

**UNVEILING THE MENTAL HEALTH DYNAMICS OF DISASTER
VOLUNTEERING: EXPLORING STRESS AND DEPRESSION AMONG U.S.
VOLUNTEERS**

by

Roni Jean Fraser

A dissertation submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Sociology

Summer 2024

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TABLE OF CONTENTS

LIST OF TABLES	ix
LIST OF FIGURES	iv

Chapter

1	INTRODUCTION	1
2	THEORETICAL ORIENTATION	4
	Definition of Stress	4
	The Stress Process Model	4
	Sources of Stress	6
	Mediators of Stress	7
	Mastery	8
	Social Support	8
	Coping	10
	Role of Positive Emotion in Coping	11
	Outcomes of Stress	12
3	LITERATURE REVIEW	14
	Disaster Definitions	14
	Convergence Behavior	15
	Review of Volunteerism	17
	Volunteer Motivations	18
	Volunteering in the United States	20

	The COVID-19 Pandemic and Rates of Volunteerism	21
	Formal and Organizational Volunteering	21
	Informal Volunteering	22
	Volunteering and Health.....	23
	Disaster Volunteerism	26
	Affiliated Volunteers in Disasters	28
	Spontaneous Volunteers in Disasters	28
	Mental Health among Disaster Volunteers.....	30
	Synthesis of Theoretical Orientation and Literature Review	36
4	METHODOLOGY	41
	Research Purpose and Questions	41
	Research Hypotheses	41
	Research Design	43
	Research Participants & Sampling	44
	Research Instrument & Study Variables	48
	Dependent Variables	48
	Stress.....	48
	Depression / Anxiety	49
	Independent Variables	51
	Demographic Variables	51
	Mastery	52
	Trauma Exposure.....	54
	Social Support	56
	Coping	58
	Volunteer Satisfaction	60
	Open-Ended Survey Questions	64
	Data Analysis.....	65

	Quantitative Survey Data	65
	Open-Ended Survey Data	67
5	RESULTS	70
	Demographic Overview	70
	Bivariate Correlations	72
	Number of Disaster Experiences in the Past Calendar Year	72
	Mastery	73
	Social Support Satisfaction	73
	Coping	73
	Volunteer-Related Trauma	74
	Volunteer Affiliation Status	74
	Volunteer Impact and Efficacy	74
	Volunteer Engagement and Support	75
	Volunteer Fulfillment and Recognition	75
	Household Income	75
	Volunteer Training Level	76
	Stress Regression Analyses	77
	Depression Regression Analyses	79
	Open-Ended Survey Data Findings	81
	Volunteer Motivations	82
	Altruism and Values	82
	Personal Value and Call to Serve	82
	Influence of a Career in Public Service	83
	Use of Personal Skills and Expertise	84
	Socialization	85
	Camaraderie, Friendship, and Teamwork	85
	Personal and Egoistic Volunteer Motivations	86
	Sense of Purpose and Fulfillment	86
	Time and Availability to Volunteer	86

	Event Attachment and Volunteerism.....	87
	Hazard Event/Disaster Experience	87
	The COVID-19 Pandemic	88
	Volunteer Coping Strategies.....	89
	Lack of Coping Strategies	89
	Volunteering as Coping Itself.....	90
	Use of Volunteer Coping Strategies	91
	Personal Care	91
	Socialization with Fellow Volunteers, Family, and Pets.....	92
	Volunteer Reintegration	94
	Neutral Reintegration Experiences	95
	Positive Reintegration Experiences	96
	Reintegration Challenges.....	96
6	DISCUSSION.....	101
	Overview of Findings	101
	Review of Hypotheses and Research Findings	102
	Comparison of Open-Ended and Quantitative Findings	108
	Research Findings and Stress Process Theory	111
	Study Limitations and Future Research Directions	114
	Development of a Volunteer Trauma Scale	114
	Disaster Volunteer Motivations.....	114
	Systematic Social Media Recruitment Methodologies.....	115
	Organizational Gatekeeping and Sample Research Bias.....	116
	Conclusion.....	124

Appendix

A	FREQUENCY OF OPEN-ENDED CATEGORIES AND THEMES	150
B	QUALTRICS SURVEY VOLUNTEER DEMOGRAPHICS	159
C	PERCEIVED STRESS SCALE - 4.....	182
D	PATIENT HEALTH QUESTIONNAIRE FOR ANXIETY AND DEPRESSION.....	183
E	MASTERY SCALE	184
F	ADAPTED TRAUMATIC EXPOSURE SEVERITY SCALE.....	185
G	SOCIAL SUPPORT QUESTIONNAIRE – SHORT FORM	187
H	BRIEF RESILIENT COPING SCALE.....	191
I	ADAPTED VOLUNTEER SATISFACTION INDEX.....	192
J	STATEMENT OF INFORMED CONSENT.....	195
K	IRB APPROVAL LETTER	198

LIST OF TABLES

Table 1	Stress Component Loadings	49
Table 2	Depression Component Loadings.....	51
Table 3	Mastery Factor Loadings.....	53
Table 4	Frequency Table for the Adapted Trauma Scale.....	55
Table 5	Social Support Satisfaction Factor Loadings	57
Table 6	Coping Factor Loadings	59
Table 7	Volunteer Satisfaction Factor Loadings	63
Table 8	Normality Assessment of Skewness and Kurtosis on Factor Scores	66
Table 9	Bivariate Correlation Matrix	77
Table 10	Mean, Standard Deviation, and Betas for Stress Regression Model Variables.....	78
Table 11	Mean, Standard Deviation, and Betas for Depression Regression Model Variables	80
Table 12	Frequency of Open-Ended Categories and Themes	150
Table 13	Social Support Questionnaire Short Form – Part Two	187
Table 14	Brief Resilient Coping Scale	191
Table 15	Adapted Volunteer Satisfaction Index Scale.....	192

LIST OF FIGURES

Figure 1	The Original Stress Process Model. Based on Pearlin et al. 1981. Obtained from Aneshensel and Mitchell 2013.....	5
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ABSTRACT

Research suggests that community-based, non-disaster volunteering can yield positive mental health outcomes by fostering camaraderie, instilling a sense of purpose, promoting mastery, and facilitating the development of coping strategies. However, engaging in disaster volunteering may also entail negative mental health implications due to volunteer-job-related role strain, exposure to traumatic disaster environmental stressors, and a lack of organizational and peer support necessary for effectively employing coping resources. Thormar et al. (2010) found that regardless of the type of hazard, disaster volunteering may lead to mental and physical health issues, including post-traumatic stress disorder. While much of the literature on disaster volunteer mental health has focused on adverse outcomes, limited evidence suggests that the disaster environment may also foster positive mental health outcomes for volunteers, akin to the positive relationship observed between other forms of volunteering and health. Given the conflicting results in the literature regarding the mental health impacts of disaster volunteerism, this researcher undertook a quantitative investigation into the relationship between disaster volunteer stress and depression, considering demographic and volunteer-related variables. The researcher collected survey data between October and December 2023 through systematic social media recruitment and snowball sampling ($n = 110$). Correlation analyses revealed associations between both stress and depression and the predictive factors mastery, social support satisfaction, volunteer impact and efficacy, as well as volunteer fulfillment and recognition when correlated with volunteer stress. A multiple linear regression analysis was conducted

for the dependent variable volunteer stress, incorporating nine predictor variables: number of disaster volunteer experiences within the past calendar year, mastery, social support satisfaction, coping, volunteer affiliation status, household income, volunteer training level, and volunteer satisfaction. This analysis did not yield statistically significant results.

However, a multiple linear regression for the dependent variable, volunteer depression, using the same predictor variables, was significant and negative, explaining 21% of the variance in volunteer depression. Higher levels of social support satisfaction result in lower levels of self-reported volunteer depression.

Furthermore, open-ended responses provided depth to the study by elucidating various volunteer motivations, coping mechanisms, and reintegration experiences associated with disaster volunteering in the United States. Despite the modest response rate and the statistical limitations with the incorporation of volunteer trauma into the analysis, the results corroborate prior research findings, underscoring the crucial role of social support in fostering positive mental health outcomes among disaster volunteers. The implications of these findings for nonprofit administrators are discussed, along with future research directions that help further the study of disaster volunteer trauma and the role of positionality and the reproduction of privilege in volunteerism.

Chapter 1

INTRODUCTION

The phenomenon of crisis and disaster volunteering has been a topic of study since the early days of social science research on disasters, beginning in the 1950s (Fritz and Mathewson, 1957; Strandh, 2019). Through volunteerism, individuals and organizations respond to areas affected by disasters to help meet the needs of affected communities by providing meals and emergency shelter, mental and physical healthcare, managing search and rescue operations, spearheading animal rescue and reunification, repairing homes and roofs, and offering pastoral and emotional support, often in austere, stressful, and shifting environments (Baker and Cormier, 2015).

Despite the overwhelming number of activities that volunteers engage in following a disaster and their increased risk of exposure to disaster-related traumas (Adams, 2007), there is less research on the mental health needs of disaster relief volunteers (Connorton et al. 2011) in the broader disaster literature compared to disaster survivors and first responders. Research has predominantly focused on the trauma of survivors or the affected community (Neria, Nandi, and Galea, 2008; Afifi, Felix, and Afifi, 2011; Clemens et al., 2013; Norris and Alegria, 2005), professional first responders (Laugharne, Watt, and Janca, 2011; Gabern et al., 2016; Mao et al., 2018), and healthcare workers (Hsieh et al., 2021; Gabern et al., 2016). Previous

research related to disaster volunteerism has predominately focused on the role and function of volunteers and volunteer organizations as part of disaster response and recovery efforts (Shaskolsky, 1967; Stoddard, 1969; Wolensky, 1979; Dynes and Quarantelli, 1977; Kendra and Wachtendorf, 2003; Nelan, Zavar, and Ray, 2019), with less empirical research regarding the mental health effects of disaster volunteering.

In 2019, the National Voluntary Organizations Active in Disaster reported there were over 9,907,071 total volunteers engaged in disaster relief and recovery work in the U.S. and U.S territories, worth over \$1.3 billion in volunteer labor to the communities they served (NVOAD, 2021). Due to the substantial number volunteers engaged in the disaster relief space, and less empirical research related to mental health and disaster volunteers, this research project aimed to further investigate the mental health and well-being needs of short-term disaster response volunteers within the U.S. context. I examined primary data through the lens of the stress process theory (Pearlin et al., 1981) to have a better understanding of the mental health impacts of disaster volunteering, as well as the role that mastery, social support, and coping have towards the mitigation of stress, anxiety, and depression among volunteers. The remainder of this dissertation includes the following: Chapter 2 provides an overview of the theoretical orientation to the Stress Process Model, which informs the proposed research design; Chapter 3 reviews the scholarly literature on the sociology of mental health, volunteerism and health, and disaster volunteerism. Chapter 4 discusses the research methodologies, including the research design, research hypotheses, and the survey instrument, Chapter 5 presents the results found from primary survey data, and

Chapter 6 discusses both the quantitative and open-ended results, as well as research limitations and future research directions for research related to disaster volunteer wellbeing.

Chapter 2

THEORETICAL ORIENTATION

Definition of Stress

Stress or *stressors* define the demands experienced by individuals, which can result in negative strains, or psychological, behavioral, or physical outcomes because of these demands (Griffin and Clarke, 2011). While some events are intrinsically stressful, such as the start of a new job or going through divorce, individuals respond to stressors in various ways (Griffin and Clarke, 2011). Based on how an individual appraises or evaluates the significance of a stressor to their well-being and the adequacy of resources for coping, stress may be mitigated or manifest into comorbidities like burnout or post-traumatic stress disorder (Folkman and Moskowitz, 2007).

The Stress Process Model

One specific way to conceptualize and study stress is through the Stress Process Model. The Stress Process Model (figure 1), first introduced by Pearlin and colleagues (1981), was a groundbreaking paradigm that helped explain the structural and social origins of mental health disparities in society (Aneshensel, 2009). The

Stress Process Model has three main interrelated domains, including (1) the sources of stress, (2) the mediators of stress, and (3) the manifestations or outcomes of stress (Pearlin 1989; Pearlin et al. 1981). When combined, the model also helps explain that stress and mental health are not inherent to an individual but are interrelated within larger social structures and social stratification (Aneshensel 2009; Pearlin 1989). The Stress Process Model served as a theoretical model for this dissertation research because disaster volunteers experience a variety of stressors in their personal lives and varying levels of trauma when serving as a disaster volunteer. Volunteers also employ a variety of coping techniques and rely on different social support systems that may mediate the development of adverse mental health outcomes. Using the Stress Process Model as a guiding framework, I explored the role of each domain in the development of self-reported stress and depression among disaster volunteers within the United States.

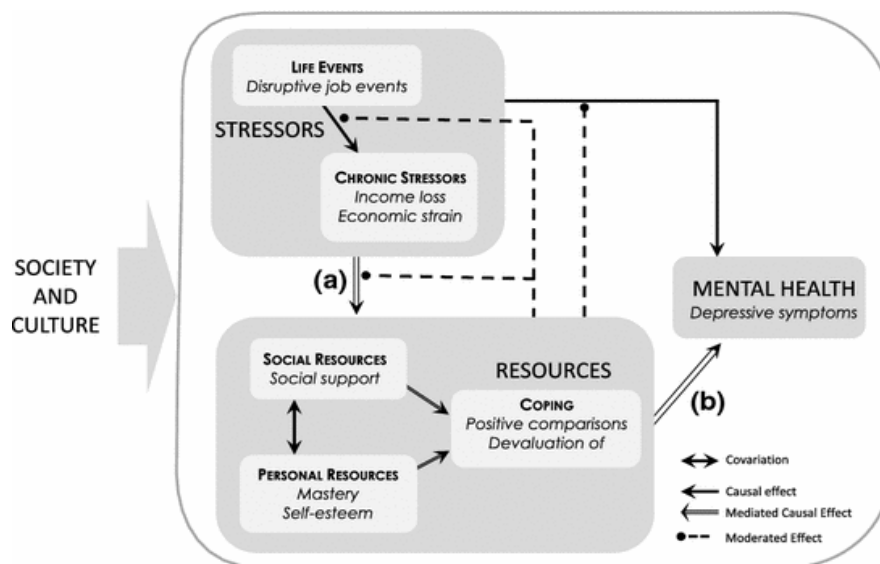


Figure 1 The Original Stress Process Model. Based on Pearlin et al. 1981. Obtained from Aneshensel and Mitchell 2013.

Sources of Stress

The two primary sources of stress include life events and chronic role strains, which converge to produce stress (Pearlin, 1989; Pearlin et al., 1981). Life events are part of the aging process and regularly occur throughout one's lifetime at the individual and societal levels (Pearlin et al., 1981). Life events can be positive, like graduation from high school or beginning a marriage, or life events can be more harmful, like significant illness or injury. Life events can be mixed in terms of positive and negative feelings – such as the birth (Knaak, 2009) or adoption of a child (McDonald et al., 2001). Life events lead to stress by creating or intensifying role strain (Pearlin, 1989; Pearlin and Lieberman, 1979), varying in magnitude based not only on the number and significance of changes the event creates but also on the event desirability, favorable outcome, and frequency of occurrence (Pearlin, 1989; Pearlin et al., 1981).

Chronic role strain differs from life events because they are enduring or recurrent problems (Pearlin, 1989). Role strain may be defined as tension built up when there is a lack of resources, time, skills, finances, or energy that affects someone's ability to be the expectations or responsibilities associated with one role (Goode, 1960; Varpio et al., 2018). While the sociological discourse typically describes role strain within *one* role, role conflict describes the tension one experiences between the demands of *two or more* roles (Jennings and Slavin, 2015; Varpio et al., 2018).

Alternatively, Pearlin and Schooler (1978; Pearlin, 1989; Pearlin 1983) explained six types of role strain that influence experiences of stress, including (1) role overload, or when a role exceeds the energy and stamina that an individual has; (2) interpersonal conflicts within role sets, or problems that arise in complementary roles

like parent-child or worker-supervisor, (3) inter-role conflict, or incompatible demands of multiple roles like parent and employee, (4) role captivity, or when one unwillingly participates in a role, (5) role restructuring, or when relationships change as a result of the aging process or other factors, and (6) ambient strains, or strains that cut across roles and often define someone's life, such as living in poverty or experiencing chronic illness. The types of role strain as defined by Pearlin and Schooler (1978) shifts from traditional sociological literature that delineated between role strain and role conflict based on the number of roles being studied, and instead considers these terms together into the six types of role strain. The six types of chronic role strain as well as life events represent two sources of stress that occur within one's lifetime and may represent factors that contribute to the well-being outcomes of individuals following periods of disaster volunteer service.

Mediators of Stress

Pearlin and colleagues (1981) explained the fundamental distinction between social resources (i.e., social support), psychological resources (i.e., mastery and self-esteem), and specific coping responses as factors that both moderate and mediate stressors. The researchers hypothesized that stressors would influence mental health by decreasing the accessibility of social support or feelings of self-esteem, but also hypothesized how social support, levels of mastery, and coping may act as "buffers" to the effects of stressors (Aneshensel 2015; Pearlin et al. 1981; Thoits 2010). The buffers, including social support, mastery, and coping, are further defined discussed below and were included as dependent variables within my analysis.

Mastery

Personal mastery fits under the umbrella of personal resources within the stress process theory (Pearlin et al., 1981) and may be defined as a “global sense of control or the belief that one has control over future important life circumstances.” (Roepke and Grant, 2011, pp. 2; Taylor and Seeman, 1999; Pearlin et al., 1990). Levels of personal mastery influence have been found to be an important variable when exploring mental health outcomes (Aneshensel 2015; Pearlin et al. 1981), where individuals with higher levels of personal mastery have lower rates of mental health morbidities. Levels of personal mastery is an important variable to consider within this project to assess the influence of personal control in relation to disaster volunteer service and related well-being outcomes.

Social Support

There is a substantial amount of research within medical sociology related to the role of social support and wellbeing. In this case, social support refers to the “functions performed for the individuals by significant others, such as family members, friends, and coworkers (Thoits, 1995, pp. 64).” Social support can also be defined as the access to individuals, groups, or organizations to deal with stressful events that helps people increase their level of integration within their social network (Pearlin et al., 1981) and the positive nature of their relationships (Umberson and Montez, 2010). In particular, *perceived* stress has been a focal point in the sociological study of stress, whether the belief or perception of available support was more important than the *actual* receipt or use of available support (Thoits, 1995). In addition, perceived emotional support has been found to promote positive mental health physical health, and also act as a buffer between mental health morbidities

during significant life events. Conversely, social integration contributes towards positive mental and physical health outcomes but does not act as a buffer in the same way perceived emotional support does when facing significant life stress or role strain (Thoits, 1995). Social support can be sub-categorized into emotional and task-oriented support and may occur with or without the other (Clary, 1987). Emotional support focuses on the relationship and feelings between the provider and recipient, whereas task-oriented support describes means of physical assistance like money, skills, and goods or supplies (Clary, 1987). Regardless of the type of social support, emotional or task-oriented, all forms of social support are important variables in the study of stress and mental health outcomes.

Social support and close personal ties are positively and causally related to mental and physical health (Cockerham, 2013; Thoits, 2011) by reducing the impact of stress by fostering a sense of meaning and mattering (Cohen, 2004; Thoits, 1995; Umberson and Montez 2010). In particular, the most powerful measure of social support identified in prior research is whether a person has an intimate relationship, such as one with a significant other or a spouse (Thoits, 1995). This does not negate the role of support from family and friends, but highlights the important role of intimacy, social support, and health. Other indirect and direct mechanisms that influence experiences of stress include a sense of control, perceived support availability, role-based purpose, symbolic meaning and norms, social comparison, and a sense of belonging (Thoits 2011; Umberson and Montez 2010).

Despite the overwhelming benefit of strong social integration and perceived social support, the existence and sustainment of social support remains stratified. For example, in a study of social support and mental health among college students at a

large, Midwestern University (n = 1,378), those who were members identified as a member of a racial or ethnic minority, were international students, or were lower income were at a greater risk of social isolation and lower quality of social support than their peers (Hefner and Eisenberg, 2009). Another study in Germany also found that low socioeconomic status was associated with poorer social networks and social support (Weyers et al., 2008), which shows that demographic characteristics such as income and race have an impact towards the strength and number of social ties.

On the opposite coin, an ethnographic study in the Southeastern US found that as a result of prejudice, discrimination, experience of structural barriers such as underemployment and lack of mental and physical health services, trans people have developed a community where peer support helped normalize trans identities in a therapeutic way and empowered trans people to become in further peer support and advocacy work (Johnson and Rogers, 2020). Relatedly, recent studies have also found that those who face racial discrimination are less likely to experience poor mental health outcomes when they have social support (Alvarez et al., 2024). These studies augment prior research on disparities in social support and health by showing the critical nature of social support among stigmatized and minority groups, although such groups are less likely to have strong levels of social support. In sum, social support remains a critical consideration in the study of mental health and well-being, and will be a consideration in this study through the inclusion of perceived social support as a variable in my analyses.

Coping

Coping refers to personal protective thoughts and behaviors employed in response to stressors learned and repeated over time based on one's socialization and

group reference (Pearlin, 1989; Folkman and Moskowitz, 2007). Coping responses can look different for both people and different stressors. Still, the function stays the same: to change the situation, reduce the threat, and keep feelings of stress manageable (Pearlin 1989; Pearlin et al. 1981; Pearlin and Schooler 1978).

According to the Stress and Coping Theory (Lazarus and Folkman, 1984), coping can be sub-categorized into three types or purposes: to regulate distress (emotion-focused coping), to manage the problems causing distress (problem-focused coping), or to focus on the reappraisal of meaning, particularly positive reappraisals of meaning (meaning-focused coping). Coping actions are most common among those with access to resources in society, including men and those with higher socioeconomic status (Pearlin and Schooler 1978). In addition, individual coping behavior is most effective when dealing with interpersonal conflict problems and less effective when applied to formal organizational problems or more significant issues within the social system, such as systemic racism (Pearlin et al., 1981; Pearlin and Schooler, 1978). This distinction is important to recognize because coping is best explored at the individual or micro level, as opposed to a societal or macro level, which allows for a better understanding of the mechanisms by which emotion-focused, problem-focused, and meaning-focused coping strategies relate to mental health outcomes.

Role of Positive Emotion in Coping

While much of the literature has focused on the stress process and the regulation of distress or adverse outcomes of stress (Folkman and Moskowitz, 2007), robust evidence suggests that positive emotions co-occur with negative emotions during intensely stressful situations, such as giving palliative care to a loved one

(Folkman, 2008) or the experience of the 9/11 terror attacks in New York City (Frederickson et al., 2003). Positive emotions, like happiness, love, gratitude, excitement, and joy, have a restorative effect that can broaden an individual's capacity to develop positive meaning, replenish or use one's social, intellectual, and physical coping resources, and even undo lingering negative emotions (Folkman, 2008; Fredrickson, 1998; Folkman and Moskowitz, 2007). Positive emotions not only function as "restorers" to replenish coping resources but also act as "sustainers" to motivate coping behavior and as "breathers," providing momentary respite from stress (Lazarus, Kanner, and Folkman, 1980). Positive emotions play a significant role in understanding stress and coping and were included in the analyses to have a holistic understanding of the stress process and related experiences (Folkman, 2008). Overall, social support, mastery, and coping are essential resources of the stress process that contribute to alleviating the effects of stress on physical and mental health outcomes (Thoits, 2011).

Outcomes of Stress

If the mediators of stress are unable to compensate for the effect of a life event(s) or chronic role strain, outcomes of stress become realized. One such outcome of stress may be *burnout*, or the manifestation of chronic stress in a specific environment like work, school, or family life (Raudenská et al. 2020). Burnout can lead to individuals experiencing feelings of cynicism or negativism, reduced professional efficacy and energy depletion, as well as feelings of anxiety, depression, post-traumatic stress, and suicidal ideation (Raudenská et al. 2020). Another outcome of stress is *trauma and post-traumatic stress* (psychological or emotional), resulting from the experience of one or more "traumatic events" defined by the Diagnostic and

Statistical Manual of Mental Disorders, 5th edition (DSM-5) (2013) and International Classification of Diseases, 11th revision (ICD-11) as “exposure to the event(s) that involved death, actual or threatened injury, or threatened sexual violation, either experienced by (a) the individual, (b) witness of it occurring to somebody else, c) learning about the event that somebody close to you experienced actual or threatened violent or accidental death, or (d) experiencing repeated exposure to distressing details of an event (Raudenská et al. 2020). In sum, when people experience stress through various life events or chronic role strain, and stress mediators such as social support, mastery, and coping are insufficient, burnout and trauma are some of the outcomes from exposure to stress.

Chapter 3

LITERATURE REVIEW

Disaster Definitions

Considered to be the first definition of a “disaster,” Fritz (1961, p. 655) defined the phenomena as an “event, concentrated in time and space, which a society, or a relatively self-sufficient subdivision of a society undergoes severe danger and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfillment of all of some of the essential functions of the society is prevented.” (Fritz, 1961, p. 655). While the definition does provide a distinct separation of disasters as compared to crises, emergencies, or accidents, the definition did not specifically consider the differential impact that disasters impose on various parts of society, such as minorities, persons with disabilities, children, 2SLGBTQIA+, women, or persons with a low-income (Tierney, 2019). Juxtaposed to the definition of disaster provided by Fritz, Barton (1963, 2005) suggests that disaster events are instead collective stress situations because they are more diffuse and time and space throughout the four phases of disaster: preparedness, response, recovery, and mitigation (Quarantelli, 1987).

Throughout the evolution of disaster research, from the classics approach to the natural hazards’ tradition and now the social vulnerability perspective, disasters are not only external threats to society but also rely on society's underlying, existing structures. Despite the lack of consensus for one definition of “disaster,” most scholars

agree that disasters are non-routine social events rooted in social time that exceeds a community's ability to cope, often resulting in social disruption, physical and social harm (Fritz, 1961; Wachtendorf et al., 2013; Perry, 2005). Disaster research has also evolved to focus on the social underpinnings of these hazard events, where vulnerabilities and risks are developed from within, based on internal societal systems of stratification and social inequality (Tierney, 2019). Disaster vulnerabilities and risks are not only experienced by community members and disaster survivors but also affect those who are responding to the disaster, like volunteers and first responders. Societal systems of stratification ultimately influence the availability of professional and volunteer responders to respond to a disaster, as well as the resources, knowledge, coping resources, and skill levels of such responders.

Convergence Behavior

Convergence, or the movement of people, materials, and information towards the disaster response milieu (Kendra and Wachtendorf, 2003), is a common phenomenon post-disaster. Convergence behavior can contribute to the response efforts by providing new skills and resources to the affected area, but it also can overwhelm the needs of the response and require more resources from emergency personnel to manage the convergence conditions (Kendra and Wachtendorf, 2003; Fritz and Mathewson, 1957). Mass convergence phenomena result from six key factors, including suddenness of the disaster, continuous attention, and the framing of the disaster by the official media outlets and social media sources online, number of casualties and their linking social capital, geographic location and population density, availability of transportation networks, and the concentration of damage. Such factors,

particularly driven by the framing of the event largely by media sources and responding organizations, helps to explain why certain more localized hazard events experience little convergence, whereas events like the 2010 Haitian Earthquake experience significant levels of convergence (Holguín-Veras et al., 2014; Wachtendorf, Penta, and Nelan, 2015).

Fritz and Mathewson (1957) first named the five types of convergers: returnees, anxious, curious, helpers, and exploiters. Following their study of the 9/11 Terror Attacks in New York City, Kendra and Wachtendorf (2003) added mourners/memorializers and supporters/fans to the five previously identified types of convergers coined by Fritz and Mathewson (1957). Within this dissertation, I focused on the *helpers*, or people who converge to the disaster area and assist survivors and emergency personnel. Dynes and Quarantelli (1977) also typified helpers based on enduring norms and established social relationships, including organizational volunteers, group volunteers, volunteers from role expansion, and volunteers from role creation.

The distinction between affiliated and spontaneous volunteers also adds to the question of legitimacy that surrounds disaster volunteerism, including questions of acceptable motives, greatest good, and related skillsets (Kendra and Wachtendorf, 2003). The distinction between convergence type among helpers (i.e., affiliated or unaffiliated) is also essential to distinguish and analyze within this study because social support and solidarity have been found to promote feelings of meaning, clarify one's beliefs, and enhance one's self-esteem (McCaslin et al., 2020; Pearlin et al. 1989), thereby protecting against stress and depression morbidities. Alternatively, unaffiliated volunteers are less likely to have support systems in place to cope with the

stressors following a disaster and have been found to have poor mental health outcomes after volunteering (Adams, 2007; Thormar et al., 2013).

Review of Volunteerism

Pro-social behavior is "a broad class of behavior involving costs for the self, resulting in benefits for others" (Wittek and Bekkers, 2015). Pro-social or helping behaviors, including volunteerism, take shape in many ways (Wilson and Musick, 1999). Just about everyone has been a volunteer at one time or another. Still, despite the widespread use of the terms *volunteer* and *volunteerism*, there is no clear or consistent definition (Cnaan et al., 1996; Ellis and Campbell, 2005; Musick and Wilson, 2007; Aguirre et al., 2016). Following a content analysis of eleven definitions of the term *volunteer*, Cnaan et al. (1996) found four common continuums that describe voluntary activity: (1) nature of the act, (2) nature of the reward, (3) context under which the volunteer activity was performed, and (4) the beneficiaries. Informed by these continuums, volunteering can be conceptualized as any planned activity beyond one's essential obligations in which time is given freely to benefit another person, group, or cause, often on an ongoing basis (Dekker and Halman, 2003; Ellis and Campbell, 2005; Penner, 2004; Shaskolsky, 1967; Smith, 1981; Snyder and Omoto, 2008; Wilson, 2000).

Voluntary action may be formal or informal, referring to how individuals help others (Wittek and Bekkers, 2015). Informal volunteering relates to actions individuals

take outside formalized volunteer structures, such as aiding a neighbor in gardening (Americorps, 2023). In contrast, formal volunteering refers to activities undertaken with a formalized or recognized organization, such as the local food pantry or house of worship (Lee and Brudney, 2012). Whether formal or informal, voluntary action differs from other caring behaviors because activities require commitment and are continuous in practice to help fill existing gaps in social programs while helping to support neighbors with varying needs (Ellis and Campbell, 2005; Musick and Wilson, 2007; Shaskolsky, 1967; Snyder and Omoto, 2008; Wilson, 2000).

Volunteer Motivations

Volunteerism can be an indicator of a healthy social fabric (Aked, 2015) and a way to express one's individual and group identities altruistically and further develop communal sociocultural values while enhancing community efficacy, social capital, and the public good (Carpenter and Myer, 2010; Cappellari and Turati, 2004; Putnam, 2001; Musick et al., 2000). Clary and Snyder (1991) proposed six functions of volunteerism that help organize why volunteers engage in helping or altruistic activity. These functions include (1) *protection* - or the motivation to protect oneself self from the challenges in life, reduce guilt, or escape negative feelings; (2) *values*, or the motivation to express one's altruistic values; (3) *career*, focusing on improving one's skills for employment, (4) *social*, allowing one to cultivate and strengthen their social ties within their community, (5) *enhancement*, or the promotion of personal growth,

and (6) *understanding*, or the motivation to gain knowledge, skills, and abilities during volunteer work.

People may feel compelled to volunteer for various reasons. Some are driven by an innate desire to support their community and foster connections with others, also known as service-oriented or self-expressive voluntarism (Knowles, 1972; Smith, 1972). Others may be drawn to specific causes, such as environmental conservation or homelessness, also referred to as issue or cause voluntarism (Knowles, 1972; Smith, 1972). Past experiences play a significant role in shaping individuals' volunteer commitments, influencing their choice of focal issues. For instance, those involved in animal rescue and pet disaster relief often cite profound connections with animals and poignant personal experiences as driving factors towards their motivation and continued commitment to volunteer (DeYoung and Farmer, 2021).

More than individual motivations, voluntary action may also be driven by external and self-interest factors (referred to as self-interest voluntarism), such as monetary incentives, tax deductions, increase in social prestige, job experience and career development, or a sense of superiority, also known as "*do-goodism*" (Cappellari and Turati, 2004; Carpenter and Myers, 2010; Ellis and Campbell, 2005; Knowles, 1972; Smith, 1972; Smith et al., 2016). Cultivating reciprocal capital through community service to be "cashed" in later, should the need arise, is also a known motivator for volunteerism (Joseph, 2016). Overall, due to the varied and changing nature of motivations among volunteers over time, it is still difficult to pinpoint the

exact motives and later health outcomes of volunteers themselves (Dekker and Halman, 2003).

The role and understanding of volunteer motivation are essential because a match between an individual's motivation and volunteer experience has consistently predicted outcomes such as volunteer satisfaction, length of service, and reduction of burnout symptoms (Morse et al., 2022). Self-interested motivation to volunteer tends to limit their participation in voluntary service to the minimum, while higher self- and other-oriented motivations report higher levels of engagement, thus increasing satisfaction levels (Morse et al., 2022).

Volunteering in the United States

Volunteering in the United States is vital to the social fabric of American society, representing \$122.9 billion to the communities they serve (U.S. Census Bureau, 2021). According to Americorps (2023), the U.S. government agency that runs national service programs and engages in research related to volunteerism, at least 124.7 million (51% of the U.S. population) engaged in informal acts of service such as house sitting, running errands, or other tasks to help their friends in neighbors between 2020-2021. A smaller percentage of Americans (23.2%), or 60.7 million people, engaged in formal volunteer efforts between 2020-2021 (Americorps, 2023). While most volunteers (76%) dedicate their time solely to one organization, 18.3% are

involved with two or more organizations (Bureau of Labor Statistics, 2016; NP Source, 2018).

Thoits and Hewitt (2001) described volunteerism as a byproduct of personal well-being, where volunteers typically represent a select group of people with access to resources and personality goods (Carr, Fried, and Rowe, 2015), reflecting structural social factors and exclusionary processes within society (Southby and South, 2016; Southby, South, and Bagnall, 2019). Participation in volunteer activities requires an additional investment in time, money, effort, and skill (Southby and South, 2016; Southby et al., 2019) which is why persons of higher SES, higher levels of education (Johnson and Lee, 2017), white people (Musick, Wilson, and Bynum Jr., 2000), women, parents with children under 18, married persons, and part-time employees (Bureau of Labor Statistics 2016) are the most likely to become volunteers.

The COVID-19 Pandemic and Rates of Volunteerism

Formal and Organizational Volunteering

Following the declaration of the SARS-CoV-2, or COVID-19 Pandemic by the World Health Organization in February 2020, volunteer organizations around the United States experienced a significant drop in in-person engagement (VolunteerMatch, 2020). Americorps (2023) estimates an average loss of formal volunteers by at least seven percentage points, from 30 to 23.2%, representing a loss of 8.54 billion dollars in monetary value equivalency (Americorps, 2023). Lack of access to volunteer opportunities influenced clients relying on services provided by

volunteers and organizations, but it also affected volunteer health and well-being, especially among older adults, who lost an outlet for socialization and service (Grotz, Dyson, and Birt, 2020). Despite the slowly rising rates of formal volunteering (VolunteerMatch, 2020), rates of formal volunteering and organizational membership across the U.S. continue to remain lower than levels measured in 2017 and 2019 (Americorps, 2023), spurring the question of how volunteer organizations can recruit, retain, and promote well-being among their volunteers in the wake of the pandemic.

The COVID-19 global pandemic decreased the number of in-person engagement opportunities and forced voluntary organizations to adjust operations by creating more virtual volunteer opportunities to accommodate the needs of clients and volunteers (VolunteerMatch, 2020). Despite the increase in virtual engagement opportunities, challenges exist between those with lower levels of digital competence. For example, in a study of older-adult virtual volunteer tutoring ($n = 229$), results found that volunteers were eager to engage virtually, although they were concerned about the efficacy of an online-only relationship with students. Respondents also reported challenges associated with the digital divide where differing levels of digital competence, rather than digital access alone, contributed to virtual volunteering success or failure (Sun et al., 2021).

Informal Volunteering

Despite the challenges associated with formal volunteering during the COVID-19 pandemic, informal helping and volunteering remained steady or even increased in states like Delaware, Iowa, Kansas, Maine, Nebraska, Pennsylvania, Vermont, and Texas (Americorps, 2023). Due to the maintained or increased rates of informal volunteering in the U.S., I decided to include informal, unaffiliated, and spontaneous

volunteers within the sample within my sampling strategy. This is because spontaneous or unaffiliated volunteers are a relatively undefined group, but these volunteers are also those most active in their communities who step up to serve neighbors, family, and friends in times of crisis and disasters.

Volunteering and Health

The empirical data linking volunteer activity to psychological well-being and mental health outcomes were previously lackluster (Jirovec and Hyduk, 1999) and inconclusive (Wilson and Musick, 1999) due to the lack of longitudinal empirical studies. However, since the early 2000s, more cross-sectional and longitudinal research has strengthened the relationship between volunteerism and health. For example, in a qualitative study ($n = 53$) and follow-up survey ($n = 619$), British volunteers experienced increased levels of belonging, community support, and well-being, which predicted their higher levels of community identification and sense of social support (Bowe et al., 2020). Another study testing the mental health effects between volunteers ($n = 50$) and non-volunteers ($n = 50$) involved with various volunteer organizations in Pakistan found that volunteers experienced significantly better mental health outcomes and levels of happiness compared to non-volunteers (Ali et al., 2016).

Volunteerism influences the general population's health and sense of well-being (Dury et al., 2017; Heo et al., 2016; Mellor et al., 2009; Post, 2005) through the reduction of isolation (Midlarsky, 1991), encouragement of positive social

engagement (Wilson and Musick, 1999), and development of supportive relationships (Carr et al., 2018; Cassel, 1974; Crist-Houran, 1996; Stoddard and Henry, 1985), therefore acting as a protection against mental illness (Wilson, 2012). Volunteerism also increases individual levels of multiple psychological resources (Pearlin et al., 1981), including self-efficacy, perceived control, and optimism (Mellor et al., 2009), self-esteem (Wilson, 2012), a sense of purpose and meaning (Crist-Houran, 1996), mastery experiences (Wilson, 2012), and positive affect (Wilson and Musick, 1999).

Volunteering is essential for older adults and retirees (Wilson and Musick, 1999) by protecting them from significant role-identity absences (Greenfield and Marks, 2004) and, instead, provides a socially positive role replacement. Older adults also experience numerous positive outcomes associated with volunteering, including improvement of physical health and delayed disability (Carr et al., 2015; Hsiao et al., 2020; Lum and Lightfoot, 2005; Sneed and Cohen, 2013; Wei et al., 2012), fewer feelings of physical pain (Barlow and Hainsworth, 2001; Sneed and Cohen, 2013; Wei et al., 2012), improvement in mental health and cognition (Carr et al., 2015; Hsiao et al., 2020; Jirovec and Hyduk, 1999), and an increased sense of value, inclusion, and life satisfaction (Gottlieb and Gillespie, 2008; Midlarsky, 1991; Sellon, 2021; Van Willigen, 2000).

Despite the dearth of research on the benefits of volunteerism for older adults, there is increasing research on the benefits of voluntary activities for other populations like adolescents and young adults (Hernantes et al., 2020) and the LGBTQIA+ community (Gates and Dentato, 2020). Using self-reported mental health days from

the 2018 General Social Survey, Gates and Dentato (2020) found a statistically significant difference in reported mental health between Lesbian, Gay, and Bisexual (LGB) people who volunteer as compared to LGB people who did not volunteer. A separate review of the literature on adolescent health and volunteerism ($n = 15$) also found that youth volunteer activities were opportunities for health promotion, discouraging risky behavior while also encouraging pro-social attitudes and community relationships and academic, social, cognitive, and vocational or employment competence (Hernantes et al., 2019).

Despite the findings that suggest the correlation between volunteering and health, not all volunteering produces positive mental health; instead, outcomes vary based on the population, type of service, and length of volunteering (Wilson, 2012). For example, shorter periods spent volunteering are not associated with significant benefits. Conversely, if volunteers become overburdened, role strain can negatively impact mental health (Wilson and Musick, 1999). In addition, certain types of volunteer work can be therapeutic, like animal-assisted intervention, also known as “animal therapy” (Carberry, 2022), religious volunteerism (Borgonovi, 2008), and volunteerism related to the environment, environmental justice, and recycling (Hsiao et al., 2020). In contrast, other voluntary activities may be highly stressful, such as palliative end-of-life support (Guirguis-Younger and Grafanaki, 2008) or volunteer firefighting (Morren et al., 2005; Holgate and Di Pietro, 2007).

Although unclear mechanisms support positive mental health outcomes (Carr et al., 2015; Jenkinson et al., 2013) and the longitudinal effects of volunteering on

health (Wilson, 2012), there is likely a casual and mutually reinforcing effect between volunteering and health, where volunteering improves health. However, healthier people will also invest more time in volunteer service (Thoits and Hewitt, 2001). "Essentially, volunteering keeps healthy volunteers healthy" (Wilson and Musick, 1999). Even though research shows the positive health and well-being benefits of volunteerism (Thoits and Hewitt, 2001), those most likely to gain the most from volunteering are least likely to take part because of the economic and social barriers presented to people of color, the working class, persons with disabilities, young adults, older adults, and persons with poorer physical or mental health (Carr et al., 2015; Lawton et al., 2021; Southby and South, 2016; Southby et al., 2019).

Disaster Volunteerism

Following disasters, a surge of altruistic behavior within communities creates a sense of social solidarity and encourages convergent activity and helping practices (Barton, 1969; Fritz and Mathewson, 1957; Kendra and Wachtendorf, 2003; Shaskolsky, 1967; Roth and Prior, 2019). As one of the seven types of convergers, *helpers* take part in activities with traditional aid organizations (expanding organizations), organizations involved in new disaster tasks (extending organizations), or with emergent, citizen-organized volunteer efforts (emergent organizations) (Dynes, 1970; Kendra and Wachtendorf, 2003). Whether spontaneous or anticipated, individual or affiliated, disaster volunteerism occurs throughout the four phases of

disaster - response, recovery, preparedness, and mitigation (Strandh, 2019), and can be categorized into four types based on social form and motivation: (1) public interest emergent volunteerism [Altruistic]; (2) public interest organizational volunteerism [Communalistic]; (3) private interest emergent volunteerism [Egoistic]; and (4) private interest organizational volunteerism [Mutualistic] (Shaskolsky, 1967; Whittaker, McLennan, and Handmer, 2015; Wolensky, 1979). Within this study, I was open to volunteers representing any of the four types of disaster volunteerism that occurred within the past twelve calendar months at the time of the survey's completion. Further, I felt was essential to distinguish the temporal dimension of volunteer activity studied because the various phases of disaster present different demands and may alter the experiences of volunteer responders (Wolensky, 1979; Breckenridge-Jackson, 2017).

Three dimensions influence the magnitude of post-disaster volunteering, including (1) the extent of physical destruction and social disruption, (2) levels of social structure, and (3) the level of training among volunteers (Aguirre et al., 2016). Often organizing under a "focusing event," the overwhelming number of volunteer organizations or self-deployed individuals looking to aid the community can disrupt official response efforts (Steffen and Fothergill, 2009). Despite this, research has found voluntary resources to be flexible and adaptable to the changing nature of the disaster landscape (Wachtendorf, 2004; Roth and Prior, 2019). Disaster volunteers are also an invaluable resource since they are among the first to start a bottom-up response (Barsky and Horan, 2014) and are often knowledgeable about the affected community

and how to reach underserved populations to improve the efficiency and efficacy of response activities (Whittaker et al., 2015).

Affiliated Volunteers in Disasters

Emergency management largely relies on volunteers through formal organizational channels in a post-disaster context, resulting in the use of permanent disaster volunteers as the foundation for formal response efforts (Britton, 1991; Dückers and Thormar, 2015; Dynes and Quarantelli, 1977; Moran and Britton, 1994; Whittaker et al., 2015). Stoddard (1969, p. 178) coined the term *permanent disaster volunteer*, referring to volunteers "who have some disaster training and carry a designated title which facilitates role-playing expectations before and during the disaster." Often representing the largest group of voluntary disaster responders, permanent disaster volunteers are different from spontaneous and unaffiliated volunteers because they are functionally trained to participate in preparedness and response activities with an organization and, in many cases, are as proficient as paid career emergency responders (Britton, 1991; Moran and Britton, 1994; Aguirre et al., 2016). Due to their functional training, they have a function of legitimacy (Kendra and Wachtendorf, 2003) that allows them to receive approval from acting emergency officials (Aguirre et al., 2016).

Spontaneous Volunteers in Disasters

Alternatively, spontaneous or unaffiliated volunteers represent the first people on the ground following a disaster, often working ad hoc outside the organizational disaster response system by providing individual assistance such as basic search and rescue to their neighbors, friends, and family (Dückers and Thormar, 2015; Shaskolsky, 1967; Aguirre et al., 2016; Twigg and Mosel, 2017). Spontaneous volunteers may also travel or converge from longer distances away to support the response efforts, with rates varying based on the social, economic, cultural, and political context and the perception of the level of action taken by the designated response officials (Twigg and Mosel, 2017).

Despite the integral nature of spontaneous and emergent unaffiliated volunteers, emergency management practitioners view this group of responders as a nuisance or liability and are undervalued by disaster response organizations (Whittaker et al., 2015). The vast scale of spontaneous volunteering, especially after disaster or catastrophes (Quarantelli, 2006), can result in congestion and hindrance of official response efforts and drain supplies that may earmarked for disaster survivors. Spontaneous volunteers may also be unskilled and unprepared to engage in activities near areas damaged by the hazard event, with varying levels of uncertainty about legal liability, lack of insurance, and the verification of credentials to perform certain activities in response to a disaster (Twigg and Mosel, 2017).

Despite the concerns related to the incorporation of spontaneous volunteers within a wider response effort, this type of disaster volunteerism also signifies a significant coping response and helps official agencies and voluntary organizations by

augmenting their capacity to meet the changing demands of disaster response and recovery, regardless of the challenges they represent (Twigg and Mosel, 2017). Spontaneous volunteering can also contribute to broader community recovery efforts since volunteers are more likely to increase their levels of community involvement after their disaster volunteer experience (Steffen and Fothergill, 2009). In sum, it is crucial to distinguish between spontaneous and affiliated disaster volunteers because they differ in terms of legitimacy, access to resources, and relevant training, and therefore are significant factors to consider when examining mental health and the overall volunteer experience.

Mental Health among Disaster Volunteers

Disasters are complex events that challenge the coping capacity of individuals and communities, leading to property damage, social disruption, and other losses that are most likely to affect marginalized communities (Clemens et al., 2013). Despite the loss and trauma disasters can cause, most survivors and responders do well when exposed to disasters (Fullerton and Ursano, 2005) and may even experience neutral (Green and Solomon 1995) or ‘therapeutic’ outcomes (Fritz, 1996). The range of positive and negative psychological effects of disasters is related to several factors, such as the type of hazard, degree of traumatic exposure or physical injury, level of life threat, and the duration of individual and community disruption (Freedy, Kilpatrick, and Resnick, 1993; Fullerton and Ursano, 2005). Individual characteristics are also essential factors that determine mental health outcomes, with persons with a low socioeconomic status, racial minorities (Norris and Alegria, 2005), and persons

with pre-existing psychiatric disorders or substance abuse issues more likely to be negatively impacted by disaster stress (McFarlane and Williams, 2012; Neria et al., 2008).

Green and Solomon (1995) found that disaster survivors experience lower levels of mental health morbidity (5.7%) when compared to victims of crime (8.5%) and vehicular accidents (5.8%). Despite these findings, research continues to suggest a relationship between mental health and natural (Laugharne, de Watt, and Janca, 2011), technological (Satcher, Friel, and Bell, 2007), and biological disasters (Hsieh et al., 2021), with one third or more of individuals severely exposed developing posttraumatic stress disorder (PTSD) or other psychological disorders (North and Pfefferbaum, 2013). Prior research on mental health and disasters has primarily used the sociomedical model approach (Aneshensel et al., 1991), with PTSD being the most studied post-disaster psychiatric disorder (Neria et al., 2008). However, the use of official mental health diagnoses to describe mental health outcomes post-disaster, as well as the lack of longitudinal data collection, may lead to bias by not fully capturing everyone experiencing distress or mental health issues during disaster recovery (Green and Solomon, 1995; Roncone et al., 2021).

Disasters often result in devastating impacts, including losses of life, property, livelihood, routine, community, and independence, not only affecting the disaster survivors but disaster volunteers too (Baker and Cormier, 2015; Haraldsdóttir et al., 2014; Quevillon et al., 2016). Volunteers work in an arduous and potentially traumatic environment (Aldamman et al., 2019; Quevillon et al., 2016; Yamasaki, 2020) with challenging living and working conditions (Adams, 2007). Due to this, volunteer emergency responders have been found to experience adverse mental health impacts

when compared to paid emergency responders (Alexander and Klein, 2009; Gabern, Ebbeling, and Bartels, 2016; Haraldsdóttir et al., 2014; Mao et al., 2018; Thormar et al., 2010), often related to the amount of financial resources, social support, and training available to volunteer responders compared to paid responders (Thormar et al., 2010).

Thormar and colleagues (2016) found a posttraumatic stress disorder (PTSD) prevalence rate for disaster volunteers between 24% - 46%. Disaster volunteers not only experience post-traumatic stress disorder (PTSD) but may also experience other adverse outcomes such as secondary traumatic stress, vicarious traumatization, compassion fatigue, sleep problems, depression, or anxiety (Mao et al., 2018; Quevillon et al., 2016). Highlighting the potential emotional toll of disaster volunteering in a study conducted by DeYoung and Farmer (2021), a volunteer reported feelings of lingering despair and intense grief when recounting her harrowing experience attempting to save a horse trapped behind a chain-link fence and rising floodwaters caused by Hurricane Florence. Due to a lack of proper equipment, the volunteer was unable to rescue the animal, and later found the remains of the horse behind the fence after the floodwaters receded (DeYoung and Farmer, 2021). A secondary distinction can also be made between the types of disaster volunteers, with permanent disaster volunteers experiencing better health outcomes than unaffiliated or spontaneous emergent volunteers with little training or previous disaster experience (Thormar et al., 2013; Thormar et al., 2016). Possible reasons for the disparity might relate to the lack of formal job or task descriptions for volunteers, the deprivation of support structures that usually exist within formal response organizations, or that

volunteers are not as connected with established disaster mental health services (Adams, 2007; Thormar et al., 2013).

Individual personality and organizational characteristics ease disaster volunteers' stress and coping capacity. Personality characteristics that influence stress and coping capabilities include (1) individual optimism and hopefulness, (2) individual cultural and ethnic background, (3) alcohol-drug disengagement, (4) attention to personal physical needs, (5) restraint of negative coping strategies, (6) suppression of competing activities, (7) identification of a victim as a friend, (8) level of exposure to disaster-related gruesome events, (9) anxiety sensitivity, (10) level of self-efficacy, and (11) prior psychopathology (Aldamman et al., 2019; Alexander and Klein, 2009; Gabern et al., 2016; McCaslin et al., 2020; Moran, 1998; Quevillon et al., 2016; Thormar et al., 2010; Thormar et al., 2013; Thormar et al., 2014; Thormar et al., 2016). Organizational factors that influence stress and coping capabilities at the macro and meso-levels include (1) organizational culture/perception of “good organization, (2) clear definition of volunteers’ roles and functions, (3) teamwork, (4) a sense of volunteer appreciation, (5) volunteer sleep quality, and (6) organizational and social support capabilities (Aldamman et al., 2019; Alexander and Klein, 2009; Mitchell et al., 2004; Moran, 1998; Thormar et al., 2010; Thormar et al., 2014).

In contrast to prior research heavily that has focused on the adverse mental health outcomes of disaster volunteering, higher levels of social support and effective coping activities may actually help volunteers thrive through the experience of may also result in such as “compassion satisfaction”, or the positive emotions associated with caring or helping behaviors (Stamm, 2002; Gonzalez-Mendez and Díaz, 2021), or even “post-traumatic growth,” which is the long-term positive change experienced

after a trauma or significant life event (Linley and Joseph, 2004; Paton, 2005; Gonzalez-Mendez and Díaz, 2021). Positive outcomes may result from increased personal resources (Pearlin et al., 1981), such as perceived mastery of professional skills, greater appreciation of social support from family members and volunteer peers, and better coping skills to feel in control when dealing with stressful situations (Quevillon et al., 2016; Paton, 2005).

Within the limited research studying the positive effects of disasters on volunteers, volunteering among the military veteran population results in positive mental health outcomes (de Melim 2019; Kranke et al. 2016; Kranke et al. 2017a; 2017b; 2017c). Involvement with volunteer organizations, especially those with prominent levels of military veteran membership, helps to re-create camaraderie using specialized military skills for civilian service and embedding veterans into the social fabric of their community (Kranke et al. 2016). Exploratory research conducted by Kranke et al. (2016; 2017a; 2017b; 2017c) found that combat veterans [$n = 9$] had a positive mental health response due to elevated levels of peer support and the ability to integrate military skill sets into a civilian context. A later survey [$n = 23$] and two focus groups [$n = 12$] with Team Rubicon volunteers from Texas, Oklahoma, New Mexico, Arkansas, and Louisiana revealed that veterans had heightened levels of civilian reintegration due to the powerful sense of community developed among both veterans and civilian volunteers (de Melim, 2019). These results suggest that disaster response volunteering provides a significant and therapeutic environment (McCaslin et al., 2020) for military veterans by reducing the sense of isolation and encouraging emotional vulnerability and bonding with fellow volunteers (McCaslin et al., 2020).

The positive nature of social support compounds with the sense of mastery and coping skills among veterans who engage in disaster volunteering and leads to positive mental health outcomes in the post-disaster context (McCaslin et al., 2020; Pearlin et al., 1989). Positive mental health outcomes for disaster volunteers are directly affected by the level of social support and social solidarity among team members during disaster response work and once volunteers return home (Cockerham, 2013). Disaster volunteerism may also support positive mental health by encouraging a more profound recognition of one's values and clarified beliefs, encouraging future action that exemplifies one's new values, self-concept, and belief systems (Steffen and Fothergill, 2009).

Post-disaster volunteerism also helps individuals cope with a hazard event's effects by allowing them to redefine the situation by increasing their levels of personal and community-wide agency. For example, Lowe and Fothergill (2003) found that locally based spontaneous volunteers who responded to the 9/11 terrorist attacks reported that they could transform feelings of victimization into feelings of efficacy through positive acts of service. Despite the immense destruction that Lower Manhattan experienced, volunteers “overwhelmingly reported how positive, empowering, and connecting it was for them to volunteer and help the people of New York” (Lowe and Fothergill, 2003). Even with emerging evidence of the positive mental health impact among disaster volunteers, especially that of military veteran disaster volunteers or spontaneous volunteers following 9/11, this area of research has not been studied extensively within the literature (Quevillon et al., 2016). However, it continues to remain a promising area of study that seemingly contradicts the traditional empirical findings of poorer mental health outcomes among volunteers in

the post-disaster environment. This research expanded upon previous studies exploring the positive well-being outcomes of disaster volunteers by expanding the scope to the general disaster volunteer population, including both affiliated and unaffiliated disaster volunteers.

Synthesis of Theoretical Orientation and Literature Review

The stress process model explains the differential exposure to stress (Thoits, 2010) and mental health disparities among marginalized groups (Aneshensel, 2009). Stressful experiences, such as chronic stressors, trauma, and life events, affect levels of self-concept and sense of control throughout one's life and across generational lines (Pearlin et al., 1981; Thoits, 2010). However, the use of coping resources, social support, and high levels of mastery and self-esteem (Thoits, 2010) can act as mediators in the stress process and act as protective factors towards the development of mental health morbidities (Pearlin et al., 1981).

The three domains of the stress process theory (Pearlin, 1989; Pearlin et al., 1981), including the sources of stress, mediators of stress, and outcomes of stress, offer a way to conceptually understand the similarities and differences in mental health outcomes between disaster and non-disaster volunteers. Volunteers who engage in activities such as tutoring or community food distribution often report increased feelings of community identification, happiness, social integration, and well-being than non-volunteers (Ali et al., 2016; Bowe et al., 2020). Despite the strong connection between physical and mental health, not all volunteering results in positive health outcomes. Stressful volunteer activities, such as post-disaster volunteerism, may result in adverse mental health outcomes due to the post-disaster landscape's arduous and traumatic living and work environment (Adams, 2007; Aldamman et al.,

2019; Quevillon et al., 2016). Disaster volunteers have the highest rates of mental health morbidities compared to professional first responders and disaster survivors (Alexander and Klein, 2009; Haraldsdóttir et al., 2014; Mao et al., 2018; Thormar et al., 2010), with unaffiliated volunteers being the most affected due to their lack of prior disaster experience and minimal training (Thormar et al., 2013; Thormar et al., 2016).

Sources of stress, such as life events or chronic role strain, can influence disaster and non-disaster volunteers. Results from research suggest that volunteering tends to provide more benefits for those most active in volunteering (Wilson, 2012) but can quickly turn negative if volunteers become overburdened. When volunteers experience *role overload* or when their volunteer activities exceed their energy and stamina capacity (Pearlin, 1989), it may affect their ability to employ coping resources and increase stress levels. Disaster volunteers are particularly prone to experience *role overload* due to community members' increasing demand and reliance upon volunteers and emergency management professionals.

Disasters can also be a substantial *life event* for volunteers responding to a disaster. Natural and technological disasters regularly occur throughout one's lifetime (Pearlin et al. 1981) and may result in stress following the hazard event itself. As hazard events become more frequent because of climate change (U.S. Geological Survey), the magnitude of mental health effects disasters cause will likely increase (Pearlin, 1989; Pearlin et al., 1981). Such hazard events may also become an *ambient strain* if the individual or community experiences a significant loss of personal

property, injury or death of a family member, or long-term challenges during the recovery process, such as prolonged evacuation or difficulties with insurance claims. Hazard-related ambient strains are critical to consider in hazard-prone geographic locations such as Northern California, Hawaii, Oklahoma, and the U.S. Gulf Coast, which have experienced catastrophic events like the 2023 Maui Wildfires 2018, Camp Fire in Paradise, CA, Hurricane Harvey (2017), and Hurricane Katrina (2005). These events overwhelmed the local community's response capacity and led to devastating losses for the affected communities, many of whom are still recovering. For volunteers, hazard-related ambient strains may contribute to increased personal stress that defines their lives (Pearlin et al. 1989). In conjunction with stressful volunteer activities and limited social support, hazard-related ambient strains may ultimately affect the mental health of affiliated and unaffiliated disaster volunteers.

Social resources (i.e., social support), psychological resources (i.e., mastery and self-esteem), and specific coping responses are the most proximal factors that mediate and moderate the effects of stress (Aneshensel, 2009; Pearlin, 1981; Pearlin et al., 1989). Positive mental health outcomes for general volunteers can be related to the increased levels of social support and reduction in social isolation that volunteer activity provides (Cockerham, 2013; Thoits, 2010). In addition, volunteerism also increases perceived levels of self-efficacy, self-esteem, mastery, and a sense of purpose by introducing people to new skills, friends, and communities. Status as a volunteer may also have symbolic social meaning (Umberson and Montez, 2010), thereby encouraging increased engagement in continued volunteer service, ultimately

leading to the casual and mutually reinforcing benefits of volunteering and health (Thoits and Hewitt, 2001; Wilson and Musick, 1999).

Social support from peers and nongovernmental organizations for disaster volunteers is crucial to mental health outcomes (Aldamman et al., 2019). Unaffiliated volunteers are particularly affected by disaster stress because they are the most likely to lack organizational support systems or have long-term relationships with their volunteer peers. Disasters may also increase *inter-role strain* for volunteers away from their families for extended periods and *interpersonal role strain* within the disaster response team due to continuous outside stressors (Pearlin, 1989). *Role structuring strain* may also occur when volunteers reestablish or restructure their relationships outside the disaster response hierarchies, schedules, or structures after returning home. Overall, the post-disaster landscape offers a unique opportunity for several types of role strain to develop, resulting in increased stress for disaster volunteers compared to general volunteers.

Previously, most research focused on physical or mental health post-disaster has focused on disaster survivors and the affected community, while few studies have investigated outcomes or experiences for volunteers (Adams, 2007; McFarlane and Williams, 2012; Thormar et al., 2010; Thormar et al., 2013; Thormar et al., 2014; McCaslin et al., 2005; Morgan, 1995; Quevillon et al., 2016; Steffen and Fothergill, 2009). Within the research investigating mental health among disaster volunteers (Thormar et al., 2010), the research has focused on anticipated and organizational volunteers, resulting in a gap in knowledge for spontaneous and unaffiliated

volunteers. In addition, the gap in knowledge related to the physical and mental effects of disaster work among volunteers of all types is also concerning because they represent the largest and most diverse response group (Dückers and Thormar, 2015; Thormar et al., 2010; Morse et al., 2022) and will continue to face repeated and lengthy deployment requests as disasters become more frequent due to climate change (Adams, 2007). Finally, although coping resources are a significant part of the stress process theory, there is a limited empirical understanding of the types or effectiveness of coping or self-care activities among disaster volunteers (Quevillon et al., 2016; McCaslin et al., 2020). The hypotheses for this study addressed these limitations by exploring self-reported disaster-related stress and depression between affiliated and unaffiliated volunteers within the United States and understand the role of demographic and volunteer factors, social support satisfaction, mastery, coping, volunteer satisfaction between the mental health outcomes among short-term disaster volunteers.

Chapter 4

METHODOLOGY

Research Purpose and Questions

I aimed to explore the factors associated with stress and depression of short-term disaster volunteers. Specifically, I designed this project to examine what extent the number of disaster deployments in the past year, levels of mastery, social support satisfaction, coping levels, volunteer trauma, volunteer affiliation, volunteer satisfaction, annual household income, and volunteer training level are associated with self-reported levels stress and depression among short-term disaster volunteers. The purpose of this chapter was to introduce the research method for this study exploring stress among short-term volunteers following a disaster deployment. The research plan, study participants, procedure, analysis method, scale reliability and factor analysis, and ethical concerns are also the primary topics of this chapter.

Research Hypotheses

This study includes the following research hypotheses:

H₁: A greater number of disaster deployments within the past calendar year will be associated with increased volunteer stress and depression (positive relationship). This prediction is based on the findings that volunteers work in an arduous and potentially traumatic work environment (Aldamman et al., 2019; Quevillon et al., 2016; Yamasaki, 2020), with challenging living or working

conditions (Adams, 2007) and an increased number of deployments may increase cumulative stress levels.

H₂: Higher levels of mastery will be associated with lower levels of volunteer stress and depression (negative relationship). This prediction is based on the findings that stronger feelings of individual control mediate the development of stress and depressive symptoms (Pearlin et al. 1981).

H₃: Higher levels of social support satisfaction will be associated with lower levels of volunteer stress and depression (negative relationship). This prediction is based on the findings that greater levels of social support increase feelings of meaning and mattering, which mediates the development of stress (Cohen 2004; Thoits 1995; Umberson and Montez 2010).

H₄: Greater coping skills will be associated with lower levels of volunteer stress and depression (negative relationship). This prediction is based on the findings that higher levels of coping mean individuals can better change the situation, reduce the threat, or keep feelings of stress manageable (Pearlin 1989; Pearlin et al. 1981; Pearlin and Schooler 1978).

H₅: Higher levels of trauma will be associated with higher levels of volunteer stress and depression (positive relationship). This prediction is based on the findings that higher exposure to individual trauma will increase the chance of the development of poor mental health outcomes like PTSD (Freedy, Kilpatrick, and Resnick, 1993; Fullerton and Ursano, 2005).

H₆: Respondents who are unaffiliated or spontaneous volunteers will be associated with higher levels of stress and depression than respondents who are affiliated with an organization (positive relationship). This prediction is based on

Thormar et al. (2013; 2016) findings that affiliated volunteers experience better health outcomes than unaffiliated or spontaneous volunteers following a disaster.

H₇: Greater levels of volunteer satisfaction will be associated with lower levels of volunteer stress and depression (negative relationship). This prediction is based on the findings from Morse et al. (2022), who found that a match in volunteer motivation and a positive volunteer experience consistently predicted volunteer satisfaction, length of service, and reduced burnout symptoms.

H₈: Higher income levels will be associated with lower levels of volunteer stress and depression (negative relationship). This prediction is based on the findings that suggest people with access to greater levels of resources, and income are more likely to take advantage of volunteer opportunities (Carr, Fried, and Rowe, 2015), which results in some protection against mental illness (Wilson, 2012) due to the increase of multiple psychological resources (Pearlin et al., 1981).

H₉: Lower levels of training will be associated with higher levels of volunteer stress and depression (positive relationship). This prediction is based on the findings that those with the least amount of disaster training, referring towards unaffiliated volunteers, are most likely to have mental health morbidities following a disaster deployment (Thormar et al., 2013; Thormar et al., 2016).

Research Design

I quantitatively explored self-reported stress and depression among disaster volunteers through survey sampling using a Likert scale, multiple choice, and open-ended items. Because the purpose of this study was to explore self-reported stress and depression levels post-disaster and to understand the volunteer experience related to a greater number of disaster volunteer experiences within the past calendar year,

mastery, social support satisfaction, coping, volunteer affiliation status, household income, volunteer training level, and volunteer satisfaction, a quantitative approach using a quasi-experimental survey design was the most appropriate choice.

Research Participants & Sampling

Using a purposive (Patton, 2002; King, Horrocks, and Brooks, 2019) and systematic social media recruitment sampling method (Farmer and DeYoung, 2019; DeYoung and Mangum, 2021; Mongold et al., 2020), I targeted recruitment efforts to short-term disaster response volunteers over the age of 18 affiliated volunteers with a registered Volunteer Organization Active in Disaster (VOAD), affiliated volunteers with another organization who completed disaster-related tasks following a hazard event within the United States (i.e., animal rescue, legal aid, debris removal, psychological first aid and spiritual support, transportation for evacuees), and unaffiliated volunteers who engage in disaster-related helping practices within their local community.

Eligible respondents must have completed at least one volunteer workday but no more than sixty consecutive volunteer workdays completing disaster response or disaster recovery tasks within the past twelve calendar months of the survey completion. Eligible disaster events include natural hazard events, including but not limited to hurricanes, floods, tornadoes, earthquakes, volcanic eruptions, landslides, and severe weather events. Volunteers may also have provided aid following epidemics, pandemics, other public health emergencies, or technological

or human-induced hazards, including but not limited to oil or chemical spills, dam collapses, toxic waste exposure, and transportation-related accidents. There were no other exclusionary criteria within this study.

Recruitment took place between October 6, 2023, and December 25, 2023, following approval by the University of Delaware Institutional Review Board (IRB) on October 2, 2023. By conducting recruitment and having the survey open for a prolonged period during the Fall of 2023 helped ensure I had a diversity of responses from individuals who volunteered after disasters during the 2022 Hurricane season and throughout the calendar year of 2023.

I recruited participants using a systematic social media recruitment method using Facebook Groups, Instagram, LinkedIn, and Reddit. This recruitment approach has a powerful capability to target and recruit hard-to-reach or geographically dispersed survey respondents without a need to deploy to a field site (Farmer and DeYoung, 2019; DeYoung and Mangum, 2021; Mongold et al., 2020). I targeted groups on Facebook and LinkedIn by searching keywords such as “volunteer,” “disaster,” “mutual aid,” “disaster relief,” and “disaster response” and also using key terms based on hazard events that took place in the summer and fall of 2023 such as “Hurricane Idalia” and the “Maui Wildfires” or “Hawaii Wildfires.” After I identified groups that fit within the target population, I sent a request to the group admin(s), if prompted, to join the group and receive member access to post the study recruitment information. Examples of groups joined include:

Maui Fire Disaster Relief; Hurricane Relief Volunteer Group; Inspiritus Disaster Relief Volunteers; Disaster Response, Rescue, and Recovery Network; Team Rubicon North Branch Greyshirts; Wildfire and Disaster Relief Ag Community; Samaritan's Purse Disaster Relief Volunteers; Mutual Aid Disaster Relief; ARRL HAM Radio Operators; Gulf Coast Animal Rescue and Maui Adopt a Family & Fire Support.

I then recruited participants for the study through these groups by posting the survey link, recruitment image, and a description of the study, with permission from group admins when prompted. I tried to join or post in a total of 57 groups, with follow-up comments about one month after the initial posting, to boost the post within the thread. Ultimately, I could make posts in 47% of the identified groups but could not gain access to the group or post within 53% of the identified groups.

In addition to the systematic social media recruitment method, I used snowball sampling through LinkedIn to reach a broader range of volunteers and voluntary organizations involved in disaster relief. I posted the recruitment image within my personal LinkedIn profile and tagged all National Members of the Voluntary Organizations Active in Disaster (NVOAD) with a LinkedIn organization profile by early December (NVOAD, n.d.). The original October 2023 recruitment post on my LinkedIn account received 5,184 “impressions” and was individually reposted to other networks 37 times to maximize the project’s visibility and accessibility to the target population within their respective social and professional circles. My follow-up LinkedIn post in December 2023 received 6,478

“impressions” and was individually reposted to other networks 46 times to expand the recruitment pool of disaster volunteers. I also used my personal Instagram account and posted the approved graphic to recruit participants, which had a minimal effect due to only receiving 10 “hearts” to the original post.

Finally, I used a convenience sample of voluntary organization leaders I connected with at the NVOAD conference in May 2023, the 2023 Natural Hazards Workshop, and the 2023 International Association of Emergency Managers Conference who expressed interest in sharing this study with their volunteers. A total of 33 nonprofit leaders and emergency managers who work closely with disaster volunteers were contacted through email. I also used a convenience sample of connections developed personally from attending the NVOAD conference in May 2023 to increase the breadth of organizational participation, including organizations with different service geographies, services (i.e., mass care, medical/mental health care, animal rescue, construction and vegetative debris removal, legal aid, etc.), and organizational/belief structures (spiritual, religious, and secular organizations) to enhance the generalizability of the project results.

Research Instrument & Study Variables

Dependent Variables

Stress

One of the dependent variables for the current study was stress, measured through a self-reported questionnaire based on how participants felt since they volunteered after a disaster. The four-item Perceived Stress Scale 4 (PSS-4) assessed stress (Cohen, Kamarck, and Mermelstein, 1983). The PSS-4 scale was adapted from a temporal frame of the last month to the time since their last disaster volunteer experience to accommodate the frame within this study. The scale was also adapted from an original 4-point Likert scale to a 5-point Likert scale where ([0] Never; [1] Almost Never [2] Sometimes; [3] Fairly Often; or [4] Very Often), the lowest score possible is 0, and the highest score possible is 16. Higher scores equal higher self-reported rates of stress. Questions included on the scale include “Since your last disaster volunteer experience, how often have you felt that you were unable to control the important things in your life?” and “Since your last disaster volunteer experience, how often have you felt difficulties were piling up so high that you could not overcome them?”

To streamline the survey for participants and cut down the large number of items that would have been included if I used the full scales to begin with, I conducted exploratory factor analysis was conducted to determine the underlying structure of the four items from the Perceived Stress Scale. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .585, a bit low but acceptable for sample sizes between 100 and 200 (Shrestha, 2021; Pallant, 2020, pp. 190). The Bartlett Test of Sphericity has an associated p value of <.001, showing acceptability to continue with factor analysis.

After maximum likelihood extraction and varimax rotation, the first factor accounted for 59.255% of the total variance in the original items, while the second factor accounted for 24.871%, the third factor accounted for 9.774%, and the fourth factor accounted for 6.100% of the total variance. All items had positive loadings and addressed volunteer stress. The extracted single factor 1 comprised the four items reported on a 5-point Likert scale that explained 45.377% of the variance with factor loadings between .474 and .831 (Table 1). Cronbach's α remained unchanged and was .764, showing acceptable consistency and reliability (Raharjanti et al. 2022).

Table 1 Stress Component Loadings

	Loading
Factor 1: Stress	
STRESS3_A: Felt confident that things were going your way.	.834
STRESS2_A: Felt confident that about your ability to handle your personal problems.	.788
STRESS4_A: Felt difficulties were piling up so high that you could not overcome them.	.522
STRESS1_A: Felt that you were unable to control the most important things in your life.	.474

Depression / Anxiety

The second dependent variable for this study was depression, measured through a self-reported questionnaire based on how respondents felt when they volunteered after a disaster. To assess self-reported levels of volunteer depression, the four-item Patient Health Questionnaire for Anxiety and Depression (PH-4) (Kroenke et al., 2009) was included in the survey. The PHQ-4 scale was adapted from a temporal frame of the last two weeks to the time during their deployment experience to accommodate the frame within this study. The PHQ-4 scale was also adapted from

an original 4-point Likert scale to a 5-point Likert scale where ([0] Not at all; [1] Occasionally [2] Several Days; [3] More than Half of the Days; or [4] Nearly Every day), the lowest score possible is 0 and the highest score possible is 16. Questions included “How often were you bothered by feeling nervous, anxious, or on edge?”, “how often were you bothered by not being able to stop or control worrying?”, “how often were you bothered by little interest or pleasure in doing things?”, and “how often were you bothered by feeling down, depressed, or hopeless?”

An exploratory factor analysis was conducted to determine the underlying structure of the four items from the Patient Health Questionnaire for Anxiety and Depression. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .777, which is acceptable for sample sizes between 100 and 200 (Shrestha, 2021; Pallant, 2020, pp. 190).). The Bartlett Test of Sphericity has an associated p value of $<.001$, showing acceptability to continue with factor analysis. Initial principal components analysis produced a one-component solution and then a maximum likelihood estimate with varimax rotation on the one-component solution to produce factor scores. The first component accounted for 77.711% of the total variance in the original variables, the second component accounted for 12.600%, the third component accounted for 6.190%, and the fourth component accounted for 3.500% of the total variance. All variables had positive loadings and addressed volunteer depression. Factor 1 comprised the four items reported on a 5-point Likert scale that explained 70.166% of the variance with factor loadings between .709 and .958 (Table 2). Cronbach’s α was .894, showing a very good inter-item consistency and reliability within the scale.

Table 2 Depression Component Loadings

	Loading
Factor 1: Depression	
DEPRESS4_A: During your most recent disaster volunteer experience, how often were you bothered by feeling down, depressed, or hopeless?	.789
DEPRESS3_A: During your most recent disaster volunteer experience, how often were you bothered by little interest or pleasure in doing things?	.861
DEPRESS2_A: During your most recent disaster volunteer experience, how often were you bothered by not being able to stop or control worrying?	.851
DEPRESS1_A: During your most recent disaster volunteer experience, how often were you bothered by feeling nervous, anxious, or on edge?	.867

Independent Variables

Demographic Variables

Demographic variables (Appendix B) were included in the study to gather data related to the participant demographics and the participant’s volunteer and disaster experiences. Basic demographic information was collected, including items like “Please estimate your average household income (less than \$20,000; \$20,001 - \$40,000; \$40,001 - \$60,000; \$60,001 - \$80,000; \$80,001 - \$100,000; \$100,001 or more),” “Please indicate your age, gender, highest level of education (less than high school, high school diploma, some college, 2-year degree, 4-year degree, Master’s or Professional degree, Doctorate), LGBTQIA+ (yes/no), State of Residence (50 states, D.C., or Puerto Rico), housing structure (house, mobile home/RV, condominium, townhome, apartment, hotel/Airbnb, unsheltered, other), race/ethnicity (American Indian/Alaska Native; Asian; Black or African American; Hispanic/Latino; Native Hawaiian or Pacific Islander; White/Caucasian; Other), and have you ever been negatively affected by a disaster in the past (aside from the COVID-19 SARS-CoV-2 Pandemic)?

Respondents were also asked for general information about their volunteer experience, including “what type of volunteer best describes you: affiliated with a registered organization or unaffiliated volunteer outside of a registered organization.” Other items include the length of time spent volunteering with the organization (in years), number of times volunteered after a disaster in the past year, location of volunteer service (remote or field-based), hazard type responded to, and level of responsibility during volunteer service. The following items were included as independent variables in the quantitative analyses because they were directly related to the original research hypotheses: annual income (INCOME_RECODE), number of disaster volunteer experiences in the past year (PASTYR_VOL), level of training (VolTrainingLevel), and affiliated/unaffiliated volunteer status (AFFILIATED_RECODE).

Mastery

To assess mastery levels, or the “extent to which one regards one’s life chances as being under one’s control in contrast to being fatalistically ruled,” I used the Mastery Scale developed by Pearlin et al. (1981). The Mastery scale (Appendix C) was adapted to include language allowing respondents to answer from the perspective that they were engaging in volunteer work. The seven-item scale included statements such as “I have little control over the things that happened to me while engaging in volunteer work” and “I felt helpless in dealing with problems that arose during volunteer work.” The scale was adapted from a four-point Likert agree-disagree format, including strongly agree, agree, disagree, and strongly disagree, to a 5-point Likert scale from strongly disagree to strongly agree. Positively worded items remained the same (items 6 and 7), but items 1, 2, 3, 4, and 5 were reverse-coded

because they were negatively worded statements (Lim et al., 2022). Scores from the adapted scale range from 7 (low mastery) to 35 (high mastery).

An exploratory factor analysis was conducted to determine what, if any, underlying structure exists on the seven-item Mastery Scale. The Kaiser-Meyer- Olkin (KMO) measure of sampling adequacy was .816, acceptable for sample sizes between 100 and 200 (Shrestha, 2021; Pallant, 2020, pp. 190). The Bartlett Test of Sphericity has an associated p value of <.001, showing acceptability to continue with factor analysis. The initial principle components analysis produced a two-component solution, but a decision was made to extract a one-component solution because the original α was .807 and showed an acceptable inter-item consistency and reliability within this study (Hulin, Netemeyer, and Cudeck, 2001; Ursachi, Horodnic, and Zait, 2015). The one-component solution was then evaluated based on the following criteria: eigenvalue, variance, scree plot, and residuals. After maximum likelihood estimate and varimax rotation, Factor 1 comprised the seven-item items reported on a 5-point Likert scale that explained 40.925% of the variance with factor loadings between .301 and .811 (Table 3). All variables had positive loadings and addressed volunteer depression. Cronbach’s α remained unchanged and was .807, showing good inter-item consistency and reliability within the scale.

Table 3 Mastery Factor Loadings

	Loading
Factor 1: Mastery	
MASTERY4_A_REVERSE: I often feel helpless in dealing with the problems I have when volunteering.	.811
MASTERY2_A_REVERSE: There is really no way I can solve some of the problems I have when I volunteer	.774

MASTERY3_A_REVERSE: There is little I can do to change the many important things in my life as a volunteer.	.692
MASTERY5_A_REVERSE: Sometimes, I feel that I am being pushed around when I am volunteering.	.680
MASTERY1_A_1REVERSE: I have little control over the things that happen to me when I volunteer.	.649
MASTERY7: As a volunteer, I can do just about anything I really set my mind to.	.394
MASTERY6: What happens to me in the future as a volunteer mostly depends on me.	.301

Trauma Exposure

To assess the level of trauma that a disaster volunteer experienced, this study included an adapted version of the Traumatic Exposure Severity Scale to explore the occurrence of trauma (Appendix D). The original 24-item scale uses five subscales to assess resource loss, damage to home and goods, personal harm, concern for significant others, and exposure to the grotesque (Elal and Slade, 2005). The TESS questionnaire was adapted to streamline and best fit the sample of disaster volunteers. The adapted scale originally included 17 items to assess the occurrence of trauma exposure as a disaster volunteer (0 = no; 1 = yes), such as “were you physically injured during the disaster?”, “did you suffer financial difficulties because of the disaster?” and “was a family member or close friend buried, trapped, or stranded for a period of time due to the disaster?” Some questions were altered or added to the study to fit the context of disaster volunteerism, such as “were any fellow volunteers injured while volunteering after the disaster?” Questions regarding family and close friends have also been adapted to specify pets, which are important among disaster survivors (Farmer and DeYoung, 2021).

Cronbach’s α was for the adapted 17-item scale was .452, and the inter-item mean was .131, showing significant unreliability as a measure of volunteer trauma.

(Item 8) was removed automatically by SPSS from the scale because there was zero variance in the results. After examination of the low inter-item correlations (<0.1) and low variance (less than 5%) between the twelve of the original 17 items, I decided not to include the adapted trauma scale within the study because it was not a great measure of volunteer-related of trauma with low levels of reliability and variance as seen in the table below:

Table 4 Frequency Table for the Adapted Trauma Scale

	No	Yes	Missing
TRAUMA1_RECODE: As a result of the disaster, did you have to spend one or more nights somewhere other than your home?	44.6%	55.4%	0%
TRAUMA2_RECODE: Did you need aid after the disaster for yourself or your family? (i.e., food, clothes, medical care, etc.)?	98%	2%	0%
TRAUMA3_RECODE: Did you suffer financial difficulties because of the disaster?	96%	4%	0%
TRAUMA4_RECODE: Was your home damaged during the disaster?	97%	3%	0%
TRAUMA5_RECODE: Did you lose personal valuables because of the disaster?	97%	2%	1%
TRAUMA6_RECODE: Were you physically injured during the disaster?	99%	1%	0%
TRAUMA7_RECODE: Were you physically injured while volunteering after the disaster?	95%	4%	1%
TRAUMA8_RECODE: Did you lose any family members, pets, or close friends during the disaster?	100%	0%	0%
TRAUMA9_RECODE: Were any family members, pets, or close friends physically injured during the disaster?	98%	1%	1%
TRAUMA10_RECODE: Was a family member or close friend buried, trapped, or stranded for a period of time due to the disaster?	97%	3%	0%

TRAUMA11_RECODE: Was there a period of time you were uncertain about the welfare of family members, pets, or close friends, and you were unable to establish contact or locate them?	97%	3%	0%
TRAUMA12_RECODE: Were any fellow volunteers injured while volunteering after the disaster?	89.1%	9.9%	1%
TRAUMA13_RECODE: Were you involved in immediate rescue work?	94.1%	5.9%	0%
TRAUMA14_RECODE: Did you see any injured persons or dead bodies during the rescue or initial clean up period?	95%	5%	0%
TRAUMA15_RECODE: Did you hear sounds and cries for help from trapped or injured individuals?	98%	2%	0%
TRAUMA16_RECODE: Did you experience the odor of dead bodies, mold, or decaying debris?	78.2%	21.8%	0%
TRAUMA17_RECODE: Did you interact with disaster survivors or listen to their stories during your volunteer experience?	14.9%	84.2%	1%

Social Support

The Social Support Questionnaire – Short Form (SSQ-6) was used to measure an individual’s perceived level of social support (Appendix E) (Sarason et al., 1987; Burns et al., 2008). For each of the six items (i.e., whom can you really count on to be dependable when you need help?), participants first indicated the number of people available to provide support using ordinal response options, as opposed to an open-ended numerical response option within the original SSQ-6 (0 = 0 persons; 1 = 1 – 2 people; 2 = 3 – 4 people; 3 = 5 – 6 people; 4 = 7 – 8 people; 5 = 9 – 10 people; 6 = 11 – 12 people; 7 = 13 – 14 people; 8 = 15 or more people). Cronbach’s α was .940 for the social support number subscale and shows a very good inter-item consistency and reliability.

Participants then provided their level of satisfaction based on the level of support they received during their most recent disaster volunteer experience on a 5-

point Likert scale (“very dissatisfied” to “very satisfied,” as opposed to a six-point Likert scale like the original version. Cronbach’s α was .947 for the social support satisfaction subscale, showing good inter-item consistency and reliability. Cronbach’s α was .914 for the entire social support scale and shows a very good inter-item consistency and reliability. Due to the evidence that “suggests people’s appraisal of social support available to them may be more important than their actual interpersonal contacts” (Sarason et al., 1987, pp. 498), this study focused on social support satisfaction as a measure of social support among disaster volunteers.

An exploratory factor analysis was conducted to determine the underlying structure of the six-item Social Support Questionnaire – Short Form. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .855, which is excellent. The Bartlett Test of Sphericity has an associated p value of $<.001$, showing acceptability to continue with factor analysis. The first analysis produced a one-component solution that was then evaluated based on the following criteria: eigenvalue, variance, scree plot, and residuals. After maximum likelihood estimates and varimax rotation, Factor 1 comprised the six items reported on a 5-point Likert scale that explained 74.582% of the variance with factor loadings between .770 and .911 (Table 5). All variables had positive loadings and addressed social support satisfaction. Cronbach’s α remained unchanged and was .947, showing an excellent level of inter-item consistency and reliability within the scale.

Table 5 Social Support Satisfaction Factor Loadings

	Loading
Factor 1: Social Support Satisfaction	

SOCSATISFY5: Level of satisfaction with support: How many people can you really count on to help you feel better when feeling generally down in the dumps while volunteering?	.911
SOCSATISFY6: Level of satisfaction with support: how many people can you really count on to console you when you are very upset while volunteering?	.909
SOCSATISFY4: Level of satisfaction with support: How many people can you really count on to care about you, regardless of what is happening to you, while volunteering?	.904
SOCSATISFY3: Level of satisfaction with support: How many people accept you totally, including both your worst and your best points while volunteering?	.872
SOCSATISFY2: Level of satisfaction with support: How many people can you really count n to help you feel more relaxed when you are under pressure or tense while volunteering?	.806
SOCSATISFY1: Level of satisfaction with support: How many people can you really count on to distract you from your worries when you feel under stress while volunteering?	.770

Coping

The Brief Resilience Coping Scale (Appendix F) is a four-item questionnaire measure designed to capture tendencies to cope with stress in an adaptive manner (Sinclair and Wallston, 2004). The five-point scale ([1] does not describe me at all [5] describes me very well), included questions such as “I look for creative ways to alter difficult situations” and “I believe I can grow in positive ways by dealing with difficult situations.” The lowest score possible is 4 points, and the highest score possible is 20 points, and include three main groups: low resilient copers (4-13 points), medium resilient copers (14-16 points), and high resilient copers (17-20 points) (Sinclair and Wallston, 2004). Cronbach’s α was .565 and showed a relatively poor inter-item consistency and reliability within this study (Hulin, Netemeyer, and Cudeck, 2001; Ursachi, Horodnic, and Zait, 2015). However, it is expected to find lower α values in scales with fewer item numbers (Pallant, 2020, pp. 102), so mean

inter-item correlation is more appropriate in this case since the Brief Resilience Coping Scale has 4-items and is more likely to produce lower α score. The mean inter-item correlation was .261, within the optimal range of .2 to .4 (Pallant, 2020, pp. 102; Briggs and Cheek, 1986).

An exploratory factor analysis was conducted to determine what, if any, underlying structure exists on the four-item Brief Resilient Coping Scale. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .629, acceptable for sample sizes between 100 and 200 (Shrestha, 2021; Pallant, 2020, pp. 190). The Bartlett Test of Sphericity has an associated p value of $<.001$, showing acceptability to continue with factor analysis. The one-component solution was evaluated based on the following criteria: eigenvalue, variance, scree plot, and residuals. After maximum likelihood estimate and varimax rotation, Factor 1 comprised the four items reported on a 5-point Likert scale that explained 28.170% of the variance with factor loadings between .399 to .738 (Table 6). All variables had positive loadings and addressed volunteer coping. Cronbach's α remained unchanged and was .565, a low alpha value, but has an acceptable inter-item mean and appropriate factor loadings to include within the later analyses (Pallant, 2020, pp. 102; Briggs and Cheek, 1986).

Table 6 Coping Factor Loadings

	Loading
Factor 1: Coping	
Coping3: I believe I can grow in positive ways by dealing with difficult situations.	.738
Coping2: Regardless of what happens to me, I believe I can control my reaction to it.	.507
Coping1: I look for creative ways to alter difficult situations.	.406

Volunteer Satisfaction

This study assessed volunteer satisfaction due to its potential role in stress levels among short-term disaster volunteers. To assess volunteer satisfaction, the instrument included the Volunteer Satisfaction Index (VSI). The original 40-item scale measures five dimensions of volunteer satisfaction: communication quality, group interaction, participation efficacy, work assignment, and group integration (Galindo-Kuhn and Guzley, 2001; Pauline, 2011). Within this study, the scale was condensed and adapted to thirteen items to reduce the overall survey length while also preserving the integrity of the scale. The scale was adapted from an original seven-point scale to a five-point Likert scale and included questions such as “the way in which other members of the organization relate to me,” “the chance to receive additional skills/training,” and “how appreciative clients are of our help.” While the content of the questions was not changed, the verbiage slightly changed to fit the context of a disaster instead of another event or situation (Pauline, 2011). Cronbach’s α was .841, showing a very good inter-item consistency and reliability within this study (Hulin, Netemeyer, and Cudeck, 2001; Ursachi, Horodnic, and Zait, 2015).

An exploratory factor analysis was conducted to determine what underlying structure exists on the four items from the adapted Volunteer Satisfaction Index. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .763, acceptable for sample sizes between 100 and 200 (Shrestha, 2021; Pallant, 2020, pp. 190). The Bartlett Test of Sphericity has an associated p value of $<.001$, showing acceptability to continue with factor analysis.

Principle components analysis revealed a four-factor solution; however, after an analysis of the loadings for each of the four factors and subsequent alpha reliability tests, item 4 was removed because it was a standalone item for Factor 4, did not have a loading over .300, and was inadequate to be a standalone scale by itself. After removing item 4, I reran the maximum likelihood estimate extraction and varimax rotation solution to produce a three-factor solution. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .771, acceptable for sample sizes between 100 and 200 (Shrestha, 2021; Pallant, 2020, pp. 190). The Bartlett Test of Sphericity still had an associated p value of $<.001$, showing acceptability to continue with factor analysis. The Cronbach α for factor 1 (items 1, 2, 3, 8, 7) was .758, factor 2 (items 12, 11, 6, and 13) was .779, and factor 3 (items 10, 5, and 9) was .618. Due to the lower α for factor 3, item 9 was removed from the analysis to improve the scale's reliability for factor 3. After removing item 9, I reran the maximum likelihood estimate extraction and varimax rotation solution to produce a three-factor solution. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .749, acceptable for sample sizes between 100 and 200 (Shrestha, 2021; Pallant, 2020, pp. 190). The Bartlett Test of Sphericity still had an associated p value of $<.001$, showing acceptability to continue with factor analysis.

Factor 1 comprised the five items reported on a 5-point Likert scale related to volunteer satisfaction, explained 19.99% of the variance with factor loadings between .323 and .861 (Table 7). To rename the new subscale, I then used ChatGPT-3.5 (OpenAI, 2024) as a tool to help identify common verbiage between the five scale items that loaded together by typing the following query into the system “Can you tell me a common phrase or theme between the following statements related to volunteer

satisfaction but not that: [My relationship with other volunteers] and [The friends I have made while volunteering] and [The way in which other members of the community or organization relate to me] and [How worthwhile my contribution is to the community] and [my ability to do this volunteer job as good as anyone else]. After reviewing the associated output from ChatGPT, I renamed Factor 1 “Volunteer Impact and Efficacy” because the items reflect how volunteers view their role and the value they bring to disaster response and recovery, whether through the impact on their volunteer service, ability to perform their volunteer role effectively, or the recognition and acceptance from the wider community they are serving. The Cronbach’s α for Factor 1, Volunteer Impact and Efficacy, was .758, showing good consistency and reliability (Raharjanti et al. 2022).

Factor 2, comprised the four items reported on a 5-point Likert scale related to volunteer satisfaction, explained 18.726% of the variance with factor loadings between .547 and .816 (Table 7). To rename Factor 2, I also used ChatGPT-3.5 (OpenAI, 2024) as a tool to help identify common verbiage between the four scale items that loaded together by typing the following query into the system “Can you tell me a common phrase or theme between the following statements related to volunteer satisfaction but not that: [The chance I have to utilize my knowledge and skills] and [The accuracy of the information I was given related to my volunteer role] and [Relationship with the paid staff members] and [The degree to which I feel I belong in the community or organization]. After reviewing the associated output from ChatGPT, I renamed Factor 2, “Volunteer Engagement and Support”, because the items reflect how volunteers feel supported, engaged, and integrated within their team, organization, and the wider community, whether through their use of certain volunteer

skills, receiving accurate information, building relationships with paid staff members, or a feeling of belonging. Cronbach’s α for factor 2, Volunteer Engagement and Support, was .779, showing good consistency and reliability (Raharjanti et al. 2022).

Factor 3, comprised the two items reported on a 5-point Likert scale related to volunteer satisfaction, explained 14.609% of the variance with factor loadings between .570 and .967 (Table 7). To maintain consistency in my factor naming process, I also used ChatGPT-3.5 (OpenAI, 2024) as a tool to help identify common verbiage between the two scale items that loaded together by typing the following query into the system “Can you tell me a common phrase or theme between the following statements related to volunteer satisfaction but not that: [The level of challenge this volunteer job provided me] and [How appreciative clients and survivors are or our help]. After reviewing the associated output from ChatGPT, I renamed Factor 3, “Volunteer Fulfillment and Recognition” because the items reflect how volunteers gain a level of satisfaction from their work, through the challenge provided by their role or the appreciation expressed by the community members and disaster survivors. Cronbach’s α for factor 3, Volunteer Fulfillment and Recognition, was .754, showing good consistency and reliability (Raharjanti et al. 2022).

Table 7 Volunteer Satisfaction Factor Loadings

	Loading
Factor 1: Volunteer Impact and Efficacy	
VOLSATISFY1: My relationship with other volunteers.	.861
VOLSATISFY2: The friends I have made while volunteering.	.685
VOLSATISFY3: The way in which other members of the community or organization relate to me.	.614
VOLSATISFY8: How worthwhile my contribution is to the community.	.410

VOLSATISFY7: My ability to do this volunteer job as good as anyone else.	.323
Factor 2: Volunteer Engagement and Support	
VOLSATISFY12: The chance I have to utilize my knowledge and skills.	.816
VOLSATISFY11: The accuracy of the information I was given related to my volunteer role.	.640
VOLSATISFY6: Relationship with the paid staff members.	.547
VOLATISFY13: The degree to which I feel I belong in the community or organization.	.547
Factor 3: Volunteer Fulfillment and Recognition	
VOLSATISFY10: The level of challenge this volunteer job provides me.	.967
VOLSATISFY5: How appreciative clients and survivors are of our help.	.570

Open-Ended Survey Questions

To best explore the views of disaster volunteers and understand their experience with disaster-related stressors, the survey instrument also included open-ended questions. Not only did this empower and provide the respondent agency to answer in their own words, but these questions also allowed for nuance that the quantitative variables could not capture entirely within the quantitative instrument. The inclusion and analysis of open-ended responses provided a more holistic perspective on the motivations of volunteers and the experience of disaster volunteers throughout their volunteer service during and after they return home. To assess any constructs that may not have been captured in the scales on the survey, I included the following open-ended questions at the end of the survey:

1. In a few sentences, describe your motivation to become a disaster volunteer.
2. In a few sentences, please describe what coping strategies, self-care, relaxation activities, or mental health resources you used during or after your disaster volunteer experience(s) within the last 12 calendar months.
3. In a few sentences, how would you describe your experience returning to your daily life after your disaster volunteer experience(s). This may include positive, negative, or neutral responses.

4. How has the COVID-19 pandemic influenced your ability to serve as a disaster volunteer.
5. What else would you like to share regarding your most recent disaster volunteer experience(s) within the last 12 calendar months related to stress, mental health, coping, social support, or re-integration experiences?

Data Analysis

Quantitative Survey Data

I employed a mixed-data analysis technique with my survey data (Small, 2011). Initial data cleaning and recoding occurred within Microsoft Excel, and the dataset was later uploaded to SPSS29 for statistical analysis. Initially, there were a total of 217 responses collected during the data collection period with an average completion time of 29 minutes, but after initial data filtering, 110 responses remained. Certain cases were selected to be filtered out, included 25 responses from participants who did not give consent or were ineligible to participate, as well as 82 responses from participants who took less than 10 minutes to respond to the survey, and subsequently left the survey largely incomplete. After initial data reduction, I identified nine cases with z-residual scores greater than or less than 3.00 at the multivariate level (participant ID 14; 49; 68; 78; 90; 139; 152; 165; 168). The Mahalanobis distance and the associated p values were also used to identify outliers (scores were less than 0.001). Two outliers were identified (participant ID 14 and 90), but each were already identified through the Z-score outlier method. After exploring the identified outliers, it was determined that these were not a result of data error or calculation but represent legitimate valid data points that demonstrate the varied levels of self-reported levels of stress, depression, coping, mastery, social support

satisfaction, and volunteer satisfaction, and would not be removed from the analysis (Osborne and Overbay, 2004).

Instead of sum scores of the scale variables to use in the regression analyses, I decided to use factor scores, which are “weighted scores that predict the location of each respondent on the factor or component,” derived from the earlier factor analysis on the scales included within the study (Mertler and Reinhart, 2017, pp. 255; DiStefano et al., 2019). After regression factor scores were obtained, I analyzed the normality and distribution of the produced regression factor scores through skewness and kurtosis values (table 8).

Table 8 Normality Assessment of Skewness and Kurtosis on Factor Scores

Variable	Skewness	Kurtosis
Stress	.871	-.092
Depression	3.243	12.779
Mastery	-1.241	1.937
Social Support Satisfaction	-1.169	.933
Coping	-.217	-.836
Volunteer Impact & Efficacy	-2.701	9.298
Volunteer Engagement & Support	-1.730	3.983
Volunteer Fulfillment & Recognition	-2.224	6.719

After evaluating the skewness and kurtosis of the computed regression factor scores, I re-calculated the z-residual scores to identify cases with scores greater than or less than 3.00 at the multivariate level to identify potential outliers. I identified six cases with z-residual scores greater than or less than 3.00 at multivariate level (participant ID 71; 75; 124; 151; 161; 162). The Mahalanobis distance and the associated p-values were also used to identify outliers (scores were less than 0.001).

Nine additional outliers were identified (participant ID 42; 54; 61; 66; 78; 82; 111; 156; 157). However, I decided not to remove the additional outliers because they represent valid levels of self-reported varied stress, depression, coping, mastery, social support satisfaction, and volunteer satisfaction associated with disaster volunteerism (Osborne and Overbay, 2004). After final data screening and reduction within the new factor scores, the total *n* sample was 110, with an average completion time of 32 minutes.

Bivariate correlations were conducted to assess the relationship between predictor variables and the dependent variables of stress and depression. Following bivariate correlation, I ran two multiple linear regression analyses using SPSS with an alpha value of $p < \text{or} = 0.05$. I chose to run two separate regression analyses to better explore the effects of the independent variables on stress and depression separately. In addition, two multivariate regression analyses were conducted because I did not have a large enough sample to conduct structural equation modeling (Wolf et al., 2023; Boomsa, 1982). When conducting both regression analyses, all independent variables related to the study hypotheses were included, including the number of disaster volunteer experiences within the past calendar year, mastery, social support satisfaction, coping, volunteer-related trauma, volunteer affiliation status, volunteer impact and efficacy, volunteer engagement and support, volunteer fulfillment and recognition, household income, and volunteer training level.

Open-Ended Survey Data

I used a tiered coding approach within Microsoft Excel to analyze the responses obtained through my open-ended questions in the survey (Saldana, 2009). While the questions focused on topics such as volunteer motivations, coping

strategies, and reintegration experiences, all questions and recorded responses underwent a first round of inductive coding to identify descriptive codes. Initial codes included “return challenges,” “desire to volunteer again,” “volunteer evening social engagement,” “volunteering as an energizer,” “be an example for children,” and “exercise.” I then did a second round of coding to develop analytic themes and conceptual elements from the first descriptive coding scheme (Saldana, 2009). Overarching categories included volunteer motivations, coping strategies, and reintegration experiences, with salient themes such as personal care, socialization, personal benefits, altruism/value, and reintegration emerging from the data. Table 12 in Appendix A includes information on the category and theme development within the open-ended responses, including sub-themes removed and included within the analyses and example excerpts taken from the data. Following my coding approach, I triangulated my results within the quantitative data, when possible, to ensure the open-ended responses' validity and reliability. Ethical Considerations and Human Subjects

The University of Delaware institutional review board determined that this project would be exempt on October 2, 2024. No financial compensation or other incentives were provided to study participants. In addition, all respondents who participated in this study did so voluntarily and could choose to withdraw at any time (Silverman, 2017). Participants could review the informed consent form (Appendix H) once they clicked the link to complete the online Qualtrics survey. Participants had to read the informed consent form and consent to the terms to begin the survey. If a participant did not consent, the participant was automatically redirected to the end of the survey. The anticipated risks to human subjects associated with this study were minimal. Participants were asked to recall their personal experiences with disasters

and their experience volunteering after a disaster, which may have resulted in modest discomfort. There were no other anticipated social, legal, economic, or physical risks from participation in this study. Despite the low risk for the study, mental health and crisis resources were provided to respondents at the onset of the study at the bottom of the consent form and mentioned free and vetted resources such as Disaster Distress Helpline (1-800-985-5990), 9-8-8 Suicide and Crisis Lifeline, 2-1-1 Crisis and Support Resources, and the Veterans Crisis Line (9-8-8, press 1) (Texas Health and Human Services Administration, n.d.). Apps recommended by mental health professionals from the Texas Health and Human Services Administration (n.d.) will also be listed for participants, with links to the Google Play Store and the Apple App Store. Apps include, but are not limited to, “Breath2Relax,” “Self-help Anxiety Management,” “ASK & Prevent Suicide”, and “Virtual Hope Box.” (Texas Health and Human Services Administration, n.d.)

Survey responses were confidential, but participant anonymity and confidentiality were not completely guaranteed because I collected some data about demographic measures such as race/ethnicity, gender, and geographic location. While participants were not asked to put their names on the questions within the survey, respondents had the opportunity to self-reveal identifying information such as their name, role, or more within the open-ended response questions. Despite the lack of a complete guarantee of anonymity, participant rights were protected, and the data gathered was cared for respectfully and discreetly (King et al., 2019). Data collected was within my university-affiliated Qualtrics account, my encrypted, password-protected university-affiliated Google Cloud account, and my personal Microsoft Office 365 file vault.

Chapter 5

RESULTS

Demographic Overview

The study's respondents were older, with 49.1 percent over the age of 55 ($n = 54$). Participants were also college-educated with a bachelor's degree or higher (73.6%, $n = 81$), male (55%, $n = 55$), married (64.5%, $n = 71$), white (85.5%, $n = 94$), and have not been personally affected by a hazard disaster outside of the COVID-19 pandemic (63.6%, $n = 70$). Participants reported relatively high-income levels, with 53.6% ($n = 59$) reporting an annual household income between \$50,000 and \$149,999 and 26.4% ($n = 29$) reporting an annual household income over \$150,000. Political beliefs leaned liberal 41.8%, $n = 46$), but still had a decent number who identified as politically neutral (30.9%, $n = 34$) and conservative (27.3%, $n = 30$).

Most respondents did not have prior military experience (59.1%, $n = 65$) and either worked full-time (36.4%, $n = 40$) or were fully retired (36.4%, $n = 40$). Respondents represented 35 U.S. states and Puerto Rico, with most coming from California (16.4%, $n = 18$), Texas (10.9%, $n = 12$), and Colorado (8.2%, $n = 9$). In terms of religion and spiritual beliefs, 46.4% ($n = 51$) identified as Christian (Protestant, Catholic, Orthodox), 21.8% as spiritual but not religious ($n = 24$), 7.3% identified as Mormon, Jewish, Muslim, Buddhist, or as a member of another major religion ($n = 8$), and 24.5% identified ($n = 27$) as atheist or non-spiritual/religious.

Most of the respondents were affiliated volunteers with a registered nonprofit organization (91.8%, $n = 101$), representing groups such as Team Rubicon (61.8%, $n = 68$), the American Red Cross (6.4%, $n = 7$), and other groups (15.3%, $n = 17$) representing other groups such as World Central Kitchen, Samaritan's Purse, Hope Force International, Inspiritus, Islamic Circle of North America, Project: CAMP, North Carolina Baptists on Mission Disaster Relief Ministry, Florida Baptist Disaster Relief, United Methodist Committee on Disaster Relief, Community Emergency Response Team, Feeding America, Cajun Navy Group Force, Billy Graham Evangelistic Association, and 8.2% of respondents reported that they volunteer with one or more disaster volunteer organizations ($n = 9$).

Respondents were relatively experienced with disaster volunteer work, with 70.8% ($n = 78$) having three years or more of experience. Respondents also were active in disaster relief activities, with 73.6% ($n = 81$) having volunteered after six or more disasters within their lifetime and 21.8% ($n = 24$) having volunteered after 31 or more disasters in their lifetime. Within the past year, volunteers were typically field based (90%, $n = 90$) and responded to hazards like hurricane/tropical storms (49.1%, $n = 54$), flooding (13.6%, $n = 15$), tornadoes (14.5%, $n = 16$), and wildfires (8.2%, $n = 9$). Participants mostly lived outside the areas where they volunteered and had to use transportation like flights to get to the disaster area (95.5%, $n = 105$).

In terms of volunteer sector, participants engaged in a wide range of relief activities, from debris management (38.2%, $n = 42$), leadership/coordination (17.3%, $n = 19$), logistics (8.2%, $n = 9$), other activities such as finance, mass feeding, safety/security, childcare, donations management, volunteer management, GIS/mapping, shelter operations, religious support, or other administrative tasks

(19.9%, $n = 22$), and 16.4% volunteering in two or more sectors ($n = 18$). Many of the respondents engaged in a leadership capacity as a volunteer (70.9%, $n = 78$), felt they received the right amount of training in the past 12 calendar months (83.6%, $n = 92$), had access to potable water and electricity (100%, $n = 105$), had their dietary needs met while volunteering (89.1%, $n = 98$), and 32.7% reported an inability to serve disaster survivors due to bureaucratic issue or process ($n = 36$). Generally, volunteers participated in social activities after the volunteer workday (68.2%, $n = 75$), felt there was just the right amount of time dedicated to socialization or relaxation after the volunteer workday (59.1%, $n = 65$), and maintained contact with their fellow volunteers after returning home (98.2%, $n = 108$).

Bivariate Correlations

My stated hypotheses related to the relationship between a greater number of disaster volunteer experiences within the past calendar year, mastery, social support satisfaction, coping, volunteer affiliation status, volunteer impact and efficacy, volunteer engagement and support, volunteer fulfillment and recognition, household income, and volunteer training level with the two dependent variables, volunteer stress, and volunteer depression. Bivariate correlations between the stated predictor variables and the two dependent variables are discussed below and presented in Table 10.

Number of Disaster Experiences in the Past Calendar Year

To compare the number of disaster volunteer experiences in the past calendar year with the dependent variables of volunteer stress and volunteer depression, a bivariate correlation was conducted and revealed there was no significant correlation

between either volunteer stress ($r = -.100, p = .304$) or volunteer depression ($r = -.115, p = .236$). This means there is insufficient evidence to show a relationship between the number of disaster volunteer experiences in the past year and volunteer stress or volunteer depression within this study.

Mastery

To compare the levels of mastery with the dependent variables of volunteer stress and volunteer depression, a bivariate correlation was conducted and revealed a significant negative correlation between volunteer stress ($r = -.331, p < .001$) or volunteer depression ($r = -.335, p < .001$). This means that participants with higher levels of mastery had lower levels of both stress and depression and confirms my hypotheses for this variable.

Social Support Satisfaction

To compare the social support satisfaction with the dependent variables of volunteer stress and volunteer depression, a bivariate correlation was conducted and revealed a significant negative correlation between volunteer stress ($r = -.283, p < .001$) or volunteer depression ($r = -.360, p < .001$). This means that participants with higher levels of social support satisfaction had lower levels of both stress and depression, which confirms my hypotheses for this variable.

Coping

To compare the coping levels with the dependent variables of volunteer stress and volunteer depression, a bivariate correlation was conducted, and revealed there was no significant correlation between either volunteer stress ($r = -.004, p = .967$) or volunteer depression ($r = -.004, p = .967$). This means that there is not enough

evidence to show a relationship between the levels of coping and volunteer stress or volunteer depression within this study.

Volunteer-Related Trauma

Bivariate correlations were not conducted between volunteer stress, volunteer depression, and volunteer-related trauma because the independent variable was removed due to scale unreliability.

Volunteer Affiliation Status

To compare volunteer affiliation with the dependent variables of volunteer stress and volunteer depression, a bivariate correlation was conducted, and revealed there was no significant correlation between either volunteer stress ($r = -.047, p = .630$) or volunteer depression ($r = -.092, p = .348$). This means there is not enough evidence to show a relationship between volunteer affiliation and volunteer stress or depression within this study.

Volunteer Impact and Efficacy

To compare volunteer impact and efficacy with the dependent variables of volunteer stress and volunteer depression, a bivariate correlation was conducted and revealed a significant negative correlation between volunteer stress ($r = -.228, p = .018$) or volunteer depression ($r = -.248, p = .010$). This means that participants with higher levels of volunteer impact and efficacy had lower levels of both stress and depression, which confirms my original hypotheses for volunteer satisfaction in general.

Volunteer Engagement and Support

To compare volunteer engagement and support with the dependent variables of volunteer stress and volunteer depression, a bivariate correlation was conducted, and revealed there was no significant correlation between either volunteer stress ($r = -.040$, $p = .682$) or volunteer depression ($r = -.035$, $p = .718$). This means there is not enough evidence to show a relationship between volunteer engagement and support and volunteer stress or depression within this study.

Volunteer Fulfillment and Recognition

To compare volunteer fulfillment and recognition with the dependent variables of volunteer stress and volunteer depression, a bivariate correlation was conducted and revealed a significant negative correlation between volunteer stress ($r = -.198$, $p = .018$). This means that participants with higher levels of volunteer fulfillment and recognition had lower stress levels, which confirms my original hypotheses for volunteer satisfaction in general. Bivariate correlations also revealed no significant correlation between volunteer depression ($r = -.160$, $p = .100$). This means that there is not enough evidence to show a relationship between volunteer fulfillment and recognition and volunteer depression within this study.

Household Income

To compare household income with the dependent variables of volunteer stress and volunteer depression, a bivariate correlation was conducted, and revealed there was no significant correlation between either volunteer stress ($r = -.089$, $p = .368$) or volunteer depression ($r = -.001$, $p = .993$). This means there is insufficient evidence to show a relationship between household income and volunteer stress or volunteer depression within this study.

Volunteer Training Level

To compare volunteer training level with the dependent variables of volunteer stress and volunteer depression, a bivariate correlation was conducted, and revealed there was no significant correlation between either volunteer stress ($r = -.041, p = .676$) or volunteer depression ($r = -.091, p = .353$). This means there is not enough evidence to show a relationship between volunteer training level and volunteer stress or depression within this study.

Table 9 Bivariate Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	
1. VolStress	1												
2. Volunteer Depression	.472**	1											
3. Mastery	-.331**	-.335**	1										
4. Social Support Satisfaction	-.283**	-.360**	.544**	1									
5. Coping	-.004	-.004	.277**	.330**	1								
6. Volunteer Impact & Efficacy	-.228*	-.248*	.386**	.398**	.236*	1							
7. Volunteer Engagement & Support	-.040	-.035	.263**	.296**	.253**	.065	1						
8. Volunteer Fulfillment & Recognition	-.198*	-.160	.243*	.086	.163	.019	.036	1					
9. Level of Training	-.041	-.091	.145	.114	-.067	-.036	-.017	.217*	1				
10. Household Income	-.089	-.001	-.030	.040	.062	-.015	-.025	.116	.139	1			
11. Affiliated Volunteer	-.047	-.092	.032	-.016	.152	-.018	.070	.405**	.316**	.043	1		
12. Past Volunteer Experiences	-.100	-.115	.117	.258	.052	.097	-.086	.056	.056	.002	.002	1	
** Correlation is significant at the 0.01 level (2-tailed).													
* Correlation is significant at the 0.05 level (2-tailed).													

Stress Regression Analyses

When testing for multicollinearity, greater number of disaster volunteer experiences within the past calendar year VIF = 1.075; mastery VIF = 1.805; social support satisfaction VIF = 1.648; coping VIF = 1.257; volunteer affiliation status VIF = 1.412; volunteer impact and efficacy VIF = 1.312; volunteer engagement and support VIF = 1.200; volunteer fulfillment and recognition VIF = 1.380; household

income VIF = 1.074; and volunteer training level VIF = 1.248, which shows they are moderately correlated but not enough to be an issue during the regression analysis.

A linear regression was then run to analyze the effect of the number of disaster volunteer experiences within the past calendar year, mastery, social support satisfaction, coping, volunteer-related trauma, volunteer affiliation status, volunteer impact and efficacy, volunteer engagement and support, volunteer fulfillment and recognition household income, and volunteer training level on the dependent variable of volunteer stress, was not significant and positive ($p = .077$). Table 10 presents the means, standard deviations, and the betas associated with the stress regression model. The regression model also indicated that 17 percent ($R^2_{adj} = .171$) of the variance in volunteer stress ($F(10,96) = 1.777$, $p = .077$) was predicted by the number of disaster volunteer experiences within the past calendar year ($b = -.027$; $p = .789$, $t = -.269$), mastery ($b = -.197$; $p = .139$, $t = -1.492$), social support satisfaction ($b = -.188$; $p = .139$, $t = -1.492$), coping ($b = .147$; $p = .184$, $t = 1.340$), volunteer affiliation status ($b = -.020$; $p = .864$, $t = -.172$), volunteer impact and efficacy ($b = -.105$; $p = .353$, $t = -.933$), volunteer engagement and support ($b = .045$; $p = .680$, $t = .414$), volunteer fulfillment and recognition, ($b = -.138$; $p = .236$, $t = -1.194$), household income ($b = -.088$; $p = .392$, $t = -.861$), and volunteer training level ($b = .053$; $p = .631$, $t = .482$).

Table 10 Mean, Standard Deviation, and Betas for Stress Regression Model Variables

Variables	<i>M</i>	<i>SD</i>	<i>b</i>
Volunteer Stress	0.013	0.937	
Mastery	0.015	0.930	-.197
Social Support Satisfaction	0.013	0.989	-.188
Coping	0.014	0.802	.147
Volunteer Impact & Efficacy	-0.010	0.947	-.105

Volunteer Engagement & Support	0.026	0.887	.045
Volunteer Fulfillment & Recognition	-0.008	0.999	-.138
Level of Training	0.824	0.382	.053
Household Income	1.10	0.669	-.088
Affiliated Volunteer	0.91	0.292	-.020
Past Year Volunteer Experiences	2.24	1.56	-.027
<hr/>			
<i>n</i> = 97			

Overall, the model indicates that none of the dependent variables predicted volunteer stress and were insignificant in the model.

Depression Regression Analyses

When testing for multicollinearity, greater number of disaster volunteer experiences within the past calendar year VIF = 1.081; mastery VIF = 1.761; social support satisfaction VIF = 1.736; coping VIF = 1.244; volunteer affiliation status VIF = 1.416; volunteer impact and efficacy VIF = 1.338; volunteer engagement and support VIF = 1.219; volunteer fulfillment and recognition VIF = 1.389; household income VIF = 1.092; and volunteer training level VIF = 1.262, which shows they are moderately correlated but not enough to be an issue during the regression analysis.

Table 11 Mean, Standard Deviation, and Betas for Depression Regression Model Variables

Variables	<i>M</i>	<i>SD</i>	<i>b</i>
Volunteer Depression	0.042	1.019	
Mastery	0.023	0.937	-.190
Social Support Satisfaction	-0.008	0.995	-.300
Coping	0.016	0.796	.164
Volunteer Impact & Efficacy	0.000	0.933	-.082
Volunteer Engagement & Support	0.046	0.880	.080
Volunteer Fulfillment & Recognition	-0.042	1.002	-.088
Level of Training	0.831	0.376	.043
Household Income	1.13	0.656	.000
Affiliated Volunteer	0.910	0.294	-.092
Past Year Volunteer Experiences	2.260	1.566	-.005
<hr/>			
<i>n</i> = 95			

I then completed a linear regression to analyze the effect of the number of disaster volunteer experiences within the past calendar year, mastery, social support satisfaction, coping, volunteer-related trauma, volunteer affiliation status, volunteer impact and efficacy, volunteer engagement and support, volunteer fulfillment and recognition household income, and volunteer training level on the dependent variable of volunteer depression, was significant and positive ($p = .026$). Table 11 presents the means, standard deviations, and the betas associated with the depression regression model. The regression model also indicated that 21 percent ($R^2_{adj} = .207$) of the variance in volunteer depression ($F(10,94) = 2.187$, $p = .026$) was predicted by the number of disaster volunteer experiences within the past calendar year ($b = -.005$; $p = .958$, $t = -.053$), mastery ($b = -.190$; $p = .144$, $t = -1.475$), social support satisfaction ($b = -.300$; $p = .022$, $t = -2.341$), coping ($b = .164$; $p = .134$, $t = 1.512$), volunteer affiliation status ($b = -.092$; $p = .430$, $t = -.793$), volunteer impact and efficacy ($b = -$

.082; $p = .469$, $t = -.727$), volunteer engagement and support ($b = .080$; $p = .457$, $t = .747$), volunteer fulfillment and recognition ($b = -.088$; $p = .998$, $t = -.772$), household income ($b = .000$; $p = .430$, $t = -.002$), and volunteer training level ($b = .043$; $p = .697$, $t = .390$). Social support satisfaction was the only significant predictor in the model with negative directionality. The number of disaster volunteer experiences within the past calendar year, mastery, coping, volunteer-related trauma, volunteer affiliation status, volunteer impact and efficacy, volunteer engagement and support, volunteer fulfillment and recognition household income, and volunteer training level were all not significant in the model.

Overall, the model indicates that higher scores of social support satisfaction predicted lower depression scores for disaster volunteers. Mastery, coping, volunteer impact and efficacy, volunteer engagement and support, volunteer fulfillment, level of training, household income, volunteer affiliation, and the number of disaster volunteer experiences in the past year were not significant in the model.

Open-Ended Survey Data Findings

As described within the methodology section, five open-ended questions included at the end of the survey were designed to explore and capture thoughts, feelings, and ideas related to volunteer motivations, mental health, and reintegration experiences that were not captured in the preceding literature review or survey scales. Responses were coded based on initial themes from the related questions and then re-coded based on emergent sub-themes (Saldana, 2009). Broad categories identified included volunteer motivations, coping strategies, and re-integration experiences. Table 12 in Appendix A shows the development of codes to themes and categories, as well as the count associated with each of the phenomena identified. Note that

participants were often coded multiple times within their responses to the open-ended questions, which is why there may be more than 110 appearances within the data. The most noteworthy themes and subthemes are explored below, as well as some example quotes. I further explore and discuss the presented themes and subthemes deeper in Chapter 6.

Volunteer Motivations

Related to the first open-ended question on volunteer motivations within the survey, there was a response rate recorded at 91%, with a total of 173 codes associated with volunteer motivations. Additionally, for question four related to the effect of the COVID-19 pandemic on their volunteering, there was an 87% completion rate. There were four main themes identified related to volunteer motivations, including altruism/values ($n = 91$), socialization ($n = 18$), personal reasons ($n = 40$), and event/place attachment ($n = 24$). These themes and related sub-themes are discussed more in detail below.

Altruism and Values

Personal Value and Call to Serve

Altruism and Values represented the largest motivation to volunteer following a disaster among my sample, with 91 appearances within my open-ended data. The most common motivation expressed by volunteers regarding their motivation to volunteer was to express their altruistic non-religious values ($n = 14$) or because they felt called to serve/born to serve and give back to communities in need ($n = 46$). Volunteers reported that volunteering was an expression of their self-identity, reporting ideas that they were a servant at heart. For example, one respondent stated,

“I am a servant at heart and volunteer in a variety of settings, including disaster recovery.” Another respondent also highlights how altruistic motives may represent a learned trait that may distinguish volunteers from the non-volunteer population by saying “Not everyone is built to give of themselves. I am built that way.”

A respondent also describes “call” to serve not driven by any distinguishable religious or spiritual motivations, but influential enough to drive behavior and action such as volunteerism. For example, “I have always felt called to serve. I have many skills, and this is a realm I believe suits my skill set.” This existential call to serve unrelated to any certain religious practice is not unexpected considering that 24.5% identified as atheist/non-religious and 21.8% as spiritual but not religious. Further, despite 46.4% of participants identifying as Christian (all denominations), there were only six identified instances where religion was mentioned as a motivation to serve as a disaster volunteer. For example, one participant highlights how their belief in God guides their decision to be a disaster volunteer “God calls us to be his hands and feet. I feel I am fulfilling my calling as a Christian when I volunteer.” In sum, people’s individual values and “innate” calling to volunteer represent the largest motivation within this population.

Influence of a Career in Public Service

Respondents also indicated that they were motivated to volunteer because they have done so for their entire lives and developed altruistic values due to a career in public service ($n = 12$). Respondents reported a desire to continue to express their values and altruism through continued service after retirement or leaving public service. For example, one respondent who pursued a long career in public service described their ability to continue volunteering after retirement, “I have been in public

service for 20+ years and retired in 2021 from a response job and felt that since I am still capable of providing assistance to others I should so I decided to volunteer my time when I could.” Despite the retirement of public servants and first responders, there was still a need to give back and help communities in need. Volunteerism filled a gap for some respondents for continued service, “[I am a] retired first responder wanting to continue helping communities.”

Use of Personal Skills and Expertise

Relatedly, participants also described volunteerism as a way for them to use their skills and expertise in a way that could help communities in need ($n = 13$). For example, one participant expressed the need to use their “unique” skills in a way that could contribute to an effective response within the affected community, “I think I have unique skills that are very appropriate for effective response to disasters.” Additionally, there are also skills pertinent to disaster relief that volunteers have expertise in due to their training in their regular day-to-day job. For example, one respondent said that “[they are motivated to volunteer because it’s] exciting, [and to] apply skills outside of fulltime job, [while also] helping others, [and] learning new skills (e.g. chainsaw work).” This participant also highlights that while volunteers may bring skills and capacity to the relief operation, they also enjoy learning new skills that they do not have the opportunity to learn within their regular vocation, which may be a valuable tool both for recruitment and retention.

In sum, the presented findings suggest that respondents have an altruistic desire to express values instilled in them, whether from a career in a service-oriented profession, through the cultivation of an altruistic identity throughout one’s lifetime, or a desire to use one’s experience and skills for the better good following a disaster.

Socialization

Camaraderie, Friendship, and Teamwork

Outside of altruistic motivation participants also described volunteerism as an opportunity for them to create meaningful relationships and socialize with their fellow volunteers ($n = 18$). One participant highlighted how valuable the identity as a team member within a volunteer organization can be to someone, especially when they have the opportunity for bonding among team members and fellow volunteers, “My motivation is simply being a part of a team that just want[s] to help people get back on their feet. The camaraderie, good natured banter, and service to others energizes me.”

Some respondents also mentioned volunteerism as a way to find connection and meaning after leaving a structured career in the uniformed services. One respondent said, “I needed to find something to fill the void of military service after getting out.” The desire to have a heightened level of socialization and be a member of a team was also often described in addition to the desire to express one’s altruistic values and help communities in need. One participant quoted, “I want to help neighbors in need. I want to be a part of a team that responds to neighbors in need.”

In sum, while the least common among the identified sub-themes for volunteer motivations, socialization, and the opportunity to be a member of a team within an established response organization represents an important consideration when exploring the mental health effects of disaster volunteering.

Personal and Egoistic Volunteer Motivations

Sense of Purpose and Fulfillment

People also had personal and more egoistic reasons to volunteer ($n = 40$), including an individual sense of purpose or fulfillment ($n = 18$), need to use their own time and availability ($n = 12$), and less commonly, to have better job prospects and seek a career in humanitarian relief ($n = 2$), to be an example for the future generations ($n = 2$), to develop new skills or as a method for personal growth ($n = 3$), or because disaster relief work was exciting and they wanted to be part of it ($n = 3$).

Respondents reported a desire to find a sense of purpose and fulfillment from their disaster volunteer work to fill existing voids they were experiencing in their lives, whether that be a change from their regular career, transition to civilian life from military service ($n = 18$). For example, one respondent describes the desire to redirect their need to serve and connect to a purpose-driven mission after they transitioned out of the uniformed service, “transitioning from uniform to civilian career and needed the sense of purpose and connection to likeminded people.” Another respondent highlights the difference in mission and purpose that disaster relief service work gives them when compared to their day-to-day activities in the quote, “service work gives me a sense of purpose, that I’m doing something that’s right, not just to pay the bills. I also enjoy hands on work.”

Time and Availability to Volunteer

Volunteerism remains an activity among those who have the most time and personal availability to volunteer, and a reason identified for engaging in disaster volunteer service within this study. Since the majority of volunteers in this sample traveled outside of the area, they typically reside to participate in disaster relief

activities (95.5%), having the time and availability to volunteer was an important factor in order to participate. In particular, those who were retired, and had the time to pursue activities like volunteering, describe the new life stage as an opportunity to give back communities in need. For example, one participant stated, "I've had a good life and recently retired. I want to give back to the communities that helped me get there and people that have been impacted by disasters I have not had to face." Another participant also highlights that because they are now retired, they can continue to serve others, although in a different capacity from when they were employed full-time by stating, "I have a lifetime of service. It's what I'm made to do. I knew when I retired, I would be serving others."

In sum, volunteers may be driven to volunteer by internal or self-interest factors, such as a desire to use up their newfound free time and availability or desire to find a sense of purpose during a life transition such as leaving the military.

Event Attachment and Volunteerism

Hazard Event/Disaster Experience

Event attachment also was identified as a common reason people decided to become or increase their involvement with disaster relief activities ($n = 24$). Seven respondents reported they were driven to sign-up with their organization or join the relief efforts as a result of their exposure directly to a hazard event or subsequent media reports about the disaster on the news. One respondent described that they engage in volunteer activities as adult to commemorate the efforts of volunteers who helped their community following Superstorm Sandy in 2012, "when I was in middle school, my area was affected by Hurricane Sandy. Since then, I have made a point to

volunteer and assist disaster survivors in the same way that those volunteers helped my community bounce back all those years ago.” Another respondent highlights that media exposure can also encourage people to become involved with formal relief activities, despite the fact they were not directly affected in a personal way, “ [I was motivated to volunteer after] Hurricane Harvey. [I] Signed up [to volunteer] after seeing all the water rescues.”

The COVID-19 Pandemic

The COVID-19 pandemic disrupted every aspect of daily life when the virus rapidly spread among populations in early 2020, resulting in the implementation of stay-at-home-orders, widespread business and school closures, and a significant uptick in demand for healthcare and social or government funded services. Within this context, the COVID-19 pandemic, within this study, also served as a catalyst for volunteerism ($n = 17$). For example, one respondent describes that they were able to volunteer more as a result of the pandemic, “ I volunteer MORE [because of the COVID-19 pandemic.” As a result of loss of employment or business closures, people who were physically able and socially positioned had more time to dedicate to volunteer activities, as compared to their life prior to the COVID-19 pandemic. One respondent noted that: “Covid gave me the opportunity to volunteer full time for my own community assisting the food bank with delivering meals to food insecure populations. It opened my eyes to the huge disparity of access within my own community. I also went back to school during the pandemic to study emergency management, so I now look forward to a future career helping communities recover from disasters.”

In sum, hazard events like tornadoes and hurricanes, or public health emergencies like the COVID-19 pandemic, can act as catalysts that can encourage and give people the opportunity to engage in disaster relief volunteer activities. In addition, participants help to express that new volunteers can be motivated to volunteer not only because they were directly affected or previously directly affected by a hazard event in the past, but also by exposure to media reports that show the damage and current relief activities ongoing in the disaster area.

Throughout the data there were a variety of motivations reported by volunteers in this sample that guided their volunteer activity, such as a desire to express their altruism and personal values, desire to build friendships and be a member of a team, use additional time and personal availability, find a sense of purpose or fulfillment, and/or give back to communities in need after exposure to hazard events or public health emergencies like the COVID-19.

Volunteer Coping Strategies

The second open-ended question which focused on understanding volunteer coping strategies had a recorded response rate recorded at 88%, with a total of 179 codes associated with volunteer coping strategies. There were three main themes identified, including personal care ($n = 95$), socialization ($n = 63$), and no coping strategies ($n = 21$). These themes and related sub-themes are discussed more in detail below.

Lack of Coping Strategies

There was a total of 21 instances where respondents reported that coping was unnecessary or that they did not need to use methods of coping when they served as a

disaster volunteer. In particular, there were 10 instances where participants noted that coping was unnecessary or left the question blank. Of those who specifically stated it was unnecessary through text, one respondent reported that they had good physical and mental health and did not need to engage in any specific coping activities as a result of their volunteer service by stating, "I have really good mental and physical health and don't feel stressed by volunteering or post-volunteering." There were limited reports ($n = 3$) that a career as a first responder prepared volunteers with the skills to disassociate between the trauma they were seeing in the disaster area. For example, one participant quoted "Due to being a retired fireman, I have witnessed much tragedy. I have done the absolute best I can at each call. I learned years ago, that I can handle myself in whatever came my way as I had confidence in doing my best that I could for people and the rest is out of my control."

Volunteering as Coping Itself

Volunteers who dismissed coping strategies also described how volunteering was their method of coping because it rejuvenates them or brings them joy ($n = 8$). For example, one participant describes that they do not need any coping because they do not feel overwhelmed or overly stressed from their disaster volunteer experience. Instead, they reported that disaster volunteerism is a way for them to be fulfilled in life, "my disaster volunteer experience actually fulfills me. I've rarely felt the need for coping strategies or wellness assistance." While disaster volunteerism may increase the potential exposure to trauma when working in the disaster area, such volunteerism can also have a positive benefit to individuals, such as the participant who describes disaster volunteerism as energizing, "actually, volunteering in disaster recovery

energizes me, especially if I get to interact with survivors and encourage them in some way.”

In sum, there was a smaller number of participants who stated that they do not participate or require coping strategies as a result of their volunteer service. However, of the participants described their reasoning for not engaging in coping strategies, it was often because they felt they did not need coping strategies or because disaster volunteerism was actually a positive activity in their life that they didn't need to cope with.

Use of Volunteer Coping Strategies

Personal Care

Respondents who engaged in coping strategies predominantly engaged in activities involved in personal care ($n = 95$) and socialization ($n = 63$), and often a mixture of both. Respondents used a variety of different personal care activities as a way to cope with their feelings and experiences both during and after volunteer service. The most common personal care coping strategy was the incorporation of physical activity into one's daily schedule, such as exercise, hiking, yoga, and walks ($n = 28$). While specific activities discussed were individual based on one's physical ability level, physical activity allowed volunteers the opportunity to destress by getting fresh air and also increases endorphin with feel-good transmitters. For example, one volunteer highlights that they dedicate one day a week to being outside and participating in physical activity like hiking, swimming, and fishing, “I take a day off once a week and try and find somewhere fun to hike, fish or swim.”

In addition to exercise and physical activity, respondents also engaged in religious worship, prayer, meditation, and grounding exercises as a method of coping ($n = 20$), which may or may not be included with physical activity like yoga or walks. For example, one participant noted that they participated in daily religious activity as a coping mechanism, “Daily debriefing. Daily devotions, quiet time, Bible reading.” Other personal care coping strategies identified by participants include attending appointments with their regular counselor or therapist ($n = 7$), taking time to be alone and rest ($n = 12$), listening to music or watching TV/movies ($n = 5$), reading ($n = 6$), and other personal hygiene activities like bathing or getting a massage or a manicure ($n = 8$). For example, one volunteer said, “I always take a book and have movies on my tablet to help me unwind at the end of the day.” Another respondent said, ““I take a lot of baths and use some aromatherapy. I also exercise regularly and do some mindfulness techniques.” Despite the wide variety of personal care activities volunteers participate in during and after volunteer service, they help show that coping can be both an individual and organizational process, but all activity helps the volunteer to manage stress related to their volunteer service.

Socialization with Fellow Volunteers, Family, and Pets

Socialization, particularly among fellow volunteers, family, and pets, was a common theme among the respondents as a coping strategy during and after disaster volunteer service. Respondents felt that socialization with their volunteer peers was necessary because they understood how the respondent was feeling whether they responded to the same disaster or not ($n = 26$). One respondent noted that they used socialization with volunteers for that very reason, “[I discuss] with other volunteers and people who understand the process of disaster response.” Volunteers also feel

comfortable talking to other volunteers because they feel they are better able to relate to them based on the same shared experience. One volunteer with Team Rubicon describes how comforting it is to have fellowship with other volunteers because they have the same shared identity as a disaster volunteer with the organization, “Talking around the campfire provides better therapy than any VA session. Greyshirts understand me and do not judge.” Another volunteer describes how they need to discuss their volunteer experience both with fellow volunteers, as well as those who are not volunteers, “I have found that the best way to cope is to talk about it, with people who did not volunteer, as well as with other disaster volunteers, some that deployed with me and others that did not go to that specific disaster.”

In addition to socialization with fellow volunteers, respondents also used relationships with their significant other, other family, and friends to help them process their volunteer experiences ($n = 27$). Family, such as one’s spouse/partner and children, allowed people to talk to a non-volunteer about their experience. For example, one respondent said, “After [I volunteer], when I get home [, I] talk to my partner about the [experience].” Another respondent noted that family was their preferred way to cope with their volunteer experience, especially when sharing activities with one another, “spending time with family is my favorite way to cope. Camping and outdoor activities are also high on my list of things that help me unwind.” Another participant noted that in addition to family time, they needed time to spend with friends specifically outside of their role as a parent or in this case “mom” by stating, “Talking with friends, including making time for my children and time for friends away from my children to be me and not just “mom” when I return from deployment.”

Surprisingly, people who had pets also discussed socialization with their animals as a way that helped them cope with their volunteer experience ($n = 8$). When volunteers were unable to share their feelings with fellow volunteers, family, or friends, pets were used as a way for them to help process their volunteer experience. One respondent explains that they, “Don't want to "burden" family with tough stories. but [I] have my dogs to get outside a lot. and many projects to be occupied with.” Other participants enjoy “cuddling with my dogs at home” where others spend time with their pets in addition to their significant others or kids such as “I take my dog with me and spend a lot of time on the phone with my husband” and “I read, spend time with my kids, and spoil my pets.”

In sum, socialization was an essential coping mechanism for disaster volunteers during and after their service. To help process their experiences, volunteers turned to their fellow volunteers, family, and even pets as a way to decompress and unwind after spending time in a disaster response and recovery environment. The open-ended responses suggest a wide variety of coping strategies used by volunteers and the role of socialization both during and after volunteer service. The responses also suggest that volunteers may not need to use coping strategies because of their previous/current career or the fact that volunteering for them is a coping strategy in and of itself.

Volunteer Reintegration

The third open-ended question which focused on understanding volunteer reintegration experiences had a recorded response rate recorded at 88%, with a total of 130 codes associated with volunteer coping strategies. There were three main themes

identified, including reintegration challenges ($n = 64$), positive reintegration experiences ($n = 31$), and no challenges or neutral reintegration experiences ($n = 35$). These themes and related sub-themes are discussed more in detail below.

Neutral Reintegration Experiences

Some respondents described that they did not experience any issues challenges regarding reintegration ($n = 26$), either because they left the question blank or described neutral reasonings as to why they did not experience many issues. For example, one respondent reported that they “I return to my daily life just fine; no issues.” Another respondent describes that time is an important factor, and that they had to quickly transition due to their personal work requirements, expediting the reintegration experience, “[I] didn't really have a transition into daily life. I had to switch from volunteering straight into working and planning for upcoming event for a job.”

There was also some mention of a volunteer's ability to disassociate from the phenomena experienced following the disaster from their day-to-day life at home. For instance, one volunteer described that they “[have] done it long enough I just compartmentalize the disaster. Returning to daily life is not difficult.” These findings show that disaster volunteers may not report issues with reintegrating back into their regular schedule following volunteer service, whether because they have to quickly transition due to their demands at home or because they have learned the ability to disassociate and compartmentalize their volunteer experience between their daily life.

Positive Reintegration Experiences

There were also 31 reports of positive reintegration experiences, which was a direct result from their feelings related to their volunteer service. While five responses were unspecific and unable to be categorized further ($n = 5$), three respondents also reported that they volunteered as a method of stress relief, and therefore didn't experience negative reintegration challenges. Relatedly, volunteers also described that they had a positive reintegration, enough so that they planned to increase their volunteer involvement. Most commonly among those with positive reintegration experiences were feelings of appreciation, gratefulness, and support ($n = 17$). For example, one respondent reported feeling, "Enriched. Fulfilled. Warmth in my heart that I did a good thing for someone who was suffering their worst days." Another respondent described that the disaster helped them to contextualize their own life circumstances to that which they witnessed within the disaster area, "[I had a] "very positive" [reintegration experience], disaster relief has a habit of contextualizing my own life and making me feel very grateful for everything around me. I always return to real life rejuvenated and passionate." These findings suggest that disaster volunteering can be a positive and uplifting experience for individuals who participate despite the devastation witnessed.

Reintegration Challenges

While some volunteers reported positive and neutral reintegration challenges, others also reported challenges when reintegrating after their volunteer experience ($n = 64$). Respondents described how these challenges were hard to cope with, although short in temporality, ranging from a few days to a few weeks. One respondent said that they would have post-deployment blues, or feelings of being down or sad, which took

a few days to recover from in the following quote, “[My reintegration experience was] tough...I quite often get the post deployment blues and it takes couple of days to reintegrate to the family.” Another respondent further describes how it took them weeks to recover from the feelings of depression they experienced, “ “[My reintegration experience was] HARD HARD HARD... People didn’t care, they thought it was great I went and volunteered but they didn’t want to talk about it. It was business as usual, and I needed to be heard and decompress. I was depressed for a few weeks.”

Respondents also describe how they experience feelings of reverse culture shock ($n = 18$) or difficulties reintegrating when their personal or work lives are not as fulfilling as how they felt when serving as a disaster volunteer. For example, one respondent said that they had a hard time adjusting to the lack of adrenaline and excitement found in the disaster area when compared to the slow pace of office work, “[My reintegration experience was] boring. Hard to readjust to slow pace of office work.” In another case, a respondent experienced feelings of judgement from coworkers over their volunteer activities because they would in a career outside of the volunteer space with others who they felt did not understand the demands and experiences of these volunteers. The participant said, “It is hard to return to normal life. I work in a profession that does not intersect with philanthropy or disaster recovery. It is a very superficial profession. At work people often find it odd I choose to spend my vacation time volunteering, so I often keep much of my experience to myself. In my personal life very, few people understand what I chose to do as well so it can be kind of isolating. But I rely on the people I meet volunteering to be who I communicate my post deployment blues with.”

Another important aspect of a negative reintegration experience is the loss of validation from survivors and seeing one's impact in the disaster area. The participant noted, "It can be difficult returning back to a normal life after serving in an area where you see an immediate impact of your contribution." Another volunteer noted similar sentiments and described a hierarchical worthiness scale where humanitarian work is described as socially more valuable and rewarding than other career fields, "The biggest challenge returning is the change of pace, my day-to-day work is not as urgent and essential as disaster work can be."

Feelings of frustration also emerged as a sub-theme when respondents discussed their reintegration challenges ($n = 7$). Respondents reported that it was a challenge hearing others complain about minor inconveniences compared to the living conditions that disaster survivors are experiencing, "In most cases, I return to my daily life without any issue. I have noticed an overall shift in how I relate to other people, specifically their tendency to complain about pretty shallow inconveniences. After working with communities with so little just trying to get back into safe housing and recover from whatever physical, emotional, financial trauma they've experienced from disaster (at no fault of their own), I find I have so little patience for the average person and their daily struggles."

In addition to feelings of frustration comparing disaster affected to non-disaster affected communities, participants also note the challenge of recovery following a physically and emotionally exhausting volunteer experience ($n = 9$). For example, a participant shares similar sentiments which helps explain how this frustration can combine with the physical and emotional intensity of disaster volunteering, "Sometimes it feels like re-integrating into society as most people have no real idea of

the misery the communities impacted by the disaster are feeling. This combined with the intensity of physical effort for my volunteering period, usually takes about a week for me to recuperate - physically and mentally.”

Volunteers also struggled with a loss of social relationships to their volunteers when they returned home ($n = 5$). For example, one volunteer noted that while they have a good support system at home, they still were saddened to leave their new friends, “Sad to leave friends, [but I have] a good support system at home.” Another volunteer also described that they mourned the loss of friendships and team camaraderie but highlighted that they also felt a loss of the sense of purpose from serving disaster volunteers ($n = 8$), “I was sad [after I returned home]. I missed my new friends, the camaraderie and sense of purpose from helping.”

Some volunteers also report feelings of guilt ($n = 7$), which posed a challenge towards a more seamless return experience. For example, one volunteer highlighted lingering feelings of guilt that more could have done for the disaster survivors, with a sense of loss that they will not be able to contribute to the mission, “I do go through a sort of “withdrawal” when I arrive home after an op because I feel like there’s more I could/should have done. And I miss my comrades that I worked side by side with.” Another volunteer describes feelings of guilt associated with the larger challenges surrounding disaster recovery, and the time it can take for survivors to receive assistance. For example, the volunteer reflects by saying, “Overall, [I] feel good about the work we do, but some work orders stick with you for a long time - because the effected persons have a very difficult and tough situation. Last [operation] in Detroit was very strange feeling, because the disaster was over 1y old by the time we arrived - society seemed to have forgotten about the effected people is very rough, unsaved,

unhealthy conditions. We did as much we could to help, but I still wonder why they had to suffer for so long until we arrived a 1 year after the flooding.”

In sum, volunteers reported a variety of feelings and challenges volunteers experience when reintegrating into their daily lives after disaster volunteering. Issues such as reverse culture shock, frustration, guilt, loss of social relationships and mission, difficulty were reported, even if they were temporally short in nature, from a few days to a few weeks. They also highlight the range in emotions volunteers experience when returning home, and how volunteers can experience a continuum ranging from challenging, neutral, and positive.

Chapter 6

DISCUSSION

Overview of Findings

Bivariate correlations confirmed the hypotheses for mastery, social support satisfaction, and volunteer impact and efficacy. Hypotheses were partially confirmed for volunteer fulfillment and recognition when correlated with volunteer stress. The overall regression model for volunteer stress as a dependent variable was not significant with all predictors, including the number of disaster volunteer experiences within the past calendar year, mastery, social support satisfaction, coping, volunteer affiliation status, volunteer impact and efficacy, volunteer engagement and support, volunteer fulfillment and recognition household income, and volunteer training level.

The overall regression for volunteer depression as a dependent variable was significant, where social support satisfaction was significant and negative ($\beta = -.300$), suggesting that an increase in social support satisfaction helps lower levels of depression outcomes. However, the following predictor variables were not significant to the model for volunteer depression: mastery, coping, volunteer impact and efficacy, volunteer engagement and support, volunteer fulfillment, level of training, household income, volunteer affiliation and number of disaster volunteer experiences in the past year were not significant in the model.

Review of Hypotheses and Research Findings

My first hypothesis was that a greater number of disaster deployments within the past calendar year would be positively associated with increased levels of stress and depression. This was not supported at the bivariate level and within both regression models for stress and depression. In other words, even though volunteers work in an arduous and potentially traumatic work environment (Aldamman et al., 2019; Quevillon et al., 2016; Yamasaki, 2020), with challenging living or working conditions (Adams, 2007), the number of disaster volunteer experiences was not found to have any significant association with volunteer stress or depression levels. This finding from this study shows there is a lack of evidence to support the role of cumulative impact between more disaster volunteer experiences and stress or depression levels.

The second hypothesis was that higher levels of mastery would be negatively related to volunteer stress and depression. This was supported at the bivariate level but unsupported within both regression models. This shows there is some evidence that stronger feelings on individual control may mediate the development of stress and depression among disaster volunteers when considered alone (Pearlin et al., 1981), but remains insignificant when considering other predictor variables simultaneously. This contradicts some of the literature suggesting that volunteering increases psychological resources like mastery (Wilson, 2012) and is an essential personal resource for mitigating stress and depression (Pearlin et al., 1981; Aneshensel and Mitchell, 2013).

The third hypothesis was that higher levels of social support satisfaction would be negatively associated with volunteer stress and depression. This was supported at the bivariate level and within the regression model for depression. In other words, participants who reported a higher level of satisfaction from the support provided by

their partners, friends, children, and fellow volunteers, regardless of the number, had lower levels of depression when compared to those with lower levels of social support satisfaction.

This relates to previous findings that have shown social support is casually related to physical and mental health outcomes (Cockerham, 2013; Thoits, 2011) by increasing one's sense of belonging and meaning through disaster volunteer service (Cohen, 2004; Thoits, 1995; Umberson and Montez 2010; Crist-Houran, 1996). This study also found that the perception of value and the satisfaction with emotional social support was critical to mediate levels of volunteer depression (Clary, 1987), highlighting that not only is the number of people within one's network important (Pearlin et al., 1981), but the also the strength and value of the social connection too.

The fourth hypothesis for the current study was that greater levels of coping skills would be negatively associated with volunteer stress and depression levels. This hypothesis was not supported at the bivariate level and within both regression models for stress and depression. In other words, despite the critical role coping has been found to have in keeping stress at a manageable level and preventing other mental health morbidities (Pearlin 1989; Pearlin et al. 1981; Pearlin and Schooler 1978), coping levels were found to be insignificant in predicting volunteer stress or depression levels in this study.

The fifth hypothesis was that higher levels of trauma would be positively associated with higher levels of volunteer stress and depression. Due to the unreliability of the adapted trauma exposure scale, trauma exposure was not included as a predictor variable within the bivariate or regression analyses.

The sixth hypothesis for this study was that unaffiliated or spontaneous volunteers would be positively associated with higher levels of stress and depression than respondents who were affiliated with a nonprofit organization. This hypothesis was not supported at the bivariate level and within both regression models for stress and depression. Put another way, there was no statistical significance between volunteer affiliation in the prediction of volunteer stress or depression, which contradicts the literature that has shown volunteer affiliation have better health outcomes than their unaffiliated counterparts (Thormar et al., 2013; Thormar et al., 2016).

The seventh hypothesis for this study was that a greater level of volunteer satisfaction would be negatively associated with volunteer stress and depression levels. This hypothesis was supported at the bivariate level for volunteer impact and efficacy (stress and depression), partially supported for volunteer fulfillment and recognition (stress only), and false for volunteer engagement and support. None of the volunteer satisfaction predictor variables were statistically significant within either regression model. This shows there is some evidence that volunteer satisfaction indicators like impact, efficacy, engagement, and support are important factors that can reduce burnout symptoms when considered alone (Morse et al., 2022), depression among disaster volunteers when considered alone (Pearlin et al., 1981), but remains statistically insignificant when considering other predictor variables at the same time.

The eighth hypothesis for this study was that a higher household income would be negatively associated with volunteer stress and depression. This hypothesis was not supported at the bivariate level and within both regression models for stress and depression. Although previous findings have shown that greater levels of income are

related to a greater level of resources and volunteer opportunities (Carr, Fried, and Rowe, 2015), which results in some protection against mental illness (Wilson, 2012), this study found no statistical significance to support such findings.

The ninth hypothesis was that lower levels of training would be positively associated with volunteer stress and depression. This hypothesis was not supported at the bivariate level and within the regression analyses. In other words, there was no statistical evidence to support that the level of training volunteers had in the past 12 months was associated with their level of stress or depression, which is contrary to previous findings from Thormar et al. (2013; 2016) that found those with the least amount of disaster training were most likely to have mental health morbidities following a disaster volunteer experience.

Regarding the open-ended findings, volunteers in this study reported experiencing reintegration challenges following a disaster volunteer experience. Role restructuring strain (Pearlin, 1989) was common among volunteers who reported challenges reintegrating into their everyday lives, often because they found it difficult to set up a new routine once home where they were not working in disaster response or recovery. As a result of the high impact, tangible, and fast-paced nature of disaster response and recovery, many volunteers also experienced inter-role strain (Pearlin, 1989), where they reported their roles at home and the office were often compared and conflicted with their role and experience as a disaster volunteer.

Volunteers also reported positive reintegration experiences following their disaster volunteer work, supporting prior findings that volunteering increases self-esteem and a sense of purpose and introduces volunteers to new skills, friends, and communities, alluding to the potential therapeutic role disaster-related volunteer

service can have among individuals, including non-veterans (Montez, 2010; McCaslin et al., 2020). Positive reintegration experiences may also be attributed to the role of positive emotions on stress, where feelings like gratitude, fulfillment, and enrichment allowed volunteers to contextualize their volunteer experience and limit the effects of stress experienced as volunteers (Thoits, 2011).

In addition to my quantitative findings, my open-ended findings support my fifth hypothesis that an increase in social support satisfaction decreases mental health morbidities. In other words, volunteers who reported the use of socialization as a way to cope with their disaster field experience, including time spent family, friends, and pets, reported an easier time in the reintegration experience after volunteering. Additionally, I found support for hypothesis four, which hypothesized a negative relationship between coping mechanisms and mental health morbidities. This is because in addition to socialization, volunteers reported the use of coping resources like journaling, meditation, prayer, exercise/physical activity, reading, listening to music and rest/alone time as ways to cope with their situation while volunteering and once they return home.

Open-ended findings highlighted people's varying motivations to serve as disaster volunteers. Compared to the six volunteer functions by Clary and Snyder (1991), this study found evidence of two of the six, including *values* and *social functions*. The values function of volunteering, or the motivation to express one's altruistic values, was a common theme identified among participant responses, whether such values were developed from an early age or "innate" or developed as a result of a public or military service career. The social function of volunteering, or the cultivation and strengthening of social ties, was also a common motivation among the

volunteers. Many described the need to be part of a team with a common mission, such as to help disaster survivors in need and to experience the personal benefits that the camaraderie gave the volunteers themselves. Volunteers also identified that they served as disaster volunteers to find a sense of purpose or fulfillment they were missing in their daily lives. This is related to the values function because as people engage in more altruistic behaviors like volunteering, they tend to have a greater sense of purpose and fulfillment (Smith, 2018).

My findings also identified that prior personal experiences, in this case, disaster events, represent a *life event* (Pearlin et al., 1981) and a motivation for volunteers pursuing disaster-related relief work. For example, volunteers who witnessed or experienced the devastation and social disruption of Hurricane Harvey, Superstorm Sandy, and the COVID-19 Pandemic were motivated to serve similar communities affected by the pandemic or other hazard events. This finding also highlights how disasters can serve as a primary focal issue within issue/cause voluntarism (Knowles 1972; Smith 1972), where people's experience influences their involvement with a specific focal issue, such as disaster relief and recovery.

Coping responses look different for different people and can vary based on the disasters to which volunteers responded. Volunteering was a coping strategy in and of itself, where volunteers reported feelings of fulfillment, energy, and joy when interacting with disaster survivors during recovery. These findings add to the evidence that positive emotions can occur with negative emotions during intensely stressful situations such as disasters (Folkman and Moskowitz, 2007; Folkman, 2008). These findings also suggest that disaster volunteering allows for the opportunity for volunteers to experience emotions like excitement, joy, and gratitude, which have

been found to have a restorative effect on mental health, motivate other types of coping behaviors, and may also provide momentary respite from feelings of stress (Lazarus, Kanner, and Folkman, 1980).

Comparison of Open-Ended and Quantitative Findings

The open-ended and quantitative both support and do not support each other. For example, social support satisfaction was statistically significant in moderating self-reported depression within my quantitative findings, and open-ended findings support the influence of social support satisfaction towards the mediation of mental health morbidities and poor wellbeing. Of the volunteers who used coping strategies, socialization and personal care were the focal activities that helped volunteers cope with their volunteer experience. Socialization with fellow volunteers during volunteer service and volunteers returning home helped many to cope with their service-related experiences. These findings also highlight the importance of socialization among fellow volunteers as a coping mechanism, which increased volunteers felt a sense of belonging among their volunteer colleagues (Thoits 2011; Umberson and Montez 2010) and felt a strong sense of camaraderie with their teammates who shared a common experience.

The social support provided by non-volunteer family, friends, and even household pets helped to mediate and moderate the effects of stress and depression experienced by disaster volunteers (Aneshensel, 2009; Pearlin, 1981; Pearlin et al., 1989). Outside of relationships developed while volunteering, my open-ended findings support prior research that shows intimate or close relationships with a spouse or significant other promote positive wellbeing. These added levels of emotional social support (Clary, 1987) helped volunteers debrief throughout their return to daily life

following their disaster volunteer experience. The use of pets for coping, in particular, aligns with prior research that has shown the importance of pets to wellbeing. For example, companion animals have been shown to lead to a reduction of isolation and touch deprivation (Ogata et al., 2023). Pets also help people to create healthy routines that encourages self-care and physical activity (National Institutes of Health, 2018), and reap the personal physical benefits like a reduction in blood pressure, cortisol, and reduction in physical disease severity (Allen, 2003; Friedmann, 1995; National Institutes of Health, 2018). Companion animals, in combination with other types of emotional social support from their peers, significant others, children, and fellow volunteers, can provide a significant level of support that helps volunteers adjust to the demands while volunteering and help them ease back into their daily lives after returning home.

The quantitative findings showed a low amount of self-reported stress and depression within my sample, which aligns with my findings that volunteers reported positive or neutral reintegration experiences. This might be related to the fact that disaster volunteers within my sample reported feelings of gratitude and appreciation for the opportunity to serve in relief activities and focused on the positive outcomes of volunteer service as opposed to the more negative experiences. In prior research, gratitude has been shown to lead to higher reports of optimism and subjective well-being (Yue et al., 2017). Gratitude also helps improve one's interpersonal relationships, and orients volunteers to further connect with their peers, family, friends, and event pets while also helping people to find their meaning and purpose in life (Bono and Sender, 2018).

On the other hand, the lower incidence of stress and depression may be related to other factors such as degree of volunteer related trauma exposure or a previous career in a high-stress position that trained them for high-stress related volunteer work. For example, volunteers participate in a wide variety of activities that have different volunteer exposure to trauma. Working directly with survivors in which one might witness personal devastation and loss, treating survivors for injuries, or attending to emotional or spiritual needs will potentially affect volunteers more closely as opposed to positions that help sort in-kind donations or support the volunteer reception area. Further, for volunteers who have a high level of training to work in stressful and uncertain conditions as a full-time occupation, like military members, front line reporters, physicians and healthcare workers, firefighters, and police officers, they may be less likely to have increased levels of stress and depression from volunteer service because they are functionally trained to operate in a strenuous environments and may have access to organizational resources that help them cope with occupational related stressors. Such topics will be worth exploring in future research to better understand how someone's occupational background and prior training influences their mental health and wellbeing, before and after participating in disaster relief volunteer experiences.

My quantitative findings also did not support the role of coping resources, whereas my open-ended findings found a large use of coping resources and activities among participants while volunteering and after they return home. For example, I found that volunteers engage in a wide variety of personal care emotion-focused coping strategies (Lazarus and Folkman, 1984) while volunteering and after they return home, such as reading, watching television, exercise, bathing, meditation,

listening to music, journaling, or prayer, all which helped volunteers keep feelings of stress at a manageable level (Pearlin 1989; Pearlin et al. 1981; Pearlin and Schooler 1978). I also found that the use of coping strategies among disaster volunteers were mixed, with some volunteers using personal and organizational coping strategies and others not using such strategies. For those who did not use coping strategies or those who use volunteering as a coping strategy in and of itself, supports prior research that has shown most survivors and disaster responders do well when exposed to disasters (Fullerton and Ursano, 2005). Another reason that my quantitative findings were contrary to my open-ended findings may be related to scale that I selected which have not been the best choice considering the lower inter-item mean and Cronbach's alpha. In the future, it would be worth exploring the use of other validated scales, such as the COPE Inventory (Carver et al., 1989), the Coping Self-Efficacy Scale (Chesney et al., 2006), or the Proactive Coping Inventory (Greenglass and Schwarzer, 1998). I believe the inclusion of a different method of measuring coping, which also assesses methods of coping, will be useful to better understand the efficacy of coping among disaster volunteers.

Research Findings and Stress Process Theory

Results from this study found that social support satisfaction was negative and significant in predicting self-reported levels of depression among disaster volunteers. This finding is consistent with prior research related to the Stress Process Theory, which suggests that social support and close personal ties are causally related to mental and physical health (Cockerham, 2013; Thoits, 2011). Moreover, this finding highlights the role of satisfaction of social support, rather than a pure number of people who provide social support, as an important predictor of volunteer depression.

The emphasis on social support satisfaction also shows how emotional social support, or the focus on the relationship and feelings between the provider and recipient (Clary, 1987), is a key consideration when looking to decrease levels of depression among disaster volunteers.

These findings conflict with the previous research related to the Stress Process Theory, that has suggested higher levels of personal mastery and higher levels of coping act as mediators against stress and mental health morbidities like depression (Pearlin, 1989; Folkman and Moskowitz, 2007; Pearlin, 1981). The quantitative findings also did not find support the role of chronic role strain or life events, such as having a low income or participating in a large number of disaster volunteer experiences in the past year, in the mediation of volunteer stress or depression. One reason that life events, such as having a low income, may not have been a significant variable in this study is because the majority of my sample were from a middle to high earning household, which did not fully allow me to study the interaction. The limitation in sample aligns with the research on volunteerism that shows those with the most access to resources, like income and time, are those most likely to volunteer, and has historically excluded those from minority groups and low income from broad participation (Wilson and Musick, 1999). Alternatively, my findings actually show that disasters may serve as a life event that encourages participation in disaster relief activities, where participants described joining their organization or relief activities as a result of the COVID-19 pandemic and hazard events such as Superstorm Sandy. Such findings align with prior work on disasters that identifies prosocial behavior as a continuing theme in the aftermath of disaster.

In sum, the findings of this research partially support prior research on the Stress Process Theory. My research in the context of disaster volunteerism in the United States represents a novel application of the stress process theory in the field of emergency management and the sociology of mental health. My research also suggests that motivations may be influential in the protection of mental health morbidities and an important factor to consider in the study of social resources social support, mastery, self-esteem, and coping mechanisms. This is because volunteers who reported an interest in volunteering as a means for socialization as well as a means to pay it forward and express altruistic motivations may have been more likely to develop stronger relationships while volunteering and continue those relationships after returning home. My research also adds to the broader literature that shows social support is a key indicator to mental health and wellbeing (Thoits, 1995). My research also shows that social support not only is important from loved ones, like a spouse, child, or close friend, but also to the important of social ties between the volunteers throughout the volunteer experience as well as the role of companion animals and coping with disaster stress among volunteers.

While research regarding human-animal interactions is fairly new, future research explores more explicitly the role of companion animals and the disaster volunteer experience. Considering that 68% of households in the United States have a pet (National Institutes of Health, 2018) and past research has established the positive effects pets have on physical health and emotional well-being, it is worth exploring the use of companion and trauma-therapy animals among disaster volunteers, both with volunteers who are actively engaged in disaster relief work but longitudinal work to

see how pets may contribute to a volunteer's well-being during their reintegration experience.

Study Limitations and Future Research Directions

Development of a Volunteer Trauma Scale

Due to low reliability of the scale, I was unable to explore the role of volunteer-related trauma exposure within bivariate correlations and both regression analyses. This is a limitation of this study. Given the potential role of disasters to be a potentially “traumatic event” as defined by the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5) (2013) and International Classification of Diseases, 11th revision (ICD-11), it will be essential to develop and validate a scale that better measures the trauma related to disaster volunteerism within future research. The original traumatic exposure severity scale (Elal and Slade, 2005) was initially developed in the context of an earthquake event and applied to disaster survivors. Future scale development should consider the differences in trauma exposure for disaster volunteers compared to disaster survivors, which would greatly enhance research on disaster volunteer health and wellbeing.

Disaster Volunteer Motivations

The results within my study showed limited evidence of the protection, career, enhancement, and understanding functions of volunteering, which may be that it was a lower motivation to volunteer for the respondents than the values and social functions of volunteering. In addition, there was limited evidence that disaster volunteers in this study were driven by external or self-interest factors such as monetary incentives, tax deductions, increase in social prestige, job experience and career development, or a

sense of superiority, also known as "*do-goodism*" (Cappellari and Turati, 2004; Carpenter and Myers, 2010; Ellis and Campbell, 2005; Knowles, 1972; Smith, 1972; Smith et al., 2016). However, other self-interest factors, such as using time and availability as a result of retirement, was common among participants who were retired within the open-ended responses. As such, future work should explore the role of volunteer motivations, and in particular egoistic benefits, and how they may relate more deeply in volunteer satisfaction, wellbeing, and health outcomes.

Systematic Social Media Recruitment Methodologies

Systematic social media recruitment offers many advantages such as the ability to reach a larger and diverse audience on multiple platforms for a lower or zero cost to the primary investigator or research team. This approach also allows for rapid recruitment for time sensitive research as well as the chance to have real-time engagement with participants and the investigative team (Oudat and Bakas, 2023). However, there are limitations to this approach such as the potential lack of sample diversity and representativeness to the wider population. As of September 2023, the Pew Research Center reported that 68% of U.S. adults have ever used Facebook, compared to LinkedIn (30%), Reddit (22%), YouTube (83%), and Instagram (47%), and inherently shows selection bias because the platforms are not used by the entire U.S. population (and therefore the target population of U.S. disaster volunteers). This study primarily used Facebook, LinkedIn, and Instagram, and Reddit as recruiting platforms, which was inclusive considering the Facebook is largely used across the population even when considering age, race, income, educational attainment, rural/suburban/urban living, and political affiliation (Pew Research Center, 2024). However, future work should consider the use of other platforms that will have a

larger and broader audience to which to pull from, including Twitter (X), TikTok, and Pinterest, and even YouTube, while also continuing to use platforms like Facebook that have a consistent and broad user base. To help improve the generalizability of my findings or future research I conduct, it may be worth considering partnering with social media influencers, paying for advertising that can boost recruitment messaging, or having members of the research team with a broader social media following take the lead in recruitment efforts to help recruit a larger and more diverse sample size.

Organizational Gatekeeping and Sample Research Bias

Outside of sample bias, another limitation in this method is that access to certain populations was directly related to the following of the researcher or research team within various social media platforms. For example, I had limited success when recruiting on Instagram because I have a private account and have less than 500 followers in total, which limited my ability to reach the wider user base of the platform. In addition, there were challenges regarding access to certain groups, especially groups from faith-based organizations. In one instance, an organizational gatekeeper representing a Christian-affiliated volunteer organization on Facebook did not approve my post because I included two questions focused on gender and sexual identities within my survey. Since these questions included gender identities outside of man and woman and went against the groups' religious beliefs (as stated by the organizational gatekeeper), I was unable to share my survey within the Facebook group.

This type of gatekeeping, which may have been more prevalent since I received a decent number of denials and did not receive a specific justification or reason, represents an inherent bias when recruiting volunteer organization and

volunteers who have ideologies associated with their volunteer service. Further, this highlights the existing inequities for queer and gender diverse populations both before and after hazard events. For example, non-binary persons in India, Indonesia, and the Philippines experienced discrimination and were unable to access relief following the Indian Ocean Tsunami (Goldsmith, Raditz, and Mendez, 2021). Additionally, temporary sheltering arrangements, such as shared living quarters in school gymnasiums, can push queer populations to “re-closet” themselves as a protective mechanism to prevent being singled out, harassed, or prevented from seeking services (Cable, 2023). Within the U.S., concerns also remain over anti-LGBTQ practices within some faith-based nonprofit organizations, and how they might exclude or discriminate against queer populations following a disaster (Padilla, 2024; King, 2022), and a lack of legal accountability since only one U.S. state has officially adopted gender inclusive practices for relief workers as law (Curcio, 2024).

Considering that the first comprehensive study on the experience of sexual and gender minorities in disasters was published in 2014 by Dominey-Howes, Gorman-Murray, and McKinnon, a focus on this area represents a relatively new direction in the study of disaster social vulnerability and disaster research. In addition, there has been limited to no discussion on the experience of volunteers who identify LGBTQIA2S+, and instead has mostly focused on the experience of community members and disaster survivors. Within my study, 14% identified as LGBTQIA2S+, which is nearly double the U.S. national average of 7.6% (Mandler, 2024). Due to this, future research should expand on this literature and conduct empirical work exploring humanitarian aid, gender equity, and volunteer experience, exploring how gender identity intersects with volunteer motivation, organizational belonging, and

acceptance. Further, additional research should consider how faith-based disaster relief organizations act as a gatekeeper towards inclusion of diverse gender and sexual minorities, which may lead to the exclusion or further victimization of such groups.

I also experienced a relatively low response rate to my survey after data filtering and reduction, and had a skewed sample that was overwhelming white, middle-to-high income, and affiliated with Team Rubicon, a veteran-led disaster relief organization. The lack of sample diversity represents a significant limitation of my research because it was difficult to consider the potential role that underlying discrimination and lesser access to resources had in the study of volunteer wellbeing and mental health outcomes. For example, research has shown that volunteers who are unaffiliated with an organization have consistently poorer mental health outcomes because they lack the lack of formal job or task descriptions, have little training or prior disaster experience (Thormar et al., 2013; Thormar et al., 2016), and may be less connected with disaster mental health services (Adams, 2007; Thormar et al., 2013). Since my study recruited few unaffiliated volunteers, and had an oversample of volunteers from Team Rubicon, so it remains difficult to explore the mental health and reintegration experiences of unaffiliated volunteers, volunteers from organizations outside of Team Rubicon, or compare experiences between unaffiliated and affiliated volunteers. Future work should specifically focus recruitment efforts on unaffiliated volunteers, who might be more accessible through in-person fieldwork at volunteer reception centers within the disaster area, and active online through informal communication and mutual aid network systems like Facebook, NextDoor, or Reddit.

Further, by having a predominately white participant population due to my oversample from Team Rubicon, it was difficult to capture the experience of those

who are members of racial or ethnic minorities, as well as the experience of those who are lower income. While the sample within this dissertation does represent the typical volunteer in the United States who has the means, time, and ability to volunteer, a deeper understanding of disparities in volunteer well-being remains difficult to fully assess due to poor demographic data points collected by AmeriCorps (2024), the only U.S. Federal Agency that focuses on domestic community service and volunteerism. For example, the only data points accessibly publicly through AmeriCorps only published demographic information on gender (cis only), age, generation, education, military service, and parental status, excluding data points on income, race, and LGBTQIA2+. In addition, the NVOAD Triennial review only discusses the raw number of volunteers within member organizations but does not include information as to the make-up of NVOAD member volunteers at all (National Voluntary Organizations Active in Disaster, 2021).

This lack of data reporting and my inability to recruit a broader and more representative sample is a shortcoming of this dissertation research. For example, without a diverse sample regarding socio-economic status, I was unable to explore the experience of low-income individuals, and how income may lead to poorer health outcomes among disaster volunteers. Income is considered to be a fundamental cause of disease that “determines the extent to which people are able to avoid risks for morbidity and mortality” (Link and Phelan, 1995, pp. 81). Income is also associated with each of the 14 major cause-of-death categories from the International Classification of Diseases (Link and Phelan, 1995) as well as many major mental health disorders (Zhang and Xiang, 2019). Further, people from families with annual household incomes lower than \$35,000 a year are “four times more likely to report

being nervous and five times more likely to report sadness all or most of the time” (Woolf et al., 2015). A lack of diverse respondents in relation to income is also troublesome because I was unable to fully consider the role of socio-economic and life stress, and how this stress effects disaster volunteers in addition to the external stress and trauma associated with the disaster area. For example, questions related to who can afford disaster volunteerism, including annual income measures and current employment type, is important for future research on mental health and disaster volunteerism to better inform nonprofit organizations on ways to support volunteers who may be retired and living on a fixed income, transitioning career fields and temporarily un-employed, or be a student working part-time as a volunteer for additional career experience.

Another reason this study’s skewed sample is problematic is because discrimination and microaggressions experienced among minority volunteers also represents a different type of stress, a life-course stress. That was not explicitly quantified within these data but has significant health implications over the life course. For example, research continues to show that race, and in particular systematic racism, or the “economic advantages of slavery for whites when the nation [the United States of America] was founded” (Phelan and Link, 2015, pp. 314), positions non-white individuals with decreased representation in positions of power, less access to power, prestige, knowledge, beneficial social capital, and the belief that non-white persons are inferior to white persons. While socioeconomic status greatly explains differences in health outcomes, race explains health disparities even when controlling for socioeconomic status.

One theory for this includes the “weathering hypothesis”, developed following a study of birth weight distribution, infant and maternal mortality and race by Geronimus (1992) to explain corrosive effects of systemic oppression, discrimination, and cumulative disadvantage on marginalized bodies (Forde et al., 2019). Within the study of race and social determinants of health, race-related resources including prestige, power, beneficial social connections, and freedom help to explain differences in health outcomes among racial lines. Future research should explore race-related resources in volunteerism, that is, how volunteers stratify themselves based on race and experience racial stereotypes, or how volunteer racial identities affect social prestige and volunteer satisfaction after humanitarian service. Another potential avenue for research is the exploration of *freedom*, or the ability to control one’s life circumstances and actions (Phelan and Link, 2015). Are there underlying systems of inequality that push non-white volunteers to certain roles, organizations, and activities within disaster relief? How do non-white volunteers cope with added trauma of working with non-white disaster survivors, who are increasingly exposed to and vulnerable from the events of hazard events? Additional work can also build upon research on race, ethnicity, and mental health by exploring racialized legal status, and how formal and informal volunteer experiences differ based on one’s official legal status within the United States (Asad and Clair, 2018).

My lack of a diverse sample also is concerning because it leads to the reproduction of color-blindness and the lack of recognition of one’s privilege which continues systems of hierarchy and stratification in society. In my study, volunteers did not explicitly discuss race, but instead used coded language to discuss their gratefulness to not have been affected by the disaster [and therefore being white,

higher income, and from privilege]. I found that volunteers were aware of the conditions experienced by the survivors, many who are un-or-underinsured or lack the resources to recover from the event expeditiously. Further, when discussing the return experience, volunteers compared the experience disaster survivors to their positionality at home, without using words like privilege, race, or power, and reflecting feelings of guilt of what survivors have to continue to endure daily. Similar to arguments within the restorative food justice literature, which discuss how food projects started and ran by white exogenous nonprofits on behalf of communities of color exacerbate systems the very systems of inequality that such efforts seek to resolve (Passidomo, 2014; Guthman, 2008), disaster relief volunteers also contribute to the exacerbation of inequalities in marginalized communities that have frequent and more exposure to natural hazard events (Weller, 2023).

Further, volunteers experience an unequal social relationship between “the sufferers and the non-sufferers,” and inherent inequity that exists when discussing humanitarian work, in the case of research by Daniel Mårs (2016), as well the disaster relief activities seen through my research. Often, these volunteers experience positive differential access to resources, even in the most precarious places and locations. For example, in a qualitative study, Canadian youth volunteers ($n = 6$) working in Kenya describe that they stayed outside of the volunteer-host community and had access to material comforts of home [i.e., Canada] while volunteering overseas (Schwarz, 2015), such as access to hot water, power, ensuite bathrooms, chef made meals, fireplaces, and other comforts that were inaccessible or unavailable within the communities where the volunteer work took place. Participants within my sample all reported access to potable drinking water, electricity, and safe sleeping conditions,

which was likely not the case for many survivors who may not have access to their property, clean drinking water, warm showers, regular meals, or ability to make a living wage or return to school. My participants also did not acknowledge or reflect upon such privilege to have resources donated or supplied to themselves or their organizations so that they may volunteer, contributing to the discourse and inequalities existing within the humanitarian space. Further, my findings help to support that volunteers within my study may be contributing to a mostly white U.S. humanitarian aid movement that exacerbates inequality, one that caters to the needs of volunteers in an effort to recruit and retain volunteers for upcoming disaster seasons, such as the Atlantic Hurricane Season, Fall Wildfire Season, or Spring Severe Weather Season.

It is also critical to note that even in the case that volunteers were more upfront with their positionality in society, a study of four grassroots organization ($n = 30$) found that even color-conscious volunteers, who were aware of structural inequality and systemic racism without prompting, still struggled to see how their race was important in their day-to-day service experiences as highlights of pervasive power and privilege (Schneider, 2022). Although we can acknowledge positionality and attempt to address our privilege through flattening of hierarchical power, efforts typically flounder because privilege cannot be shed by changes in nomenclature (Schneider, 2022). Future research should further explore whiteness, structural inequality, and volunteer framing, particularly in the U.S. context following a disaster. This will help to inform how white-led (and often religious) humanitarian aid activities affect the perceptions of value of nonprofit relief services and community recovery, as well as the flow of relief funds and resources to the affected area.

Conclusion

I gathered primary data to examine the mental health effects of disaster volunteering within the U.S. The findings of this study suggest that social support satisfaction negatively relates to self-reported levels of volunteer depression. However, I also found that the rest of the study predictor variables were insignificant when predicting volunteer stress and depression, which contradicted past literature on the subject matter. Despite the limitations discussed within this study, the results highlight the criticality of building and enhancing social support among volunteers as well as with peers, family, and pets to decrease the incidence of self-reported depression. I also identified future research directions that can catalyze continuing necessary research related to disaster volunteer well-being and mental health, including the development of a trauma scale tailored to volunteers and the inclusion of a diverse sample to explore the role of volunteer positionality in socioeconomic status, race, sexual and gender identities and the reproduction of privilege in the humanitarian space.

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Appendix A

FREQUENCY OF OPEN-ENDED CATEGORIES AND THEMES

Table 12 Frequency of Open-Ended Categories and Themes

Category	# of Appearances	Theme	# of Appearances	Sub-theme	# of Appearances	Selected Example Excerpt
Volunteer Motivations	175	Altruism	91	Past Career/Career Influence	12	"I have been in public service for 20+ years and retired in 2021 from a response job and felt that since I am still capable of providing assistance to others I should so I decided to volunteer my time when I could." (ID163)
				Meant/Called to Serve Others/Give Back/Pay it Forward	46	"I have always felt called to serve. I have many skills, and this is a realm I believe suits my skill set." (ID31)
				Personal Value (Non-Religious)	14	"While planning to leave the military, I needed to find a new avenue for continued service. The cultural tenets and general atmosphere of Team Rubicon lined up with my most important values/motivations for the military. " (ID68)

			Use of Personal Skillsets/Experience	13	I have always felt called to serve. I have many skills and this is a realm I believe suits my skill set (ID118)
			Religion	6	"God calls us to be his hands and feet. I feel I am fulfilling my calling as a Christian when I volunteer. "
	Socialization	18	Camaraderie/Friendship/Liked-Minded People	11	"I want to help neighbors in need. "I want to help neighbors in need. I want to be a part of a team that responds to neighbors in need." (ID62)
			Team Oriented	7	"My motivation is simply being a part of a team that just want to help people get back on their feet. The camaraderie, good natured banter, and service to others energizes me. (ID206)
	Personal	42	Time/Availability	12	"I've had a good life and recently retired. I want to give back to the communities that helped me get there and people that have been impacted by disasters I have not had to face." (ID180)
			Sense of Purpose/Fulfillment	18	"Transitioning from uniform to civilian career and needed the sense of purpose and connection to likeminded people." (ID91)
			Excitement	3	"I have always been led to help others and disaster response is about as close to the "action" you can get without being a first responder." (ID150)

			Workforce Training/Job Prospects	2	"Would like a job long term [with the American Red Cross]." (ID59)	
			Example for Children/Grandchildren	2	"I want to be a force for good and an example to my children and those who know me, of a caring, good human being, who backs words with action." (ID45)	
			Personal Growth/New Skills	3	"I've been so blessed in my life and I want to "pay it forward". I have experienced tremendous personal growth and have gained many new skills being a volunteer." (ID58)	
		Event/Place Attachment	24	COVID-19	17	"Covid gave me the opportunity to volunteer full time for my own community assisting the food bank with delivering meals to food insecure populations. It opened my eyes to the huge disparity of access within my own community. I also went back to school during the pandemic to study emergency management, so I now look forward to a future career helping communities recover from disasters." (ID118)
				Hazard Event/Personal Disaster Experience	7	"When I was in middle school, my area was affected by Hurricane Sandy. Since then, I have made a point to volunteer and assist disaster survivors in the same way that those volunteers helped my community bounce back all those years ago." (ID57)

Coping Strategies	179	No specific coping/no coping strategies	21	Career as a First Responder/Disassociation	3	“Due to being a retired fireman, I have witnessed much tragedy. I have done the absolute best I can at each call. I learned years ago, that I can handle myself in whatever came my way as I had confidence in doing my best that I could for people and the rest is out of my control.” (ID24)	
				None/Not Necessary/Blank	10	"I have really good mental and physical health and don't feel stressed by volunteering or post-volunteering." (ID180)	
				Volunteering as Coping/More Volunteering	8	“My disaster volunteer experience actually fulfills me. I've rarely felt the need for coping strategies or wellness assistance.” (ID50)	
	Personal Care	95			Shower/Bath e/Massage/Nail	8	"Baths, phone calls and sleeping with my stuffed Penguin Pepi." (ID59)
					Journaling	4	"Talking to friends to debrief about Re-entry issues. Journaling." (ID28)
					Prayer/Faith/Meditation/Worship	20	“Worship, yoga, bicycle riding, reading.” (ID81)
					Reading	6	“I always take a book and have movies on my tablet to help me unwind at the end of the day.” (ID74)

				Physical Activity/Exercise/Hike/Yoga/Walks	28	"I take a day off once a week and try and find somewhere fun to hike, fish or swim. I also will not stay more than 3 weeks before I head to my home for a break." (ID54)
				Rest/Alone Time/Breaks	12	"Shower and nap." (ID42)
				Therapy/Counseling	7	"Talking to other volunteers I met there, taking more trainings, signing up for more deployments and seeing my therapist." (ID37)
				Listening to music/podcast/TV	5	"I listen to Christian music, I regularly take hikes in the woods, I spend time on my boat at a lake, and I have supportive girlfriends who I can share with." (ID58)
				Humor/Comedy/Laughter	2	"Laughter is important and making real connections with others." (ID153)
				Mental Health Medication	1	"Cry talk to my hubby. Take antidepressants. Sleep, breathe." (ID166)
				Explore Community/Get Away	2	"Walk; go to a local eatery or ice cream shop to get away from the "office" for an hour or so; read; pray." (ID38)
		Socialization	63	Family/Friends (Non-Volunteer)	27	"I have found that the best way to cope is to talk about it, with people who did not volunteer, as well as with other disaster volunteers, some that deployed with me and others that did not go to that specific disaster." (ID57)

				Fellow volunteers/Volunteer Debriefing	26	"Discussion with other volunteers and people who understand the process of disaster response." (ID35)
				Pets	8	"During I have no issues, im on top of the world. Afterwards I typically have to take a day or two to myself. Walks, taking the dogs to the dog park and building Lego models, no lie, Legos does it for me." (ID47)
				Community groups	2	"I belong to a group of frontline community leaders from around the nation. We meet online and have developed a mutual support network as a result. I also make sure I get exercise, enough sleep, and eat right. Lastly, I also have tremendous access to professional health-and-mental care support." (ID88)
Reintegration Experiences	130	Challenges	64	Temporality/Time	8	"There is usually a "blue" period leaving that environment to go back home. But it passes in 5-7 days usually." (ID40)

			Loss of Social Relationships	5	"I was sad. I missed my new friends, the comraderie and sense of purpose from helping." (ID43)
			Loss of Social Status as "Volunteer"	1	"It's typically pretty rough. I have found in TR I am a Rockstar among Rockstars. Im a hope dealer. What I do matters amd makes a difference. Everyone knows my name and I'm the one that can be counted on to get it done. At home, I'm just me." (ID47)
			Guilt	7	"I do go through a sort of "withdrawal" when I arrive home after an op because I feel like there's more I could/should have done. And I miss my comrades that I worked side by side with." (ID58)
			Challenges - unspecific	1	"Difficult." (ID71)
	Neutral/No Challenges	35	Volunteer Identity/Experience	2	"I'm a generally optimistic person. I find it easy to return to my normal routine and pick up where I left off." (ID206)
			Blank/Neutral Response	26	"Primarily neutral. It was relatively seamless transition back into the daily work routine." (ID37)
			Personal Self-Fulfillment	2	"Neutral. I enjoy helping others whenever I can." (ID50)
		31	Positive - Unspecific	5	"Very easily and positive." (IDXX)

				Increase in volunteer involvement/ advocacy	6	“My experience with returning to daily life after a disaster seems to be fairly easy as I stay in contact with fellow volunteer members and continue to serve our communities.” (ID76)
		Positive Integration Experiences		Appreciation /Gratefulness /Supported	17	"Returning was positive being able to share my experiences with friends and family." (IDXX)
				Volunteering as Stress-Relief/Daily Life	3	“Reinvigorating and educational. Bringing lessons learned home and educating those around me on how to deal in similar circumstances.” (ID207)

Appendix B

QUALTRICS SURVEY VOLUNTEER DEMOGRAPHICS

Q1 What is your estimated annual household income?

▼ Less than \$10,000 ... \$150,000 or more

Q75 Which best describes your racial or ethnic identity?

- Asian
 - Black or African-American
 - Hispanic or LatinX
 - Indigenous American or Alaskan Native
 - Multiple races
 - Native Hawaiian or Pacific Islander
 - White or Caucasian
 - Other, please explain
-

Q3 What is your age?

▼ Under 18 ... 85 or older

Q5 Please indicate your highest level of education.

▼ Less than 4 years of high school education ... Doctorate degree

Q6 Please indicate your marital status.

▼ Married ... Widowed

Q7 Please describe your political affiliation.

▼ Strongly Conservative ... Strongly Liberal

Q21 What is your present religion, if any?

- Christian - Protestant
- Christian - Roman Catholic
- Christian - Orthodox
- Mormon
- Jewish
- Muslim
- Buddhist
- Hindu
- Scientologist
- Atheist

- Agnostic
 - Spiritual, but not religious
 - I do not identify as spiritual or religious
 - Other, please explain
-

Q8 Please indicate your gender.

- Man
- Woman
- Non-binary / third gender

Q9 Do you identify as lesbian, gay, bi-sexual, trans-sexual, queer, intersexual, asexual, two-spirit, or another gender or sexual minority (LGBTQIA2S+)?

- Yes
- No

Q72 Do you identify as a person who has a disability (i.e., physical, developmental, sensory, behavioral/emotional, learning, psychiatric, intellectual, medical, etc.)

- Yes
- No

Q74 Do you have a service animal that performs work or tasks related to your disability or disabilities?

Yes

No

Q12 Have you ever served in the U.S. Uniformed or U.S. Military Service?

▼ U.S. Army ... I have never served in the U.S. Uniformed or Military Services

Q10 Please select your current occupation status.

Full-time employee

Full-time student

Part-time employee

Gig economy employee / variable employment

Receiving disability and not working

Retired

Stay at home caregiver/homemaker

Unemployed but looking for work

Other, please explain

Q11 Select the occupation that best describes your current employment.

Business/Finance

Computer/Technology

- Architecture/Engineering
- Life, Physical, or Social Sciences
- Medicine, Healthcare, or Nursing
- Nonprofit, Community, or Social Services
- Government or Politics
- Law and Legal Services
- Education/Library Services
- Arts, Design, Entertainment, Sports, and Media
- Police/Security/Corrections
- First Responder (Fire and Emergency Medical Services)
- Sales
- Office and Administrative Support
- Farming, Fishing, Forestry, and Agriculture
- Construction and Natural Resource Extraction
- Maintenance, Repair, Installation, Machinery, and Technical Careers
- Transportation Services
- Military Service

Other, please explain

Q13 What state, territory, or district do you currently reside (50% of the time or more)?

▼ Alabama ... I do not live within a U.S. State, District, or Territory

Q14 Please indicate the housing structure you live in currently (50% of the time or more).

- House
 - Condominium/Apartment
 - Townhouse
 - Hotel/AirBnB/Temporary Housing
 - Manufactured Home/Mobile Home
 - Recreational Vehicle or Towable Tiny Home
 - Unsheltered
 - Other, please explain
-

Q15 Do you rent or own the place you currently live (50% of the time or more)?

- Rent
- Own
- Do not pay rent
- Unsheltered

Other, please explain

Q16 Aside from the COVID-19 SARS-CoV-2 Pandemic, have you ever been negatively affected by a natural hazard disaster in the past?

Yes

No

Q18 What type of volunteer best describes you?

Affiliated volunteer: I am registered with a group or organization

Unaffiliated volunteer: I do not belong to a group or organization

Q19 Please type the name of your group or organization where serve as a disaster volunteer (example: American Red Cross or Team Rubicon).

Q20 Is your group or organization affiliated with a practiced religion?

- Christian - Protestant
- Christian - Roman Catholic
- Christian - Eastern Orthodox
- Mormonism - Church of Jesus Christ of Latter Day Saints
- Judaism
- Islam
- Hinduism
- Sikhism
- Buddhism
- Church of Scientology
- Other _____
- No, my group or organization is not affiliated with a practiced religion

Q22 How long have you been a disaster volunteer?

▼ Less than one year ... 16 or more years

Q23 How many times have you ever volunteered or provided relief aid after a disaster?

▼ 1 - 5 times ... I have never volunteered or provided aid after a disaster

Q24 Which best describes the typical location of your volunteer service (50% or more)?

- Remote or Online
- Field-based: Volunteering or providing aid in neighborhoods and the affected community
- Field-based: Volunteering or providing aid within an evacuation shelter, volunteer coordination center, food bank, or similar location
- Field-based: Volunteering or providing aid within a government facility or emergency operations center
- Field-based: Regional support outside of the affected area
- Other _____

Q38 In the past twelve calendar months, how many times have you volunteered after a disaster (response or recovery) within the United States or U.S. territories?

▼ 1 - 2 times ... I have not served as a disaster volunteer or provided disaster relief aid in the past year within the United States or U.S. territories.

Q39 What is the most common type of hazard you responded to within the past twelve calendar months?

- Tornado
- Wildfire
- Coastal Flooding
- Riverine Flooding
- Hurricane/Tropical Storm
- Drought

- Landslide
- Tsunami
- Volcanic Eruption
- Winter Weather
- Ice Storm
- Severe Weather (Lightning/Hail/Strong Winds)
- Avalanche
- Earthquake
- Heat Wave
- Cold Wave
- Public Health Emergency - Epidemic - Pandemic
- Other _____

Q49 In the past twelve calendar months, how many days did you typically work during each disaster volunteer experience? One day equals 8 hours of full-time work.

▼ Less than one day ... 61 days or more

Q50 In the past twelve calendar months, what U.S. state(s), district, or territories have you volunteered, provided aid, supported after a disaster? Select all that apply.

- Listed each of the 50 U.S. States
- District of Columbia (Washington D.C.)

- Puerto Rico
- American Samoa
- Guam
- Northern Mariana Islands
- U.S. Virgin Islands
- No specific U.S. state or territory
- I did not provide relief aid or volunteer within the U.S.

Q51 In the past twelve calendar months, which best describes your typical mode of transportation to your service location(s)?

▼ Airplane ... Other

Q52 Please provide a brief description of your primary role/function you served in as a volunteer during the last twelve calendar months (i.e., food prep or distribution, debris removal, radio operator, logistician, animal care, evacuation shelter support, etc.).

Q53 Which best describes the typical level of responsibility or leadership role you had as a disaster volunteer within the last twelve calendar months?

- General volunteer - no leadership responsibilities
- Small team or group leader
- Large team leader or section chief
- Manager or incident commander

Q54 Which best describes the level of training you received within the last twelve calendar months?

- I did not receive training in the last twelve calendar months
- I received too little training in the last twelve calendar months
- I received the right amount of training in the last twelve calendar months
- I received too much training in the last twelve calendar months

Q55 Which best describes your typical housing location as a disaster volunteer during the last twelve calendar months?

- Campground/RV Park
- Civic building or school
- Church or religious building
- Hotel, Motel, or AirBnB
- Government Provided Temporary Workforce Housing (i.e., mobile trailers)
- Evacuation Shelter
- Friends or Family's residence
- I stayed in my primary residence
- Other _____

Q56 Typically, did you have regular access to potable or drinkable water as a disaster volunteer during the past twelve calendar months?

- Yes, I had access to potable or drinkable water provided by the local water authority
- Yes, I had access to potable or drinkable water, but only through bottled water or secondary filtered water systems
- No, I did not have access to potable or drinkable water

Q57 Typically, did you have regular access to electricity as a disaster volunteer during the past twelve calendar months?

- Yes, I had access to regular electricity provided by the local energy company
- Yes, I had access to regular electricity provided by a generator or battery systems
- No, I did not have access to regular electricity

Q58 Within the past twelve calendar months as a disaster volunteer, were you ever concerned about your access to food that met your dietary needs or restrictions?

- Yes
- No

Q59 Within the past twelve calendar months as a disaster volunteer, were you unable to serve a survivor due to bureaucratic processes, such as scope of work, paperwork filing, jurisdictional disputes, coordination problems, or other issues? If yes, please provide a brief description.

- Yes _____
- No

Q59 Within the past twelve calendar months, how have you maintained contact with people or organizations you met while volunteering? Select all that apply.

- Telephone Call
- Texting/Whatsapp
- Video Chat (Zoom, Microsoft Teams, Google Meet, Skype)
- Email
- Facebook
- TikTok
- Reddit
- Instagram
- Discord
- Nextdoor
- Organization or Community Specific Platform or Website
- In-person activities
- Other _____
- I did not maintain contact with people or organizations after my volunteer service

Q25 What was the most recent disaster hazard type you responded to (response/recovery)?

- Tornado
- Wildfire
- Coastal Flooding
- Riverine Flooding
- Hurricane/Tropical Storm
- Drought
- Landslide
- Tsunami
- Volcanic Eruption
- Winter Weather
- Ice Storm
- Severe Weather (Lightning/Hail/Strong Winds)
- Avalanche
- Earthquake
- Heat Wave
- Cold Wave
- Public Health Emergency - Epidemic - Pandemic

Other _____

Q26 Please list the formal name of the most recent disaster you last responded to, if applicable (i.e., Hurricane Harvey, The Camp Fire, Winter Storm Uri, etc.).

Q76 Please select the occurrence date for the disaster you most recently responded to. If the disaster lasted multiple days, please list the first date of the event.

	Month	Day	Year
Please Select:	▼ January ... December	▼ 1 ... 31	▼ 1900 ... 2049

Q4 Please select the date of your most recent disaster volunteer or relief aid experience. If you volunteered or provided aid longer than one day, please select the first day of your experience.

	Month	Day	Year
Please Select:	▼ January ... December	▼ 1 ... 31	▼ 1900 ... 2049

Q31 How long did you volunteer or provide aid following your most recent disaster volunteer experience? One day equals 8 hours of full-time work.

▼ Less than one day ... 61 days or more

state What U.S. state, district, or territory was your most recent disaster volunteer experience?

▼ Alabama ... I did not provide relief aid or volunteer within the U.S.

Q30 Which best describes the primary mode of transportation to your service location during your last disaster volunteer experience?

- Airplane
- Ferry/Boat
- Train
- Bus
- Automobile
- Micro-mobility (bicycle or scooter)
- Walking/Hitchhiking
- I was a remote volunteer and did not need to travel
- I already lived in the affected area/did not need to travel from out of town
- Other _____

Q32 Please provide a brief description of your primary role/function during the your last disaster volunteer experience? (i.e., food prep or distribution, debris removal, radio operator, logistician, animal care, evacuation shelter support, etc.).

Q33 Which best describes the level of responsibility or leadership role you had during your last disaster volunteer experience?

- General volunteer - no leadership responsibilities
- Small team or group leader
- Large team leader or section chief
- Manager or incident commander

Q34 Which best describes the level of training you received prior to or during your last disaster volunteer experience?

- I did not receive training prior to or during my volunteer service
- I received too little training prior to or during my volunteer service
- I received the right amount of training prior to or during my volunteer service
- I received too much training prior to or during my volunteer service

Q35 Which best describes your housing location during your last disaster volunteer experience?

- Campground/RV Park
- Civic building or school
- Church or religious building
- Hotel, Motel, or AirBnB
- Government Provided Temporary Workforce Housing (i.e., mobile trailers)
- Evacuation Shelter
- Friends or Family's residence
- I stayed in my primary residence
- Other _____

Q36 Did you have regular access to potable or drinkable water during your last disaster volunteer experience?

- Yes, I had access to potable or drinkable water provided by the local water authority
- Yes, I had access to potable or drinkable water, but only through bottled water or secondary filtered water systems
- No, I did not have access to potable or drinkable water

Q37 Did you have regular access to electricity during your last disaster volunteer experience?

- Yes, I had access to regular electricity provided by the local energy company
- Yes, I had access to regular electricity provided by a generator or battery systems
- No, I did not have access to regular electricity

Q38 During your last disaster volunteer experience, were you ever concerned about your access to food that met your dietary needs or restrictions?

- Yes
- No

Q41 During your last disaster volunteer experience, were you unable to serve a survivor due to bureaucratic processes, such as scope of work, paperwork filing, jurisdictional disputes, coordination problems, or other issues? If yes, please provide a brief description.

Yes _____

No

Q78 During your last disaster volunteer experience, did you participate in any social or relaxation activities with other volunteers outside of the regular workday?

Yes

No

Q79 Did you feel there was enough time to relax or socialize with other volunteers outside of the workday during your last disaster volunteer experience?

There was too little time dedicated to socialization or relaxation at the end of the workday

There was just the right amount of time dedicated to socialization or relaxation at the end of the workday

There was too much time dedicated to socialization or relaxation at the end of the workday

Q77 Since your last disaster volunteer experience, how have you maintained contact with people or organizations you met while volunteering? Select all that apply.

- Telephone Call
- Texting/Whatsapp
- Video Chat (Zoom, Microsoft Teams, Google Meet, Skype)
- Email
- Facebook
- TikTok
- Reddit
- Instagram
- Discord
- Nextdoor
- Organization or Community Specific Platform or Website
- In-person activities
- Other _____
- I did not maintain contact with people or organizations after my volunteer service

Appendix C

PERCEIVED STRESS SCALE - 4

For each sentence, select the number that describes how often it applied to you during your most recent experience volunteering following a disaster. Please select [0] Never; [1] Almost Never [2] Sometimes; [3] Fairly Often; or [4] Very Often.

1. Since your last disaster volunteer experience, how often have you felt that you were unable to control the important things in your life?
2. Since your last disaster volunteer experience, how often have you felt confident about your ability to handle your personal problems?
3. Since your last disaster volunteer experience, how often have you felt that things were going your way?
4. Since your last disaster volunteer experience, how often have you felt difficulties piling up so high that you could not overcome them?

Appendix D

PATIENT HEALTH QUESTIONNAIRE FOR ANXIETY AND DEPRESSION

For each sentence, select the number that describes how often it applied to you during your most recent experience volunteering following a disaster. Please select from the following options: [Not at all], [Occasionally], [Several days], [More than half of the days], or [Nearly every day].

1. How often were you bothered by feeling nervous, anxious, or on edge?
2. How often were you bothered by not being able to stop or control worrying?
3. How often were you bothered by little interest or pleasure in doing things?
4. How often were you bothered by feeling down, depressed, or hopeless?

Appendix E

MASTERY SCALE

How strongly do you agree or disagree that:

**STRONGLY
AGREE**

AGREE

DISAGREE

**STRONGLY
DISAGREE**

1. I have little control over the things that happen to me when I volunteer.
2. There is really no way I can solve some of the problems I have when I volunteer.
3. There is little I can do to change the many important things in my life as a volunteer.
4. I often feel helpless in dealing with the problems I have when volunteering.
5. Sometimes, I feel that I am being pushed around when I am volunteering.
6. What happens to me in the future as a volunteer mostly depends on me.
7. I can do just about anything I really set my mind to do.

Appendix F

ADAPTED TRAUMATIC EXPOSURE SEVERITY SCALE

Please select yes or no to the following questions based on your most recent disaster volunteer experience.

Resource Loss/Being in Need

1. As a result of the disaster, did you have to spend one or more nights somewhere other than your home?
2. Did you need aid after the disaster for yourself or your family (i.e., food, clothes, medical care, etc.)?
3. Did you suffer financial difficulties because of the disaster?

Damage to Home and Goods

1. Was your home damaged during the disaster?
2. Did you lose personal valuables because of the disaster?

Personal and Familial Harm

1. Were you physically injured during the disaster?
2. Were you physically injured while volunteering after the disaster?
3. Did you lose any family members, pets, or close friends during the disaster?
4. Were any family members, pets, or close friends physically injured during the disaster?
5. Was a family member or close friend buried trapped for a period of time due to the disaster?

6. Was there a period of time you were uncertain about the welfare of family members, pets, or close friends, and you were unable to establish contact or locate them?
7. Were any fellow volunteers injured while volunteering after the disaster?

Exposure to the Grotesque

1. Were you involved in immediate rescue work?
2. Did you see any injured persons or dead bodies during the rescue or initial clean up period?
3. Did you hear sounds and cries for help from trapped or injured individuals?
4. Did you experience the odor of dead bodies, mold, or decaying debris?
5. Did you listen to disaster survivor stories during your volunteer experience?

Appendix G

SOCIAL SUPPORT QUESTIONNAIRE – SHORT FORM

Part One Instructions: Read each statement carefully and answer the number of people that have provided you with support within the past year.

1. Whom can you really count on to distract you from your worries when you feel under stress?
2. Whom can you really count on to help you feel more relaxed when you are under pressure or tense?
3. Who accepts you totally, including both your worst and your best points?
4. Whom can you really count on to care about you, regardless of what is happening to you?
5. Whom can you really count on to help you feel better when you are feeling generally down-in-the-dumps?
6. Whom can you count on to console you when you are very upset?

Part Two Instructions: Select your level of satisfaction with the support you have received within the past year.

Table 13 Social Support Questionnaire Short Form – Part Two

Very dissatisfi ed	Dissatisfi ed	Somewha t Dissatisfi ed	Neutr al	Somewh at Satisfied	Satisfi ed	Extreme ly Satisfie d
--------------------------	------------------	----------------------------------	-------------	---------------------------	---------------	--------------------------------

Whom
can you
really
count on
to
distract
you
from
your
worries
when
you feel
under
stress?

0 1 2 3 4 5 6

Whom
can you
really
count on
to help
you feel
more
relaxed
when
you are
under
pressure
or
tense?

0 1 2 3 4 5 6

Who accepts you totally, including both your worst and your best points? 0 1 2 3 4 5 6

Whom can you really count on to care about you, regardless of what is happening to you? 0 1 2 3 4 5 6

Whom can you really count on to help you feel better when you are feeling generally down-in-the-dumps? 0 1 2 3 4 5 6

Whom can you count on to console you when you are very upset?	0	1	2	3	4	5	6
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Appendix H

BRIEF RESILIENT COPING SCALE

Please read each item below and indicate by using the following rating scale to what extent you used it during your most recent experience volunteering after a disaster:

Table 14 Brief Resilient Coping Scale

	Does not describe me at all	Does not describe me	Neutral	Describes me	Describes me very well
I look for creative ways to alter difficult situations	1	2	3	4	5
Regardless of what happens to me, I believe I can control my reaction to it	1	2	3	4	5
I believe I can grow in positive ways by dealing with difficult situations	1	2	3	4	5
I actively look for ways to replace the losses I encounter in life	1	2	3	4	5

Appendix I

ADAPTED VOLUNTEER SATISFACTION INDEX

Table 15 Adapted Volunteer Satisfaction Index Scale

	Very Dissatisfi ed	Dissatisfi ed	Somewh at Dissatisfi ed	Neutr al	Somew hat Satisfie d	Satisfi ed	Very Satisfi ed
My relationship with other volunteers	1	2	3	4	5	6	7
The friends I have made while volunteering	1	2	3	4	5	6	7
The way in which other members of the organization relate to me	1	2	3	4	5	6	7
The chance to receive additional skills/training	1	2	3	4	5	6	7

How appreciative clients are of our help	1	2	3	4	5	6	7
Relationship with the paid staff members	1	2	3	4	5	6	7
My ability to do this volunteer job as anyone else	1	2	3	4	5	6	7
How worthwhile my contribution is	1	2	3	4	5	6	7
The progress that I have seen in the disaster recovery	1	2	3	4	5	6	7
The level of challenge this volunteer job provides me	1	2	3	4	5	6	7

The accuracy of the information I was given related to my volunteer role	1	2	3	4	5	6	7
The chance I have to utilize my knowledge and skills	1	2	3	4	5	6	7
The degree to which I feel I belong in the organization	1	2	3	4	5	6	7

Appendix J

STATEMENT OF INFORMED CONSENT

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Title of Study: University of Delaware: Short-Term Volunteer Stress Following Disaster Response Deployments

Principal Investigator(s): Roni Fraser, MA

Important aspects of the study you should know about:

Purpose: The purpose of the study is to understand the stress and well-being effects of volunteering after a disaster.

Procedures: If you choose to participate, you will be asked to take a survey with questions about your experience with volunteering following a disaster, including questions around topics like demographics, volunteer motivations and history, disaster deployment experience, volunteer stress, and coping resources. Questions will be multiple choice and open-ended.

Duration: This will take about 15-20 minutes.

Risks: The main risk or discomfort from this research is that you will be asked to recall your personal disaster experience and experiences volunteering after a disaster.

Benefits: The main benefit to you from this research is the chance to share your experience and contribute to the overall research on volunteer mental health and wellbeing.

Costs and Compensation: If you decide to participate in this study, there will be no additional cost to you. Participants may wish to enter the drawing for one of ten \$20 e-gift cards at the end of survey by providing their email. Participants do not have to enter if they choose not to. If participants would like to enter the lottery, you must indicate at the end of the survey you would like to enter and provide a valid email address. The drawing will be conducted within 14 days after the survey closure to allow time to sort data and check for bot and false replies. Winners will be notified via

the email by the primary investigator, Roni Fraser (rfraser@udel.edu) if they were chosen for one of the e-gift cards as compensation for their participation in this study.

Participation: Taking part or not in this research study is your decision. You can decide to participate and then change your mind at any point. You can also skip questions that you do not wish to answer. Skipping some questions does not disqualify you entering the e-gift card lottery.

Contact Information: If you have any questions about the purpose, procedures, or any other issues related to this research study you may contact the Principal Investigator, Roni Fraser at rfraser@udel.edu.

CONSENT TO PARTICIPATE IN THE RESEARCH STUDY:

I have read and understood the information in this form, and I agree to participate in the study. I am 18 years of age or older. I understand that I can contact the PI, Roni Fraser at rfraser@udel.edu to ask questions about this study. I understand that I can print a copy of this form for my records.

Yes, I agree to participate (proceed to survey)

No, I do not wish to participate (exit survey)

Thank you for completing the survey!

If you or someone who know may be experiencing a mental health crisis or suicidal ideation, there is support available:

- [The Disaster Distress Helpline](#): Call or text 1-800-985-5990 to connect with a trained crisis counselor experienced stress, anxiety, and depression following natural and human induced disasters. For

deaf or hard of hearing individuals, accessible ASL visual helpline can be accessed [HERE](#).

- [The 988 Suicide and Crisis Lifeline](#): Call or text 9-8-8 (TTY: Use your preferred relay service or dial 711 then 9-8-8.)
- [Crisis Text Line](#): Text 741741, free 24/7
- [2-1-1, option 8](#) for free general assistance and resources, including food/nutrition, housing, immigration, mental health, and more.
- [Veterans Crisis Line](#): 9-8-8, press 1.

Recommend Apps for Managing Stress and Crises:

- ASK & Prevent Suicide – Easy steps to preventing suicide ([iTunes](#)) ([Google Play](#))
- Breathe2Relax– Stress management tools and exercises ([iTunes](#)) ([Google Play](#))
- Self-help Anxiety Management – Helps people manage anxiety ([iTunes](#)) ([Google Play](#))
- Suicide Safer Home – Practical tips for parents and caregivers ([iTunes](#)) ([Google Play](#))
- Texas Veterans – Access local, state and national resources ([iTunes](#)) ([Google Play](#))
- Virtual Hope Box – Stores personal messages, information and pictures to promote mental wellness and crisis support ([iTunes](#)) ([Google Play](#))

Appendix K

IRB APPROVAL LETTER



Institutional Review Board
210H Hulihan Hall
Newark, DE 19716
Phone: 302-831-2137
Fax: 302-831-2828

DATE: October 2, 2023

TO: Roni Fraser, MA
FROM: University of Delaware IRB

STUDY TITLE: [2092961-1] Exploring the Mental Health Impacts of Short-Term Disaster Volunteerism
SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS
EFFECTIVE DATE: October 2, 2023

REVIEW CATEGORY: Exemption category # 2(i)

Thank you for your New Project submission to the University of Delaware Institutional Review Board (UD IRB). According to the pertinent regulations, the UD IRB has determined this project is EXEMPT from most federal policy requirements for the protection of human subjects. The privacy of subjects and the confidentiality of participants must be safeguarded as prescribed in the reviewed protocol form.

This exempt determination is valid for the research study as described by the documents in this submission. Proposed revisions to previously approved procedures and documents that may affect this exempt determination must be reviewed and approved by this office prior to initiation. The UD amendment form must be used to request the review of changes that may substantially change the study design or data collected.

Unanticipated problems and serious adverse events involving risk to participants must be reported to this office in a timely fashion according with the UD requirements for reportable events.

A copy of this correspondence will be kept on file by our office. If you have any questions, please contact the UD IRB Office at (302) 831-2137 or via email at hsrb-research@udel.edu. Please include the study title and reference number in all correspondence with this office.

INSTITUTIONAL REVIEW BOARD

www.udel.edu