity work, and the validity work that does exist is inconsistent.

"Without well-developed construct definitions, it is impossible to develop a coherent theory because constructs are the building blocks of theory" (MacKenzie, 2003, p. 324). The notion that people who work in helping professions experience unique negative effects is logical. However, not enough theoretical information and psychometric data on the ProQOL exist to support compassion fatigue as *the* construct to explain the experiences of those in helping professions.

Translation to measurement instrument

The lack of construct clarity provides theoretical problems, as well as psychometric havoc. MacKenzie (2003) aptly illustrates the psychometric problems associated with poor construct-measurement conceptualization. To begin, an inadequately defined construct cannot be expected to have an adequately represented measure. Failure to clearly define a construct results in an equally unclear measure. Together, the items that comprise a measure are our translation between the construct and the measure as a tool. Specifically, the items on a measure act as indicators, or the signs of the presence or absence, of the construct. Ideally, the items reflect the

goal of the measure, which is to accurately reflect the construct. Additional problems are introduced when the items on a measure are over- or under-inclusive.

To begin, criterion contamination occurs when a measure includes factors of other constructs that are extraneous, redundant, or overlapping (MacKenzie, 2003; Messick, 1988; SIOP, n.d.). For example, Meadors, Lamson, Swanson, White, and Sira (2009) reported that the STS and CF were significantly and strongly correlated with CF (as measured by the ProQOL). This significant and strong correlation indicates that STS and CF share or have overlapping variance.

The overlapping variance found in their study is not surprising when a close examination of the items on the ProQOL are compared with the items on the Secondary Traumatic Stress Scale (Bride, Robinson, Yegidis, & Figley, 2004). Table 4 provides a comparison between the items on the ProQOL and the STSS. At least 11 of the 30-items on the ProQOL overlap with at least 11 of 17-items on the STSS. Specifically, two burnout items, one compassion satisfaction item, and nine of the 10 secondary traumatic stress items on the ProQOL overlapped with five of seven avoidance items, four of five arousal items, and two of five intrusion items on the STSS. The item on the ProQOL STS factor that did not align with an item on the STSS was item 11, which states, "I think that I might have been affected by the traumatic stress of those I [help]." Arguably, item 11 on the ProQOL is the sum of what the STSS is trying to determine.

Similarly, recall that Meadors, Lamson, Swanson, White, and Sira (2009) found that burnout and compassion fatigue were correlated $r(142) = .56$, $p < .01$. We are able to compare the ProQOL to the Burnout Measure (BM, (Pines, Aronson, & Kafry, 1981). The BM is used for comparison because it is the most widely used measure of burnout next to the MBI (Maslach

Burnout Inventory, Maslach & Jackson, 1986). Additionally, the BM and the MBI have been compared in several studies of discriminant, congruent, convergent, factorial validity (see Enzmann, Schaufeli, Janssen, & Rozeman, 1998; Schaufeli, Bakker, Hoogduin, Schaap, & Kladler, 2001; Schaufeli & Van Dierendonck, 1993).

In sum, the BM is a relatively comparable to the MBI. 54% of the variance of the BM is shared with the MBI-emotional exhaustion scale (Schaufeli & Van Dierendonck, 1993). Using samples of clinical and non-clinical patients, the BM (exhaustion, demoralization, and loss of motivation) and the MBI (emotional exhaustion, depersonalization, and personal accomplishment) are similarly related across all subscales (Schaufeli, Bakker, Hoogduin, Schaap, & Kladler, 2001).

Differences between the BM and MBI include BM's appropriateness to measure burnout outside of human services professions (Schaufeli & Van Dierendonck, 1993) and the specificity and sensitivity of the measures. The BM has superior ability to correctly identify non-burnout cases (specificity) and the MBI has superior ability to correctly identify clinical cases of burnout (sensitivity). As a result, the BM may be more useful for the selection of non-burned out professionals, whereas, the MBI may be more useful for the screening of burnout (Schaufeli, Bakker, Hoogduin, Schaap, & Kladler, 2001). Table 5 provides a comparison of items between the ProQOL and the BM; however, caution should be used in interpreting the comparison because differences do exist between the MBI and BM.

At least 8 of the 30-items on the ProQOL overlap with at least 10 of 21-items on the BM. Specifically, six burnout items, one compassion satisfaction item, and one of the 10 secondary traumatic stress items on the ProQOL overlapped with four of nine demoralization items, three of

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six exhaustion items, and two of four loss of motivation items, and one of two uncategorized items on the BM. The items on the ProQOL BO factor that did not align with items on the BM were items 15 (I have beliefs that sustain me), 17 (I am the person I always wanted to be), 21 (I feel overwhelmed because my case [work] load seems endless), and 29 (I am a very caring person). Arguments can be made that these remaining ProQOL-BO items align with items on the BM (i.e., item 15 and item 17, "Feeling hopeless" on the BM), but for purposes of this qualitative comparison items were deemed similar if they consisted of synonyms or same words.

With regard to comparing the Compassion Satisfaction factor on the ProQOL to another measure of compassion satisfaction, to the author's knowledge there is no other measure of CS that exists at this time. The earlier version of the ProQOL and the Compassion Satisfaction/Fatigue Self-Test (CSFST, Stamm & Figley, 1995, 1999) can be compared but this comparison is not as meaningful as if a comparison was made to a measure developed by an outside author. Table 6 provides a comparison between items on the CSFST and the ProQOL.

On the CSFST, there are 26-items on the Compassion Satisfaction factor. At least 13 of the 26-items on the CSFST-CS overlap with at least 12-items on the ProQOL. Specifically, five ProQOL-CS items, five ProQOL-BO items, and two ProQOL-STS items overlapped with the CS items on the CSFST. When compared to the ProQOL, the CS scale on the CSFST illustrates criterion contamination with STS and BO. Although it appears the ProQOL remedied this contamination, the results of the current study suggest that criterion contamination remains a flaw of the ProQOL-5.

Table 4: Comparison between items on the ProQOL and STSS (Secondary Traumatic Stress Scale,

Bride, Robinson, Yegidis, & Figley, 2004)

ProQOL		STSS	
Item # and Scale	Text	Item # and Scale	Text
4.bo	I feel connected to others ® on the scale	7.av	I had little interest in being around others
5.sts	I jump or am startled by unexpected sounds. 7. I find it difficult to separate	8.ar	I felt jumpy
6.cs	I feel invigorated after working with those I [help]. ®	9.av	I was less active than usual
7.sts	I find it difficult to separate my personal life from my life as a [helper].	3.in	It seemed as if I was reliving the trauma(s) experienced by my client(s)
14.sts	I feel as though I am experiencing the trauma of someone I have [helped]		
8.bo	I am not as productive at work because I am losing sleep over traumatic experiences of a person I [help].	4.ar	I had trouble sleeping…
11.sts	Because of my [helping] I have felt "on edge" about various things	15ar.	I was easily annoyed
		16.ar	I expected something bad to happen
13.sts	I feel depressed because of the traumatic experiences of the people I [help].	1.av	I felt emotionally numb
23.sts	I avoid certain activities or situations because they remind me of frightening experiences of the people I [help]	12.av	I avoided people, places, or things that reminded me of my work with clients
25.sts	As a result of my [helping] I have intrusive, frightening thoughts.	10.in	I thought about my work with clients when I didn't intend to
2.sts	I am preoccupied with more than one person I [help] (see this as intrusive thoughts)		
28.sts	I can't recall important parts of my work with trauma victims.	17av.	I noticed gaps in my memory about client sessions

Note. ProQOL-5, sts – secondary traumatic stress scale; cs – compassion satisfaction scale; bo – burnout scale. STSS, av – avoidance scale; ar – arousal scale; in – intrusion scale

Table 5: Comparison between items on the ProQOL and the Burnout Measure (Enzmann, Schaufeli, Janssen, & Rozeman, 1998; Pines, Aronson, & Kafry, 1981).

ProQOL		BM	
Item #	Text	Item #	Text
1.bo	I am happy	6.L	Being happy
		9.D	Being unhappy
4.bo	I feel connected to others ® on the scale	15.	Feeling disillusioned and resentful about people
		18.D	Feeling rejected
6.cs	I feel invigorated after working with those I [help].	20L.	Feeling energetic
8.bo	I am not as productive at work because I am losing sleep over traumatic experiences of a person I [help].	1E.	Being tired
10.bo	I feel trapped by my job as a [helper]	11.D	Feeling trapped
13.sts	I feel depressed because of the traumatic experiences of the people I [help].	2.D	Feeling depressed
19.bo	I feel worn out because of my work as a [helper]	7.E	Being wiped out
26.bo	I feel "bogged down" by the system	10.E	Feeling rundown

Note. ProQOL-5, sts – secondary traumatic stress scale; cs – compassion satisfaction scale; bo – burnout scale. BM, L– Loss of Motivation scale; D – Demoralization scale; E – Exhaustion scale

Table 6: Comparison between items on the ProQOL and the CSFST (Stamm & Figley, 1995, 1998).

CSFST		ProQOL	
Item #	Text	Item #	Text
1.	I am happy	1.bo	I am happy
3.	I have beliefs that sustain me	15.bo	I have beliefs that sustain me
9.	I feel connected to others.	4.bo	I feel connected to others.
11.	I believe that I have a good balance between my work and my free time	7.sts	I find it difficult to separate my personal life from my life as a [helper].
14.	I am the person I always wanted to be.	17.bo	I am the person I always wanted to be.
26.	Working with those I help brings me a great deal of satisfaction	18.cs	My work makes me feel satisfied
30.	I have happy thoughts about those I help and how I could help them	20.cs	I have happy thoughts and feelings about those I [help] and how I could help them.
35.	I have joyful feelings about how I can help the victims I work with.		
37.	I think that I might be positively "inoculated" by the traumatic stress of those I help.	9.sts	I think that I might have been affected by the traumatic stress of those I [help].
46.	I like my work as a helper	12.cs	I like my work as a [helper].
50.	I have thoughts that I am a "success" as a helper	27.cs	I have thoughts that I am a "success" as a [helper].
59.	Although I have to do paperwork that I don't like, I still have time to work with those help	26.bo	I feel "bogged down" by the system.
61.	I am pleased with how I am able to keep up with helping techniques and protocols.	16.cs	I am pleased with how I am able to keep up with [helping] techniques and protocols.

Note. ProQOL-5, sts – secondary traumatic stress scale; cs – compassion satisfaction scale; bo – burnout scale.

Another issue related to criterion contamination is criterion deficiency. Conversely, criterion deficiency occurs when a measure excludes relevant factors of the construct. For example, the correlation between STS and CF $r \neq 1$ (Meadors, Lamson, Swanson,

White, & Sira, 2009). This indicates that there is variance that is not being accounted for by the measures. In other words, the measure is deficient because relevant factors are missing (MacKenzie, 2003; Messick, 1988; SIOP, n.d.). Unlike criterion contamination, criterion deficiency cannot be evaluated by comparing the ProQOL to other measures. Additionally, criterion deficiency cannot be evaluated by using the data of the current study. In order to measure criterion deficiency in the current study, the authors needed to add items to the ProQOL. However, a clear and concise definition of compassion fatigue would provide information about any deficiencies that may exist in the current measurement.

The downward spiral that follows criterion deficiencies and criterion contamination of measures are, low construct validity, which in turn generates low statistical conclusion validity, and subsequently low internal validity (MacKenzie, 2003.). In other words, it is like giving someone a map and not indicating which direction is north. How can I be expected to know the relationship between my environment and the map? Further, how can I be expected to apply the knowledge from my environment and map, to my stated goal? As a result, a strong, cohesive theoretical definition of compassion fatigue is necessary.

Clearly, there is interest in the idea that people who work in certain occupations are at risk for negative outcomes associated with exposure to trauma. Yet, this interest has not led to conceptual clarity, consistent definitions, or the fundamental theoretical work needed for the construct of compassion fatigue to reach its full potential. As a result, a framework is needed to guide the process of gaining conceptual clarity, production of consistent definitions, and undertaking of fundamental theoretical work. One such framework is the Information-Processing Model.

In order to bring conceptual clarity to the construct of compassion fatigue, the definition must be distinct from other similar constructs such as VT, STS, BO, and PTSD. In other words, the theoretical definition must highlight CF's distinct elements. Specifically, the notion of compassion is what distinguishes CF from the other aforementioned constructs. Given this distinction we propose that an information-processing model be considered as a framework for shaping the theoretical definition of compassion fatigue.

Kallus, Barbarino, and Damme (1997) provide an information-processing model for air traffic controllers (ATCs) that can be leveraged to assist in our formulation of a cohesive definition of compassion fatigue. The job of ATCs requires a series of steps that involves receiving information, attending to the information, integrating the information, decision making, responding, and communicating. Similarly, emergency dispatching can be considered an information processing activity that requires the dispatcher to receive, attend, integrate, decide, respond, and communicate, and is responsible for the wellbeing of others (National Academies of Emergency Dispatch, 2011). All of these steps are needed for the goal-directed outcome of successfully assisting the caller and the first responders. As a result, an information-processing model is chosen to help guide our framework (see Wickens, 1992).

Specifically, Whiting's (1969) model (see figure 2) will be used. Table 7 defines the components of the model and illustrates the model in the context of emergency dispatching. Compassion fatigue may best be described as an isolated cognitive event that is a breakdown in

the decision making process (Translatory Mechanism) that results in myriad of consequences.
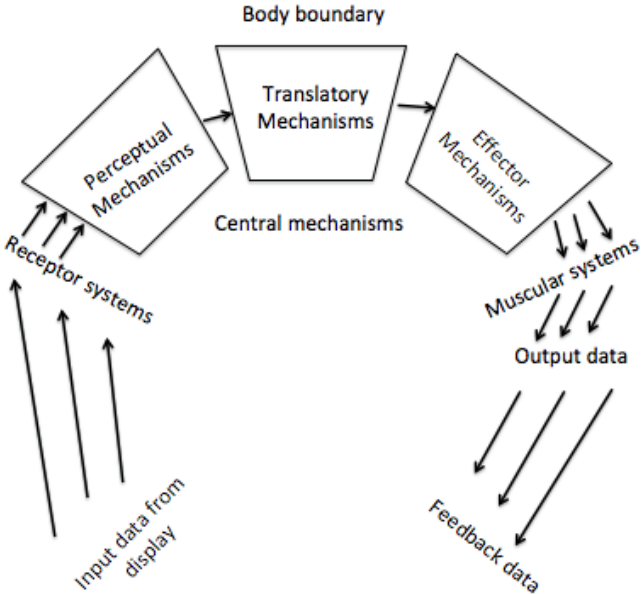

Figure 2 Whiting's 1969 Model

Table 7: Definition and application of Whiting's model of information processing to emergency dispatching.

Step	Definition	Application to Emergency Dispatching
Input data from display	The environment where information is gathered	Telephone rings
Receptor systems	Sensory organ(s) that detect an environmental stimuli	Using audition, you hear the caller
Perceptual Mechanisms	Information is collected and sorted; selective attention is used to filter relevant information from irrelevant information	Focus on the caller and not the sounds of co-workers performing their duties.
Translatory Mechanisms	Uses the information gathered from the environment. Adapts information, compares to memory, and then makes the appropriate decision	You recognize that the caller is asking for help and compare their request to previous experiences, you decide on an appropriate dispatch code and line of questioning
Effector Mechanisms	Transfers decision to the muscular system via motor neurons	Your body prepares to speak.
Muscular system	The body produces the response and movement	You speak to the caller
Output data	Information about the skill being produced	The caller successfully provides you additional information, performs an act.
Feedback data	Information used to amend performance	Using your audition, you know that you have correctly or incorrectly performed the task.

Compassion fatigue in this case is a factor that modulates the decision making process; thereby influencing behavioral output. Compassion fatigue increases stress on the information processing system creating interference between the environmental input and the appropriate behavioral response. This interference is best conceptualized under the Yerkes-Dodson-Law, which describes the relationship between arousal and performance (Yerkes & Dodson, 1908). The relationship between arousal and performance is an inverted-u in that under- or excessive- arousal

(stress) diminishes performance. Optimal performance requires a moderate amount of arousal. Under or excessive stress negatively impacts the decision making process of the helper. In the case of compassion fatigue, the antecedent to the breakdown in the decision making process may be the result of hypervigilance or "hypovigilance." Hyper- and hypo-vigilance is best characterized as the cognitive component of compassion fatigue. Specifically, the cognitive components of compassion fatigue may best be characterized as hypervigilance or "hypovigilance;" These cognitive components are observable by the associated behavioral response.

The associated behavioral responses of the over expression (hypervigilance) of compassion takes the form of anger, frustration, sarcasm, and impatience. Conversely, the associated behavioral responses of the under expression ("hypovigilance") of compassion takes the form of missed information, delayed response to verbal inquiries, lack of urgency, lack of the use of compassionate "buzz" words (i.e., "I understand what you are saying"), cold vocal inflection, or not exerting control over the situation. It is important to understand that these cognitive components and behavioral responses are measured by a decrease in baseline ability to interact with those that are being helped. Further, the cognitive components (hyper- hypo- vigilance) should be considered on a continuum just as the behavioral output should be considered on a continuum. For example, if a caller or patient is yelling and not attending to the words of the helper, it may require the helper to raise their voice. This should not be construed as a hypervigilant cognitive state or an inappropriate behavioral response, because the helper is trying to gain control of the situation in order to render assistance. Additionally, the experience of hyper- or hypo- vigilance may manifest at different points of the helping process (i.e., not always at the beginning of the interaction). The following is an example of compassion fatigue's effects (Table 8).

Table 8: Application of Whiting's model of information processing to emergency dispatching under optimal, hyervigilant, and hypovigilant cognitive states.

Step	Optimal	Hypervigilance	Hypovigilance
Input data from display	Telephone rings	Telephone rings	Telephone rings
Receptor systems	Using audition, you hear the caller	Using audition, you hear the caller	Using audition, you hear the caller
Perceptual Mechanisms	Primary focus is centered on the caller and not the sounds of co-workers performing their duties, but situational awareness is maintained of your surroundings.	**Focus is on the caller and situational awareness is not maintained. "Tunnel vision."**	**Under-focused on the caller, more attention toward the sounds of co-workers performing their duties**
Translatory Mechanisms	You recognize that the caller is asking for help and compare their request to previous experiences, you decide on an appropriate dispatch code and line of questioning	You recognize that the caller is asking for help **You over focus on a particular statement the caller makes; thereby comparing that request to a correct or incorrect previous experience. Decide on a dispatch code (which may be correct or incorrect) and line of questioning**	You recognize that the caller is asking for help **You do not focus on the caller; thereby you miss information and fill the voids using context clues (which may be correct or incorrect) comparing that request to a correct or incorrect previous experience. Decide on a dispatch code (which may be correct or incorrect) and line of questioning**
Effector Mechanisms	Your body prepares to speak.	Your body prepares to speak.	**Your body prepares to speak, which takes longer than usual**
Muscular system	You speak to the caller	**You are yelling at the caller**	**You ask the caller to repeat themselves**
Output Data	The caller successfully provides you additional information, performs an act.	**The caller becomes upset and does not provide you with the information that you need**	**The caller becomes upset and does not provide you with the information that you need**

Step	Optimal	Hypervigilance	Hypovigilance
Feedback Data	Using your audition, you know that you have correctly or incorrectly performed the task.	**Using your audition, you know that the caller is not providing you the information, which may perpetuate your anger**	**Using your audition, you know that the caller is not providing you the information, which may result in anger or increased ambivalence to the urgency of the caller's emergent situation.**

*Note: bold font indicates demarcation from optimal cognitive state.

Although Table 7 and Table 8 demonstrate the information-processing model in the context of emergency dispatchers, the advantage of placing compassion fatigue within this framework is that there is conceptual breadth that enables the translation to all helping professions.

Future Measurement Considerations

As discussed the sample for the current study was comprised of veteran dispatchers. The findings may not be surprising given that experience is an effective buffer between information processing, stress, and behavioral output under the guidelines of an information-processing model (Kallus, Barbarino, Damme, 1997). Additionally, given that compassion fatigue, within this context, is considered an isolated cognitive event, measurement may not be suited for a paper-and-pencil test. Instead, compassion fatigue may best be measured by a behavioral observation assessment. In the case of emergency dispatching, compassion fatigue can be assessed by listening to the interaction between a dispatcher and a caller. This type of measurement places significant burden on the part of the researcher, but may be the only accurate way to measure compassion fatigue, at this time. Compassion fatigue is one factor that modulates the decision making process of helping professionals, others include PTSD, STS, and BO. However, unlike PTSD, STS, and BO, the construct of *compassion* is not well-validated and therefore difficult to measure (Strauss et al., 2016).

"Without well-developed construct definitions, it is impossible to develop a coherent theory because constructs are the building blocks of theory" (MacKenzie, 2003, p. 324). The notion that people who work in helping professions experience unique negative effects is logical. However, not enough theoretical information and psychometric data on the ProQOL exist to

support compassion fatigue as *the* construct to explain the experiences of those in helping professions.

A method for clarifying a method for measurement and clearing up the conceptual overlap between related constructs was proposed. This method was placing compassion fatigue within the framework of an information-processing model. It is the hope that placing compassion fatigue within the framework of an information-processing model better measurement tools can be developed. The utility of a compassion fatigue measure lies within the ability to explain the breakdown in the processing of information, which lends to the identification of precursors (i.e., types of calls, BO, fatigue, personality). More importantly, greater conceptual clarity can be achieved by refining the associated cognitive characteristics and behavioral responses. The construct of compassion fatigue offers a unique and worthy view of the negative consequences of helping others.

APPENDIX A
INSTRUMENTS

Information Sheet

Please fill in the blank or check the one response that best describes **you**.

Your age: _____

Biological Sex: □ Male □ Female

Race/Ethnicity:	□ Black/African American	□ Asian American/Pacific Islander
	□ Hispanic/Latino(a)	□ Native American
	□ White or European American	□ Other _____ (please specify)

Total Number of Years Working as an Emergency Dispatcher _____

How many years have you been working in the current service _____

The Following Questions Pertain to your CURRENT Service:

Type of Dispatching:
□ Police   □ Fire   □ EMS
□ Police/EMS   □ Police/Fire   □ Fire/EMS
□ Police/Fire/EMS

What shift do you work: □ Day   □ Evening   □ Overnight

Number of Personnel Allotted per Shift:
□ 1   □ 2-3   □ 4-5   □ 6-7
□ 8-10   □ 11-15   □ 16-20   □ 21-25
□ 26-30   □ 30-40   □ 41-50   □ 51-60
□ 61-70   □ 71-80   □ 81-90   □ More Than 91

How Many Days in a 7-day period do you work? _____

If you work 24hr shift
how many days "on and off"   _____day on/ _____days off
do you work?

Indicate the highest level of education you have completed by checking the box	☐ High School
	☐ Associate Degree
	☐ Trade School
	☐ Bachelor Degree
	☐ Professional Degree

Indicate your current partner status by checking the box	☐ Currently Married	☐ Unmarried & Living with a Partner
	☐ Divorced	☐ Single
	☐ Widowed	☐ Separated

Are you the primary care-giver for your dependent children	☐ Yes
	☐ No

Are you the primary care-giver for any elderly parents	☐ Yes
	☐ No

Have you had any unscheduled absences from work in the past 3 months	☐ Yes
	If yes indicate the number of days missed from work _____
	☐ No

Professional Quality of Life Scale (ProQOL)

Compassion Satisfaction and Compassion Fatigue
(ProQOL) Version 5 (2009)

When you *[help]* people you have direct contact with their lives. As you may have found, your compassion for those you *[help]* can affect you in positive and negative ways. Below are some questions about your experiences, both positive and negative, as a *[helper]*. Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the *last 30 days*.

1=Never	2=Rarely	3=Sometimes	4=Often	5=Very Often

_____ 1. I am happy.

_____ 2. I am preoccupied with more than one person I *[help]*.

_____ 3. I get satisfaction from being able to *[help]* people.

_____ 4. I feel connected to others.

_____ 5. I jump or am startled by unexpected sounds.

_____ 6. I feel invigorated after working with those I *[help]*.

_____ 7. I find it difficult to separate my personal life from my life as a *[helper]*.

_____ 8. I am not as productive at work because I am losing sleep over traumatic experiences of a person I *[help]*.

_____ 9. I think that I might have been affected by the traumatic stress of those I *[help]*.

_____ 10. I feel trapped by my job as a *[helper]*.

_____ 11.   Because of my *[helping]*, I have felt "on edge" about various things.

_____ 12. I like my work as a *[helper]*.

_____ 13. I feel depressed because of the traumatic experiences of the people I *[help]*.

_____ 14. I feel as though I am experiencing the trauma of someone I have *[helped]*.

_____ 15. I have beliefs that sustain me.

_____ 16. I am pleased with how I am able to keep up with *[helping]* techniques and protocols.

_____ 17. I am the person I always wanted to be.

_____ 18. My work makes me feel satisfied.

_____ 19. I feel worn out because of my work as a *[helper]*.

_____ 20. I have happy thoughts and feelings about those I *[help]* and how I could help them.

_____ 21. I feel overwhelmed because my case *[work]* load seems endless.

_____ 22. I believe I can make a difference through my work.

_____ 23. I avoid certain activities or situations because they remind me of frightening experiences of the people I *[help]*.

_____ 24. I am proud of what I can do to *[help]*.

_____ 25. As a result of my *[helping]*, I have intrusive, frightening thoughts.

_____ 26. I feel "bogged down" by the system.

_____ 27. I have thoughts that I am a "success" as a *[helper]*.

_____ 28. I can't recall important parts of my work with trauma victims.

_____ 29. I am a very caring person.

_____ 30. I am happy that I chose to do this work.

APPENDIX B
INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

![University of Central Florida logo]

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
            FWA00000351, IRB00001138

To: **Clint A. Bowers and Co-PIs: Benjamin J. Trachik, Madeleine Marks**

Date: **April 07, 2014**

Dear Researcher:

On 04/07/2014, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review:	Exempt Determination
Project Title:	Emergency Dispatcher: Focus on the person behind the line
Investigator:	Clint A. Bowers
IRB Number:	SBE-14-10173
Funding Agency:	
Grant Title:	
Research ID:	N/A.

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Patria Davis on 04/07/2014 11:35:08 AM EDT

[signature]

IRB Coordinator

APPENDIX C
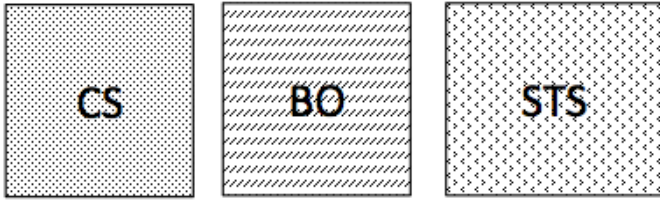MODELS FOR CONFIRMATORY FACTOR ANALYSIS

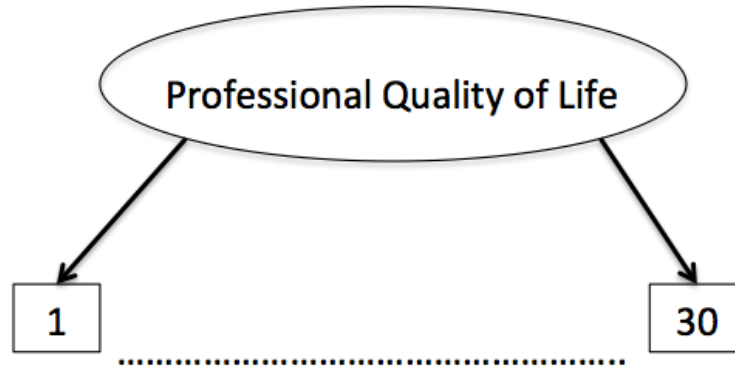Figure B 1: Item key based on the ProQOL-5 (Stamm, 2010)
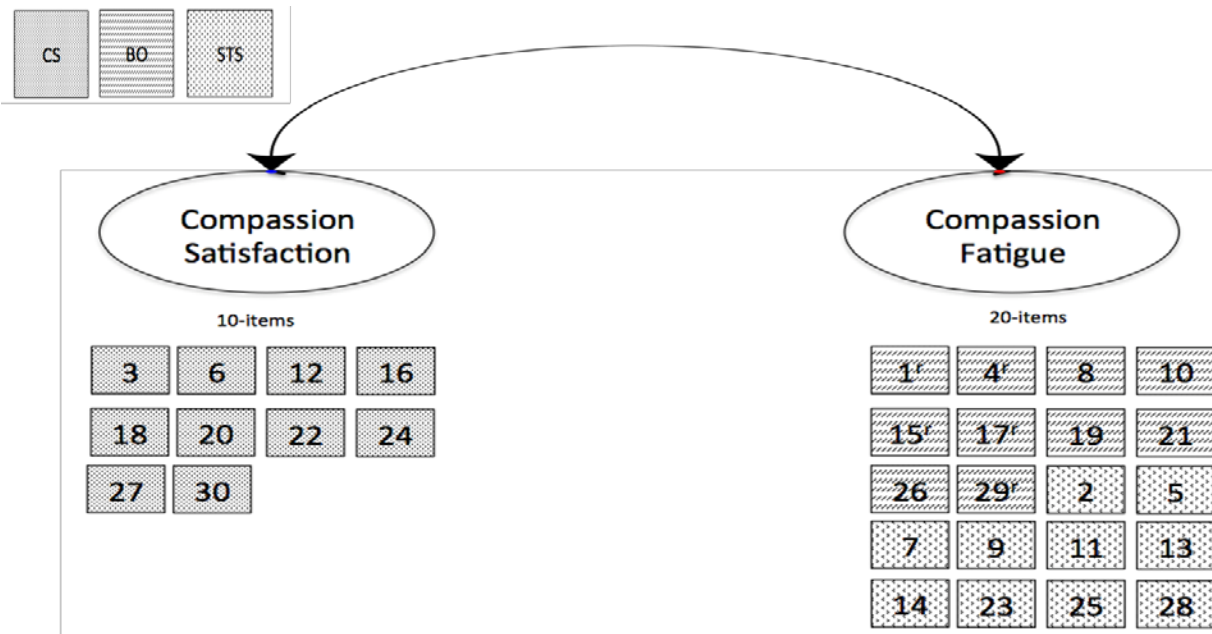
Figure B 2: Model 1. Mother Model

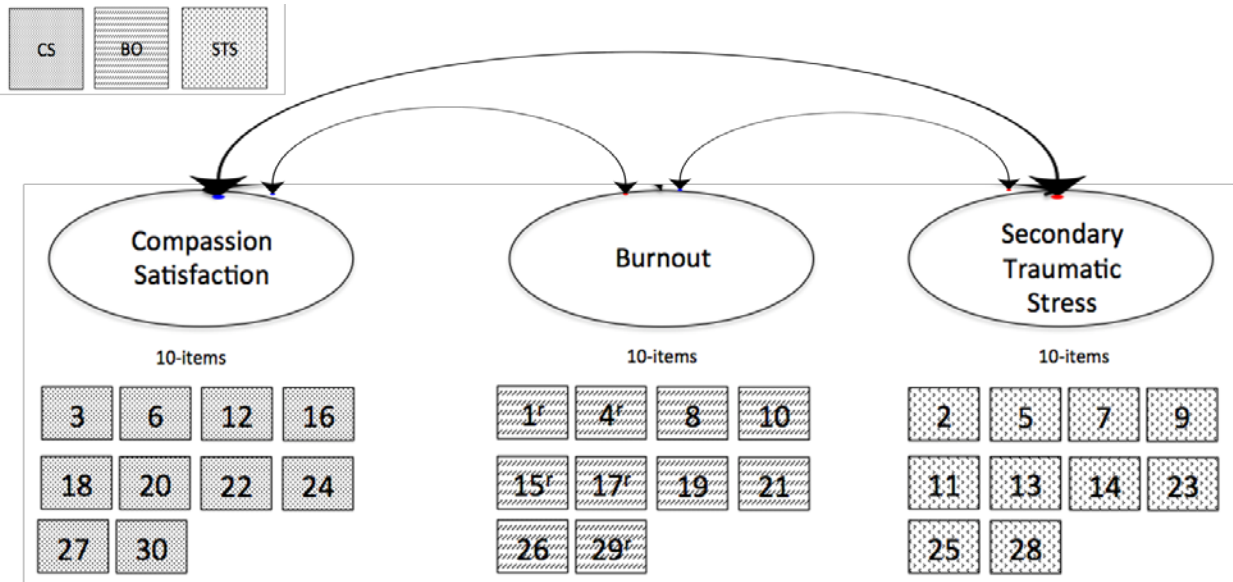Figure B 3: Model 2. Revised Stamm 2-Factor Model
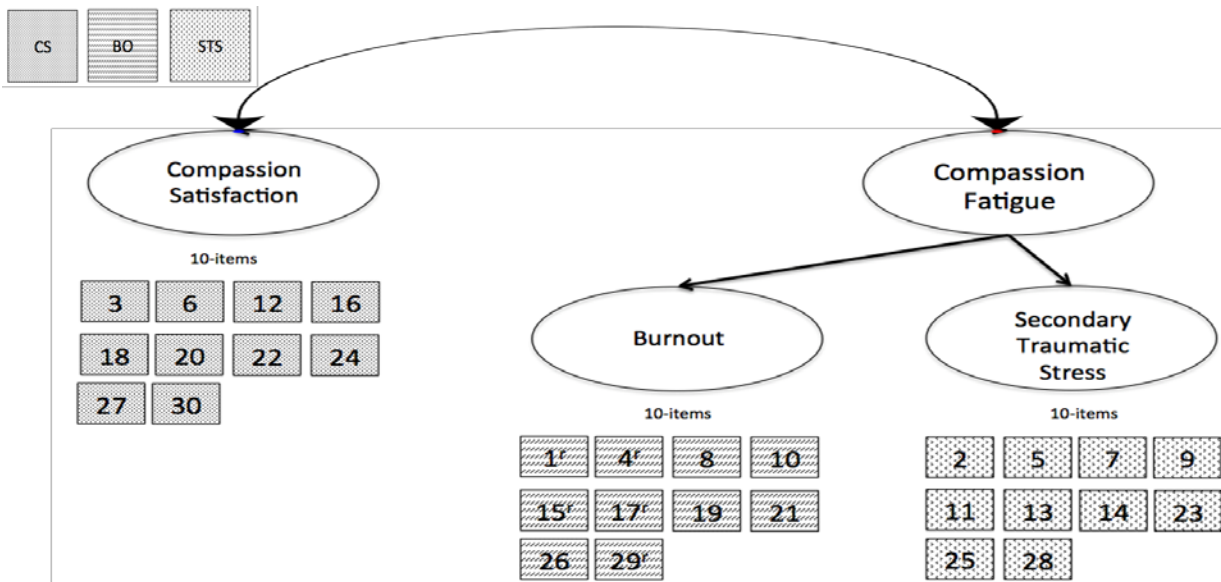
Figure B 4: Model 3. 3-Factor Model

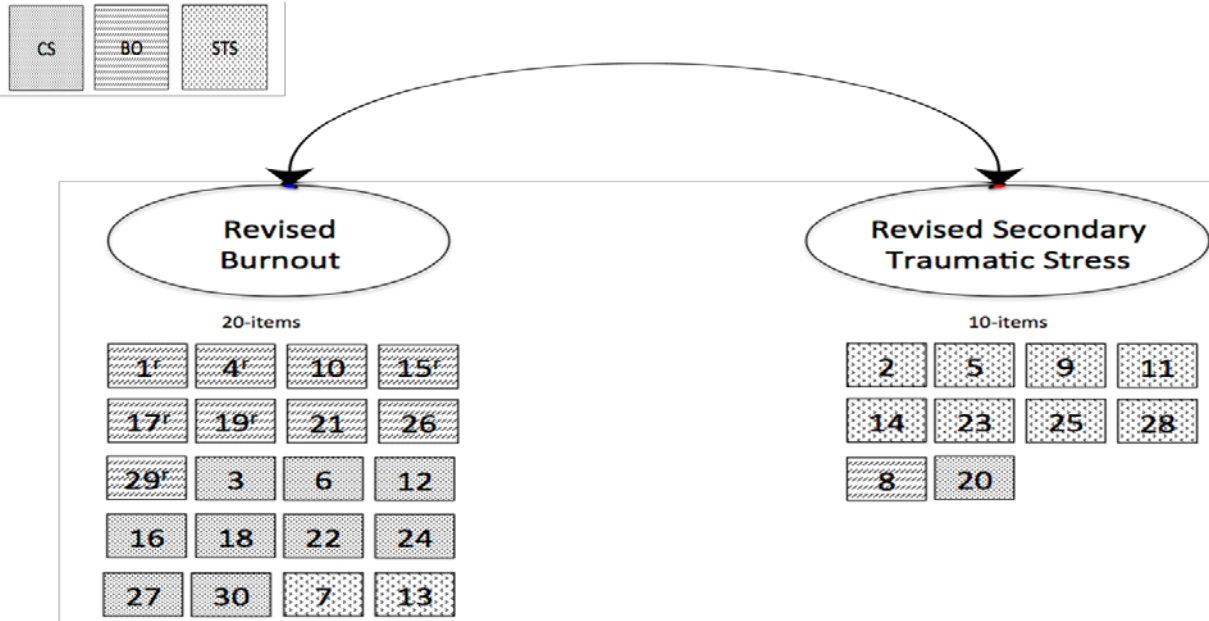Figure B 5: Model 4. 2010 Original Model
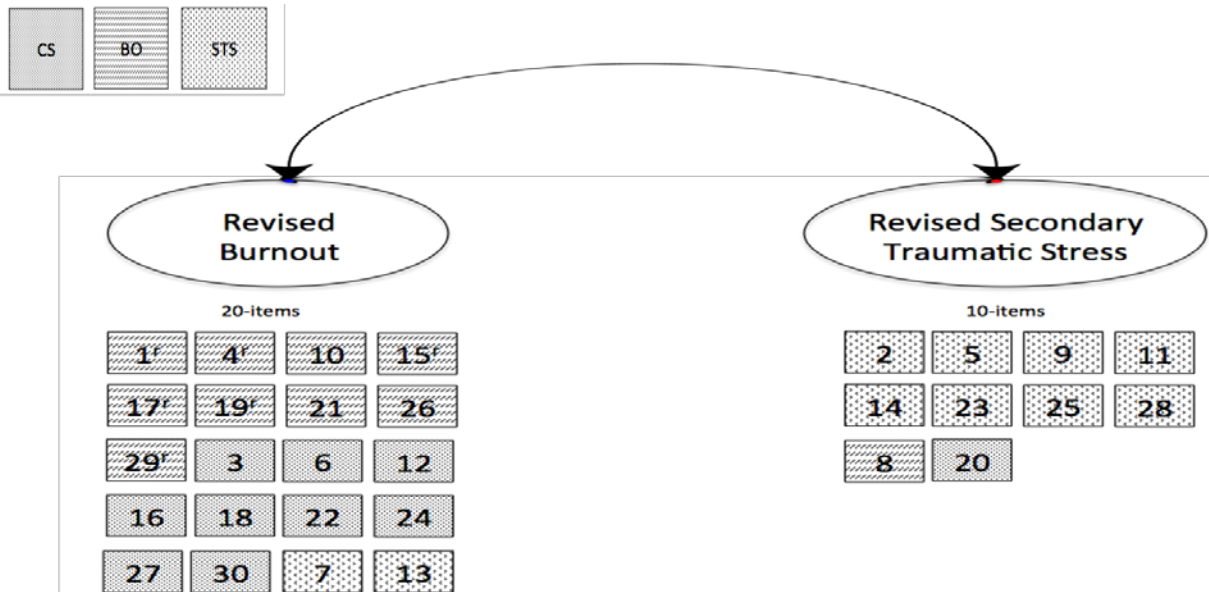
Figure B 6: Model 5. Revised CF and BO
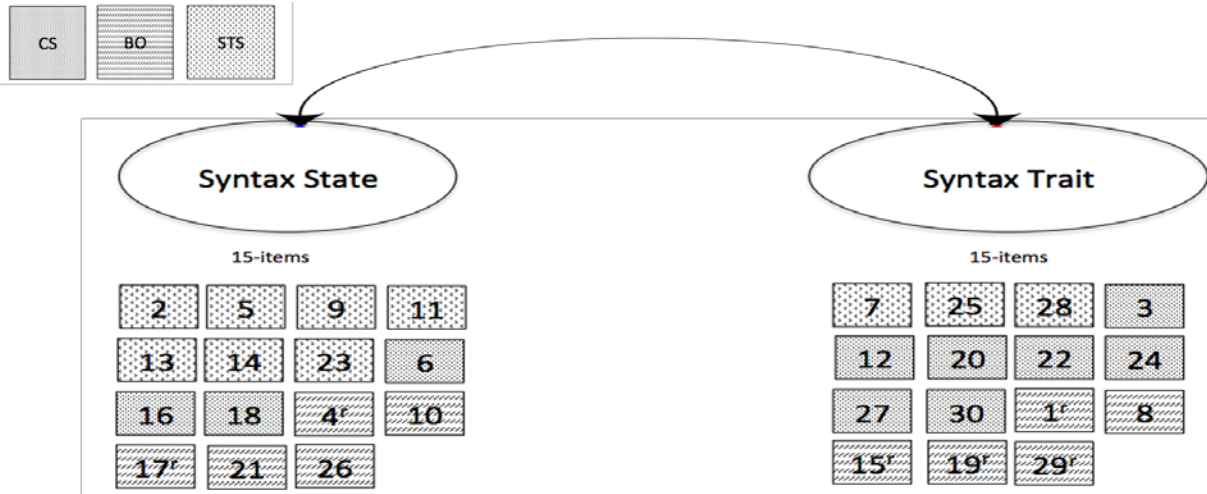

Figure B 7: Model 6. State and Trait

Figure B 8: Model 7. State and Trait Syntax

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