



Original Article

Predictors of Obesity and Physical Health Complaints Among 911 Telecommunicators



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ABSTRACT

Background: This study aims to: (1) examine rates of obesity and physical health complaints among 911 telecommunicators; and (2) document the role of emotion dysregulation, psychological inflexibility, duty-related distress and dissociation, and psychopathology in predicting obesity and physical health complaints in this population.

Methods: The sample consisted of 911 telecommunicators from across the country ($N = 758$). Participants completed an online survey assessing their mental and physical health functioning.

Results: A total of 82.5% of the sample reported a body mass index that fell within the overweight or obese category and an average of 17 physical health complaints within the past month. Peritraumatic reactions (distress and dissociation), emotion dysregulation, and psychological inflexibility had effects on physical health largely through psychopathology (alcohol abuse, post-traumatic stress disorder, and depression).

Conclusion: Development of adapted prevention and intervention efforts with this population is needed.

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1. Introduction

Emergency responders provide critical services that are relied upon for the health and safety of the public. These occupations are characterized by routine exposure to psychological stressors, high levels of work demand, and risk for poor mental and physical health [1,2]. The majority of literature on first responders has focused on police officers, firefighters, and emergency medical technicians. Less is known in regard to the health consequences of work for 911 telecommunicators, a group that sets the emergency responding chain in motion. Telecommunicators are relied upon by the public to assess the nature of the emergency, the type of response needed, and they dispatch appropriate help, all within minutes of answering a call. Although research has recently begun to explore the health impact of this occupation, substantial gaps in the literature exist.

Exposure to occupational stressors has been associated with a range of mental health consequences for first responders. Alcohol abuse, for example, is prevalent among firefighters [3,4], police

officers [5,6], and first responders who were involved in recovery efforts following Hurricane Katrina [7]. Research has also shown enhanced risk for depressive symptoms in firefighters [4,8], police officers [9], and emergency workers responding to Hurricane Katrina [7] and the terrorist attacks of 9/11 [10]. Additionally, there is considerable research documenting an increased risk for post-traumatic stress disorder (PTSD) among first responders [8,11,12]. Although limited, research has also provided evidence that the stressors faced by telecommunicators may lead to the development of depressive symptoms and PTSD in this population [13].

Poor physical health has also been documented among first responders. These occupations are typically associated with nonstandard schedules (i.e., shifts other than 9.00 AM to 5.00 PM) and mandatory overtime [14,15]. Shift work has been recognized as a risk factor for sleep disruption, metabolic syndrome, cardiovascular disease, and diabetes [9,16]. Recent research has begun to investigate these associations among first responders, particularly with metabolic syndrome and weight issues. One recent study investigated the prevalence of metabolic syndrome among police

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officers with varying work schedules. Violanti et al [17] found that 62.2% of the police officers reported at least one component of metabolic syndrome, with reduced high density lipoprotein cholesterol (38.8%), elevated waist circumference (30.6%), and glucose intolerance (21.4%) being the most prevalent individual components. Research on metabolic syndrome among firefighters has found similar rates, with 73% of firefighters in one study reporting at least one component of metabolic syndrome [18].

Given these findings, it is unsurprising that a high percentage of emergency responders are overweight and/or obese. One recent study found that the prevalence rate of being overweight or obese [using a body mass index (BMI) ≥ 30 kg/m²] among career (79.5%) and volunteer (78.4%) firefighters was higher than the United States general adult population [19]. Additionally, research has shown high rates of excess weight and elevated cardiovascular risk among emergency responder candidates, including ambulance personnel [2]. To date, no research has examined the prevalence of obesity and physical health complaints among 911 telecommunicators. This gap is particularly important to address given that police officers, firefighters, and ambulance personnel are often more physically active at work than telecommunicators, which may buffer against poor physical health and weight problems.

Notably, pathology such as alcohol abuse, depression, and PTSD have been shown to contribute to many of the negative physical health consequences (i.e., weight problems and physical health complaints) common among first responders. Problematic use or excessive intake of alcohol is associated with increased caloric intake, which has been linked to higher BMI and risk for obesity [20]. There are mixed findings in regard to the relationship between obesity and depression; however, the majority of the research has pointed to a direct relationship between depressive symptoms and obesity [21]. In a large nationally representative survey with police officers, results showed that psychological distress, defined as the presence of depressive symptoms, anxiety symptoms, and/or fatigue, was associated with increased BMI among women officers in general, and among men officers reporting low physical activity [22]. Additionally, in a sample of firefighters, depression was associated with increased alcohol abuse as well as with increased sleep disruptions [4]. Moreover, research has shown that individuals suffering from PTSD have increased resting heart rate, heart rate reactivity, and increased startle response [23]. In a sample of police officers, Violanti et al [24] revealed that police officers with severe symptom levels of PTSD were approximately three times more likely to have metabolic syndrome (prevalence ratio = 3.31) in comparison to police officers with low symptom levels. Given the relationship between mental and physical health, it is likely that etiological pathways are shared for first responders.

As research expands on the health outcomes of these occupations, it is important to identify vulnerability factors for first responders. Currently, research has focused primarily on predictors of psychopathology among first responders. Peritraumatic reactions, defined as the reactions during or in the immediate aftermath of trauma exposure, have been especially implicated in risk for post-trauma psychopathology. In fact, peritraumatic dissociation has been identified as the strongest predictor of post-trauma psychopathology (weighted $r = 0.35$) in a meta-analysis by Ozer et al [25]. Peritraumatic distress also showed a consistent relationship with PTSD symptomatology, with a weighted $r = 0.26$ [25]. Greater peritraumatic emotional distress and dissociation have been shown to predict depression and PTSD among firefighters, police officers, paramedics, and emergency medical technicians, as well as 911 telecommunicators [11,26–28]. In regard to physical health, both peritraumatic dissociation and distress were found to be associated with somatization symptoms (i.e., physical health complaints) among women police officers [29]. The role of these reactions in

physical health outcomes has not yet been explored among 911 telecommunicators.

Recent research has also illustrated the role of two other mechanisms, emotion dysregulation and psychological inflexibility, in psychological and physical health outcomes among individuals exposed to chronic occupational stress and trauma. Emotion dysregulation refers to difficulties in the multidimensional process that involves understanding, accepting, and modulating one's emotions to engage in appropriate goal-directed behaviors in response to environmental demands [30]. Given the emotionally intense and unpredictable nature of emergencies, the significance of one's ability to regulate emotions while at work is salient for first responders. Moreover, emotion regulation skills are implicated in buffering the impact of negative life-events and coping with occupational and environmental stressors. Previous studies have found that emotion dysregulation is associated with greater PTSD symptom severity [31–33], anxiety disorders, depression [34], and eating pathology [35].

Psychological flexibility is defined as how an individual adapts to fluctuating situational demands, reconfigures mental resources, shifts perspective, and maintains balance across life domains [36]. Kashdan and Rottenberg [36] refer to psychological flexibility as a key ingredient to overall health. Previous research has shown that inflexibility is associated with a variety of poor health outcomes [37,38]. Difficulties with emotion regulation, as well as overall psychological inflexibility, may contribute to the poor psychological and physical health consequences of work among emergency responders. However, there has been limited research examining these factors among first responders. In a sample of police officers, Berking et al [39] found that, in comparison to civilians, the officers had difficulties accepting and tolerating negative emotions, engaging in compassionate self-support during distressing situations, and confronting situations that cue negative emotions. To date, no research has explored emotion regulation difficulties or psychological flexibility among telecommunicators.

The current study aimed to address several gaps in the literature surrounding the psychological and physical health of 911 telecommunicators. In a large sample of telecommunicators from across the country, physical health (BMI and physical health complaints) and psychological health (PTSD, depression, alcohol abuse) were assessed. In addition, telecommunicators' peritraumatic reactions (distress and dissociation) in relation to their worst duty-related call were measured, as well as their trait level of emotion dysregulation and psychological inflexibility. Using structural equation modeling, two models were posited with the following effects anticipated on the basis of prior research: (1) a significant direct effect of psychological inflexibility and emotion dysregulation on peritraumatic reactions, mental health, and physical health (e.g., BMI and physical health complaints); (2) a significant direct effect of peritraumatic reactions on mental health and physical health (e.g., BMI and physical health complaints); (3) a significant direct effect of mental health on physical health (e.g., BMI and physical health complaints); (4) a significant indirect effect of psychological inflexibility and emotion dysregulation on mental health via peritraumatic reactions; and (5) a significant indirect effect of psychological inflexibility and emotion dysregulation on physical health (e.g., BMI and physical health complaints) through mental health and peritraumatic reactions.

2. Materials and methods

2.1. Participants

Participants were 758 individuals with at least 1 year of experience as a telecommunicator. Ages ranged from 19 to 65 years

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