

NORTHERN ILLINOIS UNIVERSITY

Identifying Predictors of Peritraumatic Distress Among 9-1-1
Telecommunicators: The Role of Family Violence and Emotion Regulation

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Capstone Approval Page

Capstone Title (print or type)

Identifying Predictors of Peritraumatic Distress Among
9-1-1 Telecommunicators: The Role of Family Violence
and Emotion Regulation

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HONORS THESIS ABSTRACT

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Your abstract should begin with a definitive statement of the problem of project. Its purpose, scope and limit should be clearly delineated. Then, as concisely as possible, describe research methods and design, major findings, including the significance of the work, if appropriate, and conclusions.

Students whose thesis involves “creative” work (original, fine art, music, writing, theatre or film production, dance, etc.) should describe process and production. Indicating the forms of documentation on file as “thesis” materials.

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Emergency responders have been underrepresented in the literature, though it has been noted that they experience greater amounts of distress than the general public. Greater distress has been found to increase the likelihood of developing psychopathology, such as PTSD, and so identifying predictors of distress may assist in decreasing the prevalence of PTSD. Past research has found that witnessing family violence in childhood and emotion dysregulation have been associated with higher amounts of peritraumatic distress. The current study looked to investigate

9-1-1 telecommunicators specifically, and thus it was hypothesized that, among 9-1-1 telecommunicators, emotion regulation difficulties would mediate the link between witnessing family violence in childhood and duty-related peritraumatic distress. Participants were recruited from around the country to complete an extensive survey that included measures of family violence, emotion regulation, and peritraumatic distress related to the participant's worst 9-1-1 call ($N = 808$). Analyses revealed that the hypothesized mediation model was not significant, although significant associations were found between emotion regulation difficulties and peritraumatic distress and between witnessing family violence and peritraumatic distress. Future research is needed to explore other predictors of peritraumatic distress among 9-1-1 telecommunicators, as greater duty-related distress enhances risk for other adverse outcomes, such as PTSD and depression.

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Abstract

Emergency responders have been underrepresented in the literature, though it has been noted that they experience greater amounts of distress than the general public. Greater distress has been found to increase the likelihood of developing psychopathology, such as PTSD, and so identifying predictors of distress may assist in decreasing the prevalence of PTSD. Past research has found that witnessing family violence in childhood and emotion dysregulation have been associated with higher amounts of peritraumatic distress. The current study looked to investigate 9-1-1 telecommunicators specifically, and thus it was hypothesized that, among 9-1-1 telecommunicators, emotion regulation difficulties would mediate the link between witnessing family violence in childhood and duty-related peritraumatic distress. Participants were recruited from around the country to complete an extensive survey that included measures of family violence, emotion regulation, and peritraumatic distress related to the participant's worst 9-1-1 call ($N = 808$). Analyses revealed that the hypothesized mediation model was not significant, although significant associations were found between emotion regulation difficulties and peritraumatic distress and between witnessing family violence and peritraumatic distress. Future research is needed to explore other predictors of peritraumatic distress among 9-1-1 telecommunicators, as greater duty-related distress enhances risk for other adverse outcomes, such as PTSD and depression.

Keywords: telecommunicators, peritraumatic distress, emotion regulation, family violence

Identifying Predictors of Peritraumatic Distress Among 9-1-1 Telecommunicators: The Role of Family Violence and Emotion Regulation

Traumatic events are pervasive in our society today, not simply affecting those exposed to these events but those responding to them. In the field of psychology, much research has been conducted on large-scale events such as the World Trade Center attacks on 9/11, hurricane Katrina, or the 2011 tsunami in Japan. Although many researchers focus their efforts on emergency responders on the scene (i.e., policemen, firefighters), very little is known about the effects of traumatic events on emergency dispatch personnel.

Emergency responders experience greater amounts of distress than the general population. In their study of 65 emergency medical technicians (EMTs), Revicki and Gershon (1996) discovered that EMTs not only experience greater work related stress compared to individuals in non-emergency related professions, but that this stress is strongly related to psychological distress on the job (measured through indices of depression, anxiety, and positive well-being). Supervisor and coworker support was found to decrease negative reactions, such as the occurrence of depressive symptoms. In addition, Adriaenssens, Gucht, Van Der Doef, and Maes (2010) reported more work-related distress in emergency room nurses than in their non-emergency counterparts. Similarly, greater exposure to traumatic events on the job has been associated with higher levels of related distress (Weiss et al., 1995). When examining emergency medicine practitioners working at Ground Zero after the attacks of 9/11, Warren, Lee, and Saunders (2003) found that participants were significantly more likely to experience work related distress after experiencing especially traumatic events of that day, such as treating a serious injury or knowing someone who had been injured. Work-related distress often leads to other negative symptoms, as Revicki and Gershon noted in their finding of depressive symptoms in

EMTs (1996).. Many researchers have discovered links between experiencing duty-related distress and increased rates of posttraumatic stress disorder (PTSD; Corneil, Beaton, Myrphy, Johnson, & Pike, 1999; Boyle, 1987, Gearsons, 1989).

Identifying predictors of distress can allow for the development of preventative measures, such as training devoted to coping with stressful events. One speculation is that a history of trauma exposure may instigate higher levels of duty related distress. In particular, exposure to family violence has been associated with higher levels of distress. In one study, Jarvis, Gordon, and Novaco (2005) interviewed 30 mothers and their children currently residing in a domestic violence shelter. The mothers studied had experienced intimate partner violence previous to the interview, and the majority of child had attempted to intervene in the abuse on at least one occasion. Results for their analysis found that exposure to intimate partner violence was associated with significantly higher levels of emotional distress in mothers. In another study of 285 fourth through sixth graders, witnessing family violence led to significantly more negative outcomes for children, especially aggression. Similarly, victimization through family violence has been associated with greater negative outcomes (Schwartz & Proctor, 2000). Although the effects of family violence alone on distress have been documented in the literature, few have investigated this relationship in emergency responders.

In addition, it has been well document that traumatic events (i.e., witnessing or experiencing family violence) tend to produce increased rates of PTSD. In one study of women who had experienced childhood abuse, participants with a history of abuse experienced an increased response to startling stimuli and a slower time to habituation (physiological symptoms that are related to PTSD) than participants with no history of abuse (Metzger et al., 1999). In the emergency response literature, an investigation of 28 male combat veterans found that those with

a history of childhood or adult trauma were more likely to exhibit a heightened physiological response to stimuli than combatants who had not experienced childhood or adult trauma (Herrington, Phillips, Fournier, Kronhaus, & Germain, 2012). When presented with an emotion-producing task, images from an fMRI scan revealed greater activation of the dorsal anterior cingulate, an area of the brain easily aroused in adults with PTSD. Elevated rates of PTSD are associated with greater reports of peritraumatic distress, suggesting that individuals who are exposed to family violence may be at an increased risk for experiencing distress (Burnet et al., 2001; Karam et al., 2010; Ozer, Best, Lipsey, & Weiss, 2003).

Previous trauma exposure is also associated with emotion regulation difficulties in emergency responders. Pole et al (2007) explored emotional reactivity in a study of police cadets – that is, the ability to emotionally adapt to a situation. Their findings indicate that cadets with a history of childhood trauma experience greater emotional reactivity than cadets with no history of trauma, which suggests poorer ability to regulate one's emotions for this population.

Investigation of emotion regulation and its association with distress is fairly extensive in populations other than emergency responders. In their study of 216 undergraduate students, Castello, Goldin, Jazaieri, Ziv, Dwek, and Gross (2014) found that participants who held entity beliefs about their emotion regulation (i.e., emotions are fixed and cannot be changed) experienced significantly greater psychological distress surrounding stress and depression than participants who held incremental beliefs about their emotion regulation (i.e., one can learn to control one's emotions). Furthermore, beliefs about emotion regulation were significantly associated with emotion regulation abilities, suggesting that participants with entity beliefs show greater emotion regulation difficulties. Emotion regulation is also found to be a mediating link between the association of exposure to trauma and externalizing (i.e., aggressive behavior, acting

out) and internalizing (i.e., depression, anxiety) symptoms in children (Zarling et al., 2013).

These results suggest that emotion regulation plays a key role in determining how one copes with traumatic events. In Schwartz and Proctor's (2000) study of 285 school children, emotion dysregulation was significantly related to both witnessing and experiencing family violence, and was found to mediate the relationship between witnessing family violence and many of the negative outcomes investigated in the study, such as aggression and bullying by peers.

Despite some previous research surrounding emergency responders, little attention has been given to emergency dispatchers and telecommunicators. In response, the current study focuses on 9-1-1 telecommunicators. We aimed to examine the relationship of witnessing family violence in childhood and emotion regulation on duty-related distress. Specifically, it was hypothesized that 9-1-1 telecommunicators who had witnessed family violence in childhood would experience greater levels of peritraumatic distress related to their worst call, and that this relationship would be mediated by emotion regulation difficulties.

Methods

Participants

Participants were recruited through electronic fliers distributed by national organizations representing 9-1-1 telecommunicators, including the Association of Public-Safety Communications Officials (APCO) and the National Emergency Number Association (NENA). The final sample included 808 telecommunicators who had been working for at least one year prior to the study. This sample was comprised of 73.6% female participants, with the majority (around 87.9%) identifying as Caucasian, followed by Latino/Hispanic-American (4.6%), Black/African American (2.4%) and other (5.1%). Most participants had completed some college or vocational school (51.4%), with 11.9% having a high school degree/GED, 31.2%

having a bachelor's degree, and 5.6% having above a bachelor's degree. The average age of the sample was 39.8 ($SD = 9.7$), with ages ranging from 19 to 65 years. Almost all participants were currently working as 9-1-1 telecommunicators and averaged 12.4 years of work as a telecommunicator ($SD = 8.1$). Most participants were married (53.0%), with 13.5% identifying as single, 17.7% dating or living with their partner, 15.0% separated or divorced, and 0.9% widowed.

Procedure

The current study was part of a larger study examining the general health of 9-1-1 telecommunicators in the United States. Participants were directed to an e-mail in which they could contact a research assistant. Following initial contact, participants were asked to fill out a short online screening survey to determine eligibility. After verifying that participants were at least 18 years of age and had been working as a 9-1-1 telecommunicator for at least one year, survey links were e-mailed to the participant with their unique login information. The survey (which was conducted through SSI web) was explained briefly via e-mail and informed consent was given at the beginning of the survey. The survey took approximately 2 hours to complete. After completing the survey, participants were debriefed and thanked. All participants were entered into a drawing for one of ten \$100 cash prizes at the completion of data collection.

Materials

A large survey comprised of individual questionnaires was used to assess general health in the sample. The survey took approximately two hours to complete and participants were encouraged to take breaks during the survey. Three measures included in the survey were used for the current study.

Exposure to family violence. The Traumatic Life Events Questionnaire (TLEQ; Kubany, 2004) was used to measure previous exposure to family violence. The TLEQ assess 23 different traumatic events, such as exposure to natural disasters, life-threatening illness, sexual assault, etc. Participants responded on a continuous scale ranging from 0 = *never experienced* to 6 = *experienced 5 or more time*, with a *prefer not to respond* option. Item 13 (exposure to family violence while growing up such as a family member hitting or beating up another family member) was used in the current study as a continuous measure of family violence exposure.

Peritraumatic distress. The Peritraumatic Distress Inventory (PDI; Burnet et al., 2001), consisting of 13 items, was used to measure duty-related distress at the time of the participants worst 9-1-1 call. Items were graded using a four-point scale from 0 (*not at all*) to 4 (*extremely true*) with a *prefer not to respond* option. The average of all responses was then calculated to assess total distress. The current sample demonstrated strong internal consistency ($\alpha = .80$).

Emotion regulation. The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item measure used to assess emotion regulation difficulties. Responses were indicated on a five-point scale ranging from 1 (*almost never*) to 5 (*almost always*). Total emotion regulation difficulty scores were computed by reverse scoring negatively keyed items and summing all items, with higher scores indicating more difficulty in regulating emotions. The original sample indicated strong internal consistency ($\alpha = .93$) and intra-subscale internal consistency ($\alpha > .80$; Gratz & Roemer, 2004). The current sample indicated strong internal consistency ($\alpha = .85$).

Results

Descriptive statistics were first performed on the variables of interest. A total of 236 participants indicated having previous exposure to family violence, with the majority of these

participants ($n = 175$, 74.15%) indicating five or more episodes of family violence. The overall sample indicated a mean PDI score of 18.31 ($SD = 9.08$) and a mean DERS score of 76.34 ($SD = 22.66$).

Correlations were first performed between the variables of interest (Table 1). Duty-related distress was significantly positively correlated with both family violence and emotion regulation difficulties, as expected. Notably, emotion regulation difficulties accounted for 13.7% of the variance in duty-related distress. Contrary to hypotheses, family violence exposure and emotion regulation difficulties were not significantly related.

To examine whether emotion regulation difficulties mediated the relationship between family violence exposure and duty-related distress, the Preacher and Hayes (2008) INDIRECT macro was conducted. The effect of exposure to family violence was not significantly associated with emotion regulation difficulties ($b = .48$, $p = .14$). Emotion regulation difficulties were significantly associated with work-related distress ($b = .15$, $p < .000$), such that greater difficulty in regulating emotion was related to higher levels of duty-related distress. Similarly, exposure to family violence was also significantly associated with duty-related distress ($b = .49$, $p < .001$) such that greater exposure to family violence was related to higher levels of duty-related distress.

The mediation model was non-significant as the confidence interval spanned zero, 95% CI [-0.03, 0.17]. This suggests that the indirect effect of family violence on duty-related distress through emotion regulation difficulties was not significantly different than zero. These results were unsurprising, as the preliminary correlation tests showed a non-significant relationship between exposure to family violence and emotion regulation difficulties. Variables were tested for skew, and it was found that family violence and emotion regulation difficulties were skewed;

however, after performing log transformation, the results of the mediation test remained non-significant.

Discussion

The results indicated that the relationship between witnessing family violence and duty related distress among 9-1-1 telecommunicators was not mediated by emotion regulation difficulties. Although witnessing family violence and emotion regulation difficulties were both associated with greater rates of duty-related distress, family violence was not significantly associated with emotion regulation difficulties. These results suggest that both family violence and emotion regulation independently contribute to peritraumatic distress among 9-1-1 telecommunicators.

Although the mediation model was not found to be significant, some of our results are in agreement with past literature on the relationship between family violence, emotion regulation, and distress. For instance, emotion regulation has been found to significantly associate with distress, as was the case in the current study (Castello et al., 2014). It is evident that a relationship exists between emotion regulation and peritraumatic distress among emergency dispatch personnel, although further research is necessary to define this relationship in this specific population (i.e., possible mediating or moderating variables). In addition, family violence and distress were found to be significantly associated, which has also been documented in the literature (Jarvis, Gordon, & Novaco, 2005; Schwartz & Proctor, 2000). Past research has found a significant relationship between family violence and emotion regulation where the current results did not, which may be due to limitations of the current study.

Limitations

Although our sample size was relatively large, Caucasian participants were overrepresented in this study. The vast majority of participants identified as Caucasian, with each minority group representing less than 10% of the sample. This is especially pertinent to the current study, as reports of witnessing family violence varies between race/ethnicity. Past research has found that Caucasian Americans are more likely to report never experiencing physical abuse than report experiencing any form of physical abuse, while all other ethnicities sampled were equally likely to report experiencing physical abuse versus not experiencing physical abuse (Rickert, Wiemann, Harrykisson, Berenson, & Kolb, 1999). Given the high overlap between child physical abuse and interparental violence in the home, these differences may be present in reports of witnessing family violence. The current sample, therefore, could underrepresent witnessing family violence.

The sample collected was also likely not randomized. Participants who self-selected for the current study may have been motivated by negative experiences they had while working as a 9-1-1 telecommunicator. For example, participants who had experienced negative outcomes while in their position may be especially motivated to complete a survey that could raise awareness about the health and well-being of 9-1-1 telecommunicators. Specific recruitment strategies may have also created bias; for a short period of time, recruitment was partially implemented through social media groups specific to 9-1-1 telecommunicators. However, many telecommunicators who actively participated in these groups appeared to have experienced especially severe negative outcomes related to their work, and thus could have skewed our results to over represent these negative outcomes (recruitment via social media was terminated shortly after this effect became apparent). In addition, the length of participation was very extensive – ranging from 90 minutes to 2 hours to complete the survey – which may have

motivated some participants to produce incomplete data due to lack of time or fatigue. Our final sample may be subject to self-selecting bias of individuals who were more likely to complete this lengthy procedure, and thus the results may not be generalizable to all 9-1-1 telecommunicators.

Finally, the measures used were all self-report, which may have led to inaccurate measurement of some of the variables. For example, participants may not be able to objectively define their emotion regulation capacity, and therefore report inaccurate data on their survey. Further, exclusive reliance on self-report measures leads to method invariance that may artificially inflate associations between variables. Likewise, participants may report lower rates of peritraumatic distress if they believed this survey was related to their work. Many participants opted to use their work e-mails as their primary form of communication, and thus may have believed that their call centers had access to their data (despite having been explained the confidential nature of the study). As a result, some participants may have reported lower rates of peritraumatic distress, fearing that higher rates would indicate less productive work and put them at risk of negative consequences in their occupation. Family violence is often underreported due to many factors, including shame and guilt of victims and bystanders (Wilt & Olson, 1996). Our self-report measure of witnessing family violence was likely affected by underreporting of participants. In addition, the current study utilized a single item measure of witnessing family violence in childhood. A single item measure only assesses the variable of interest through one facet, and may reduce the validity of these results. Thus, the measures used in the current study may have subjected the results to bias.

Future Directions

Although researchers are beginning to study the outcomes of working as an emergency responder, further investigation is needed regarding 9-1-1 telecommunicators, as this population

is underappreciated in the literature. Although two predictors of distress were identified in the current study, future research should examine other predictors of negative outcomes; specifically, predictors of mental illness, such as Major Depression and PTSD, should be studied within this population. In addition, further investigation is needed on preventative measures to lessen the prevalence of negative outcomes.

Additional examination of this population is a necessity, but prevention and intervention of negative outcomes is key. Preventative measures can be taken by call centers based on this data to decrease levels of peritraumatic distress and possibly decrease the incidence of PTSD among 9-1-1 telecommunicators (Brunet et al., 2001; Lilly & Pierce, 2012). By assessing for risk factors for distress (i.e., a history of family violence) and by educating incoming telecommunicators about healthy emotion regulation, employers could reduce the amount of negative symptoms experienced by their employees and decrease the amount of money lost from employees taking leave to treat these negative symptoms. For instance, supervisor and coworker support was found to decrease depressive symptoms among EMTs; encouraging supportive relationships among colleagues may be an efficient way to reduce negative outcomes among emergency responders (including telecommunicators; Revicki & Gershon, 1996). In addition, intervention for those currently at risk could reduce the amount of distress experienced by telecommunicators and increase productivity on the job.

The mental state of 9-1-1 telecommunicators not only affects the productivity of a call center but also the effectiveness of the telecommunicator as a first responder to someone experiencing an emergency. It is therefore especially important to maintain the psychological health of telecommunicators and identify risks to psychological health. Two predictors of peritraumatic distress were identified in the current study: witnessing family violence in

childhood and difficulties in emotion regulation. Many more predictors are likely to exist that are yet unknown. In addition, many more adverse outcomes associated with emergency responders (i.e., PTSD, depression) have not been extensively investigated in telecommunicators. Future research is necessary to complete this investigation and implement preventative measures for telecommunicators, allowing them to effectively help the community.

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intervening processes. *Journal of Family Psychology*, 27(6), 945-955.

Table 1

Bivariate Correlations between primary variables of interest

	PDI	DERS	TLEQ
PDI	--	.377**	.136**
DERS	.377**	--	.053
TLEQ	.136**	.053	--

**** $p < .01$**